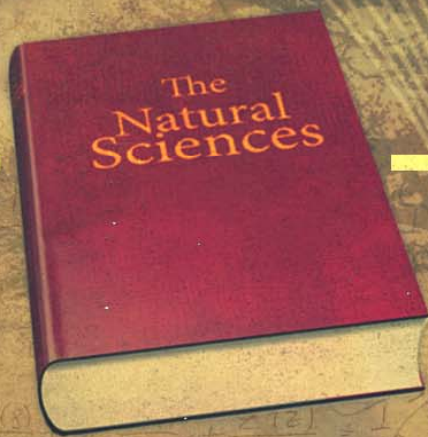


GOD'S TWO BOOKS

Integrating Science and Scripture



LOGOS 2011
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KENMORE BAPTIST CHURCH // LOGOS MINISTRY: 13 MARCH, 2011

SMALL GROUP DISCUSSION GUIDE

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Tough questions always come when least expected. They put you on the spot. They make you sweat over your intellectual, ethical, and emotional responses to pressing problems that you know are important—wars, poverty, humanity’s origin, God’s existence, globalization, climate change, other religions, eternal destiny—just you planned to think out a well reasoned response over a smooth latté when spare time presented. Sadly, the time never came, and so here you are again, unsure and uncomfortable.

Maybe I’m speaking for you. I’m certainly speaking for myself! As a Christian apologist—that is, one defending and commending the Christian faith as plausible—I’ve often found myself sweating it over a tough question or three coming from left-field, usually while in front of a senior high class, all the while trying to point people to Jesus.

But sadly, for many of us, fear of being unable to answer these tough questions gives us an excuse not to talk about our faith. How many conversations have you avoided because you were afraid that you might be faced with a tough question?

John 1:9 tells us that Christ is the true light that gives light to every person. This is a cornerstone verse for the LOGOS ministries. We are about sharing the light of Christ with others by commending and defending our Christian faith, and equipping our brothers and sisters in Christ to do the same.

This study guide is designed to be used in your small group as a follow on from the message ‘God’s Two Books: Integrating Science & Scripture’. You can download the speaker’s notes & slides, an audio of the message, as well as a number of other resources from the following link: <http://logos.kbc.org.au/blog/resources/logos-talks/gods2books/>. At times in this study we’ll be referring to the points made by the panel, so make sure if you weren’t at one of the messages, you check out this site!
- the LOGOS Team

Take it to God

As you open this study, take a few minutes to **commit yourself and your group to God**. Ask the Holy Spirit to search your heart and reveal any sin or blockages keeping you from experiencing God’s manifest presence. Ask for Godly wisdom and discernment thought this study, and commit yourself to honouring Him both throughout this study and as you apply what we talk about to your life.

Talking Point

Has everyone in the group seen at least one of the presentations of ‘God’s Two Books: Integrating Science & Scripture?’ (8/10am; 5pm on Sunday, 12 March 2011)? If there is anyone who hasn’t seen it, the group can summarise it for them, or the video is available from the KBC office or you can download the audio at the link above.

What was your initial response to the message? What made best sense to you? What made the least sense? Did you think there was anything missing? How would you have responded to the questions asked of the panel?

Take a few minutes to share your thoughts with the group.

The Big Idea

When the average person in our post-modern society hears Christians talking about science, they assume that we are against it. The stereotype is that Christians are fanatical, stubborn, people who denounce science and insist on blind, unreasonable faith in God. Popular media, such as Dan Brown’s *Angels & Demons*, reinforce this stereotype.

How many of you have ever had a conversation with a non-Christian about science? How did it go?

The Big Idea

The “religion vs science” stereotype isn’t helped by the fact that many Christians feed into it with dogmatic but uninformed arguments for a literal 6 day creation account and proof of a young earth. We so easily fall into the trap, in so many areas, that it’s an “us” versus “them” dichotomy. Creation vs Evolution; a young Earth vs an old; 6 days of Creation vs the Big Bang and billions of years. Science vs Religion.

We miss the truth that God created science. He created the law of gravity; laws of thermodynamics; physics, mathematics; all are reflections of our amazing, infinite God. It’s not about science versus religion. Science and religion are complementary. The fathers of science – men like Copernicus, Galileo, Kepler and Isaac Newton were Christians. They believed that by studying nature, they could learn about the God who created the natural order. In fact the founder of almost every scientific discipline was dedicated to, and inspired by, God’s book of Scripture. Both Scripture and Science make sense of the world. So how do we integrate them?

Throughout this study and in the accompanying message we will look at some of the most common misconceptions and objections that keep science and faith at loggerheads in the minds of most people, and ways that we can help to integrate them for the glory of God.

Talking Point

Think back to the conversations we’ve just recalled with a non-Christian about science. Unless you’ve studied science yourself, chances are you were confronted with things like natural selection, red shift, Richard Dawkins or Stephen Hawkins and felt overwhelmed.

When we dialogue with non-Christians about Christianity, our goal should not be to prove them wrong, or beat down their arguments. We are ministering Christ’s light and love to them by our words and our demeanour, not by winning an argument.

We don’t need to ‘beat’ scientific objections, or ridicule science to glorify God; in fact doing so actually brings God’s name into disrepute. Science and Scripture can integrate; they both point to God.

Brainstorm as a group ways that you can dialogue with a non-Christian about science, in a way that honours God and glorifies Him.

Our aim in dialoguing with someone about our faith should never be to win an argument. Archbishop Fulton Sheen is famously quoted as warning that we may “win the argument [but] lose the soul.” Whenever we engage in an apologetic discussion, this is a great danger we need to be aware of.

Take some time now to seek God, asking Him to open our hearts and minds to His love. Seek the help of Christ, the gentle Lamb, to be wise as serpents yet gentle as doves; slow to speak and quick to listen when we are engaging with people who don’t know Him. May our conversation and lives be seasoned with salt and bright lights as we share our faith and answer tough questions.

The Big Idea

One of the key points that Tammy talked about was how we can trust what the Book of Genesis says, despite the fact that it was written so long ago.

It’s so easy to fall into the trap that because Genesis was written so long ago, by unsophisticated people who didn’t possess the scientific understanding that we as a society do today, that the information there is archaic and outdated.

This is a trap, because it’s a loaded question. It assumes that Genesis was written from human knowledge alone; it assumes a natural explanation and ignores the possibility of any supernatural intervention or insight. Yet the Bible makes the claim it was inspired by God; and as such, what the authors could not know for themselves was revealed to them by God.

This completely changes the question of credibility! From this viewpoint, we should expect Genesis to bear the signature of divine authorship. And it does. It grounds what we know from science and psychology.

Part of that signature is the cohesiveness of Genesis with the rest of the Bible – it sets the scene, and everything that comes after, from the exodus from Egypt, the birth & death of Christ and the prophecies in revelation, hangs on the events of Genesis.

Talking Point

Read through Genesis chapters 1-3 as a group. As you are doing this, note down anything that you think explains part of human nature or the world we live in.

Look back over your notes and share them with your group.

Science can explain many things in our world – why objects fall when we drop them; or where rain comes from. The Scriptures don’t often address these sort of questions. That doesn’t prove them wrong. Science can’t answer questions like, why do we love; why do we inherently believe in right and wrong. The Scriptures do – but that doesn’t prove science wrong either. Nature and the Bible are God’s two books, meant to be read in conjunction with one another.

“But science has proven that God doesn’t exist!”

“Science has killed God”.

We’ve all heard variations of this claim at one point or another. It seems persuasive when we look at all the advances science has made.

Break into smaller groups and prepare a short (~1min) response to the statement “science has proven God doesn’t exist” (keeping in mind that we are not anti-science!) and present them to the whole group. What do you think are the best responses to this claim?

Listen to the audio of Bruce’s answer to this hypothesis from the “God’s Two Books” message (or look at the PowerPoint/discussion guide & notes) and jot down the key elements in his argument for God’s existence.

The Big Idea

But Christians insist that the Bible is literal, right? If Genesis is a literal account, doesn’t that mean a 6 day period of creation, and that the Earth is only about 6,000 years old? That’s clearly contrary to what science has proven. Isn’t it?

If you ask a dozen professing Christians this question, you’re likely to get a dozen differing answers. This isn’t a cop out. There are a range of views and interpretations of the creation story. The interpretations at opposing ends are:

1. Genesis as a mythic-poetic account → the universe and our planet are billions of years old and life has slowly evolved over millions of years to all that we see today. This account has been around since the time of St Augustine, roughly 1500 years before the scientific theory of evolution
2. Genesis as a literal/historical account → God created the universe in six 24 hour days roughly 10,000 years ago, and created life fully complete in only days. This is arguably the orthodox Christian view across history. There is a growing movement among a number of scientists, in response to weaknesses within the naturalistic scheme, to adopt this view

A frequently adopted middle ground is that God guided the process of evolution of life from a cell to the biodiversity we see today and some Christians contend he injected information into the evolutionary process. This is particularly common among scientists convinced that this world reflects *Intelligent Design*.

Regardless of the view you take on the precise mechanism of creation, what *is* important is to realize that all views of Genesis agree on the central points:

- the universe exists because of God,
- it’s a good world we are called to cultivate,
- yet by rejecting God and going it alone, everything has ‘fallen’

Take a few moments to reflect on what we've just read. Chances are that even within your group, you'll find that people hold different viewpoints on the Genesis creation account. We often feel that talking about these views is taboo, because they can be seen as causing disputes.

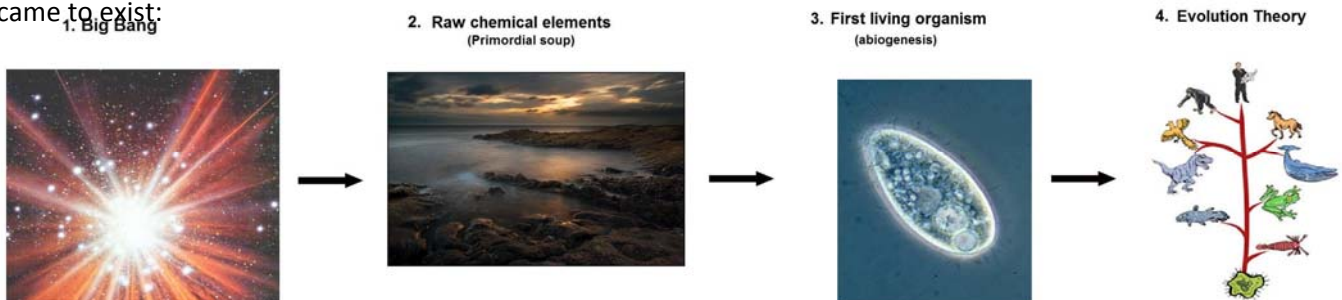
The opposite should be the case; its through discussion and sharing of ideas that our minds are opened and we learn. After all, we are meant to use our minds to honour God (Matthew 22:37). Take some time to share which views you each take of the creation account. Talk about why you hold those views, and keep an open mind when listening to opposing views.

The Big Idea

But the Grand Theory of Evolution (GTE) means that God isn't required! A naturalistic explanation is sufficient; a supernatural one is unnecessary. Right? Not necessarily.

These objections presuppose that naturalistic theories of evolution ('naturalistic' meaning 'nature only' without reference to God) are sufficient to explain all the data. Search a little deeper, though, and you'll discover that there are many questions surrounding the mechanism; even leading naturalists admit the problem of life's origin.

Dave spoke in the message to the following diagram, which overviews the current scientific models for how life came to exist:



The GTE is a naturalistic scheme to explain the physical world, and it involves the following process:

The Big Bang (origin of the universe) →

First Living Cell (life begins from non-life: "abiogenesis") →

Organic Evolution (simple to complex organisms)

The process of *abiogenesis* is the problem. Scientists currently do not have an accepted answer to how life formed after the big bang. Several promising ideas have been suggested, but there is no decisive evidence pointing unmistakably to any one.

At this point, *evolution* cannot account for how life began—how raw chemical material sparked a living cell. The Creation account – that God created life – best fits the origin of coded information such as seen in DNA.

Talking Point

Evolution has been touted as the nail in God’s coffin; Darwin made it possible to be “an intellectually fulfilled atheist.” Yet, no naturalistic process is known that can answer the question, “How did life begin?” Further, the complexity involved makes it exceedingly improbable—statistically impossible—that it happened by chance.

Take some time to share with others in your group what impact this realisation has on your understanding of evolution? How would you respond now to someone who challenged you with the proposition “evolution means that God isn’t required!”?

Try This

Listen to the audio of Dietmar’s explanation of articular cartilage, and how its complexity is a signpost in nature to the fact that something *that* complex must of necessity be designed, rather than generated by chance. What impacted you most in his answer?

Challenge

One can read the Scriptures and conclude that science is wrong, and draws people away from God. One can read a science text and conclude that religion is nothing more than false hope. One can come away with the conclusion that science and Scripture are enemies.

But you would be wrong. Whether you are looking through a microscope at cells, through a telescope at the stars, leafing through the Scriptures or just sitting under a tree and enjoying creation, you reach the same conclusion: we live in a wonderful world. And we have good reason to believe that this is *God’s* wonderful world.

Can we prove God forms us? Can anyone prove God didn’t form us? No, on both counts. We are limited to a view from below, and ‘proof’ is beyond our reach.

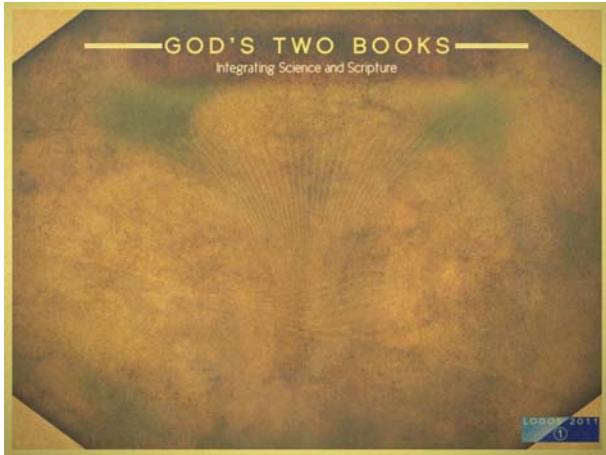
But, as we study the book of Nature, and read the book of Scripture, we find the two travelling hand in hand. Nature gives the appearance of having been designed for a purpose, because it *was* designed for a purpose. The beauty, the complexity, the fine-tuning ... it all points to a Creator.

And so we read the Bible. It claims to be inspired, offering a view from above. It fits what we know of the physical world. And it directs our gaze to something higher.

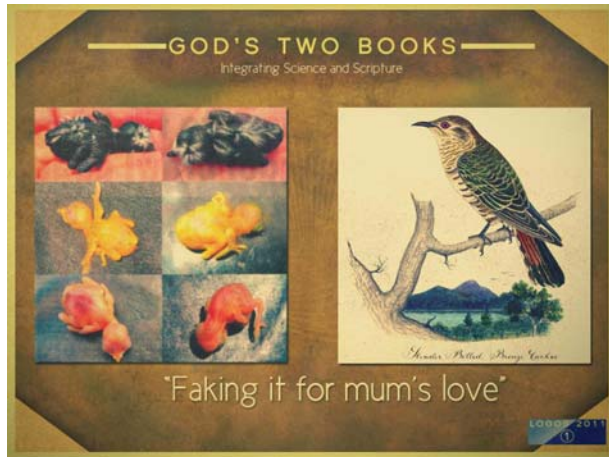
Over the next month, take the time to read one or more books in the reference list (pp. 24-27), and search it out for yourself. And as you do, may Nature lead you to wonder, and may Scripture lead you to worship.

GOD'S TWO BOOKS

Integrating Science and Scripture



DRAMA: SUNDAY SCHOOL SCEPTICS



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.

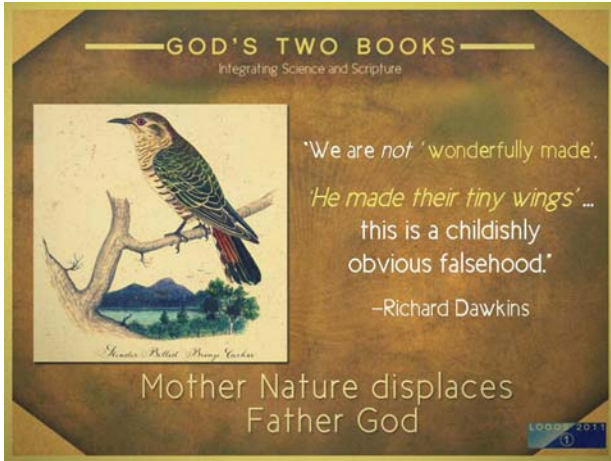
God’s two books, Scripture and Nature, hand in hand.

But times have changed.

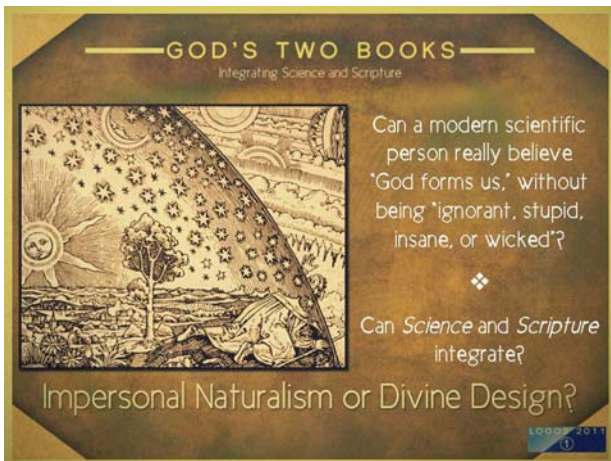
As Galileo said, God’s first book is about how to get to heaven, not how the heavens go.

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?



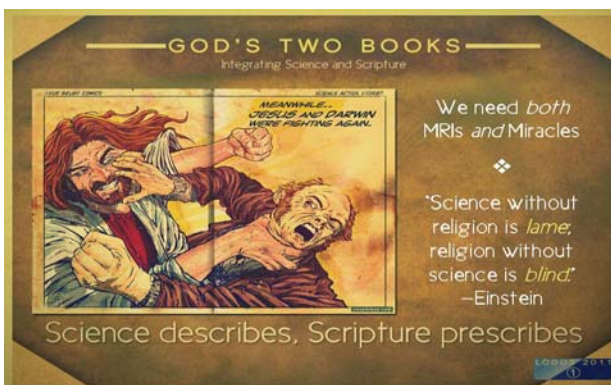
So, back to the Cuckoo. I want to thank God, but I'm torn. I live in a world where this creative force has a different name. As the article asserted, this is a remarkable *evolutionary* trick. An impersonal *Mother Nature* displaced *Father God*. As famous naturalist Richard Dawkins asserts, "We are *not* 'wonderfully made'." 'He made their tiny wings'?!—"this is a childish 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?*



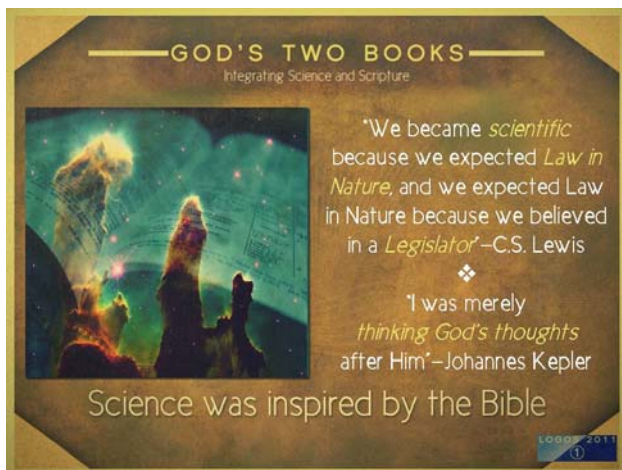
Some say 'no'. Extremists on both ends picture a battle between science and faith: Jesus and Darwin in a punch up. "One party stands immovable on Scripture and the other immobile on the periodic table."² But natural science merely *describes* the world—what *is*. What *ought* I to do, and *how* shall 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."

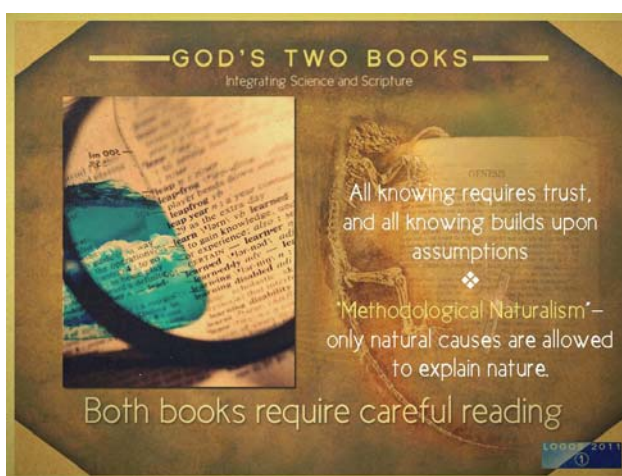
¹ Richard Dawkins, *The Greatest Show on Earth: The Evidence for Evolution* (New York: Free Press, 2009), 212-13.

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>.

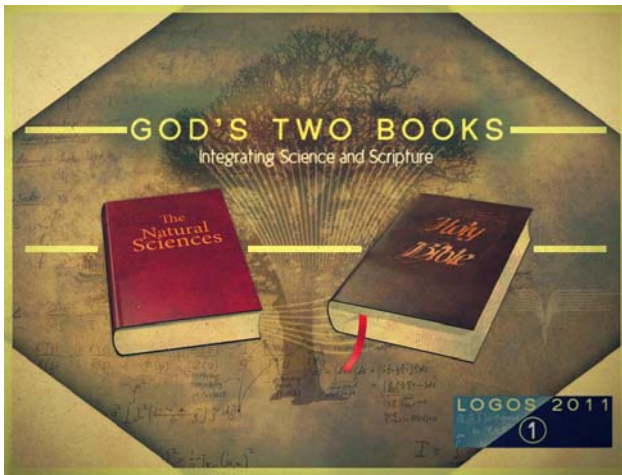
⁵ C. S. Lewis, *Miracles: A Preliminary Study* (New York: Macmillan, 1947), 109.

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*.

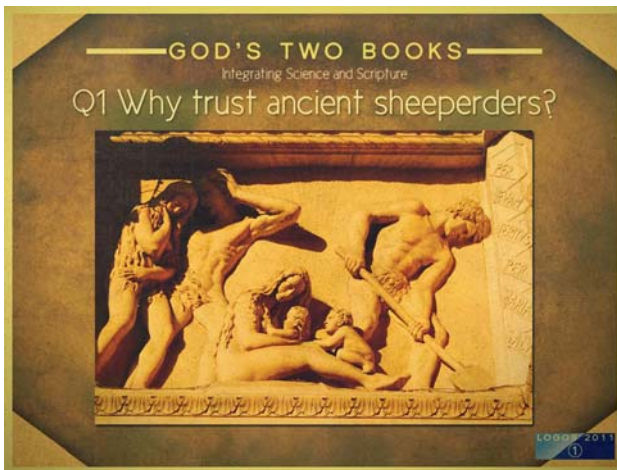
⁸ William Dembski, *The Design Revolution: Answering the Toughest Questions About Intelligent Design* (Downers Grove, IL: InterVarsity Press, 2004), 173-77.

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.

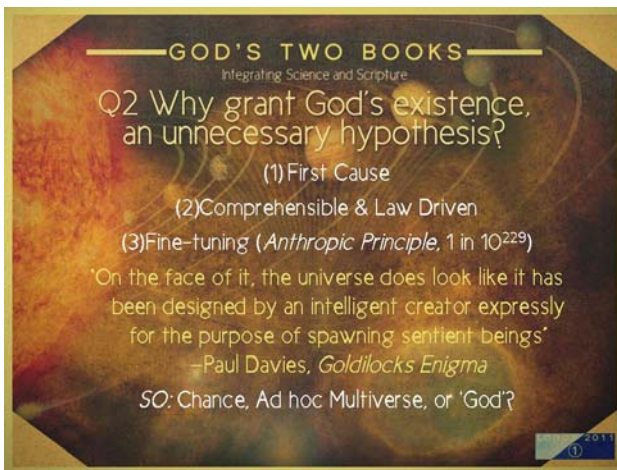
The way the Bible centers on the inbuilt human desire for love and relationship is unique.

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.

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.

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.

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:

"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).

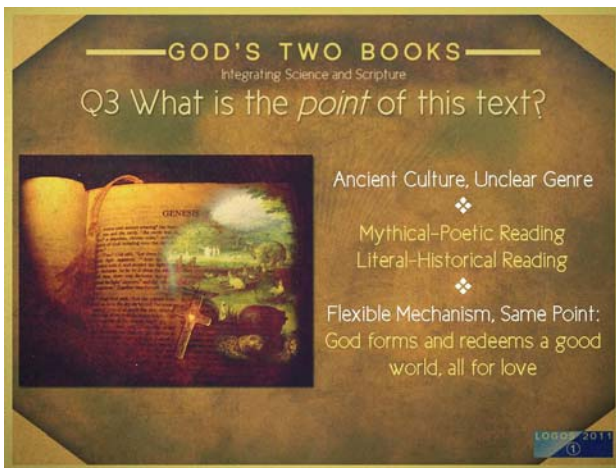
The second proposes an almost infinite number of universes, known as the multiverse. We just happen to be in one suitable for life.

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: RICKY GERVAIS ON THE BIBLE

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?

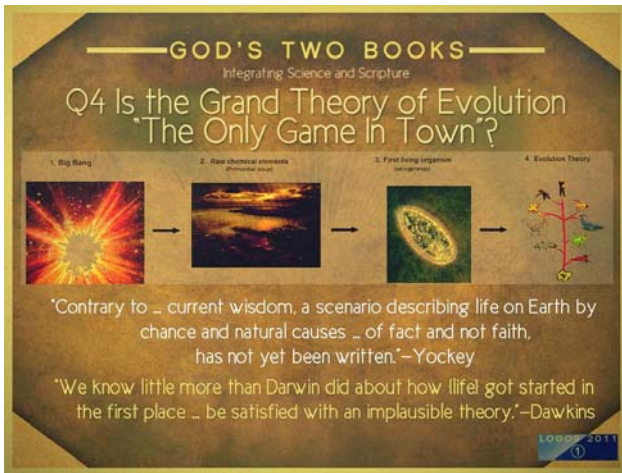
Now there are a range of views and interpretations of the creation story we find in the Genesis. The dominant view today is that the universe and our planet are probably many billions of years old and that life has slowly evolved over millions of years to be all that we see today. Christians who hold 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.

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.

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.

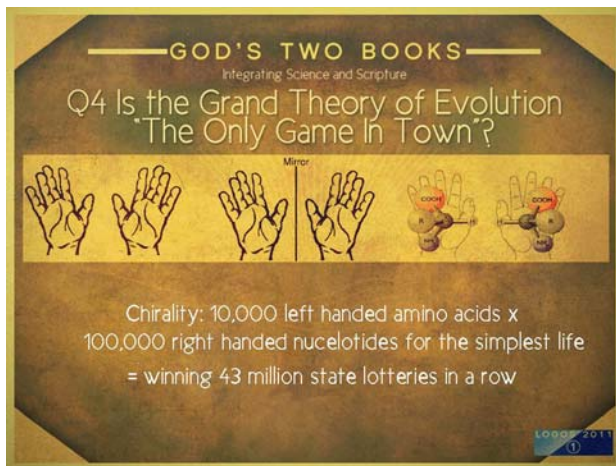
Dr Hubert Yockey states in his article published in the *Journal of Theoretical Biology*, "One must conclude that, contrary to the established and current wisdom, a scenario describing the genesis (or beginning) of life on Earth by chance and natural causes, which can be accepted on the basis of fact 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

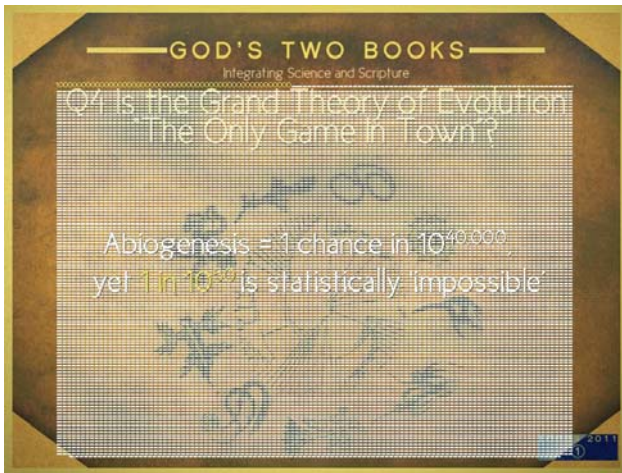
mirror images of each other. Now the same can be shown of amino acids. There are two basic shapes, ‘right-handed’ amino acids and ‘left handed’ amino acids, which are mirror images of each other. Even the simplest organisms such as bacteria contain no less than 10, 000 amino acids and 100, 000 DNA nucleotides. 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.

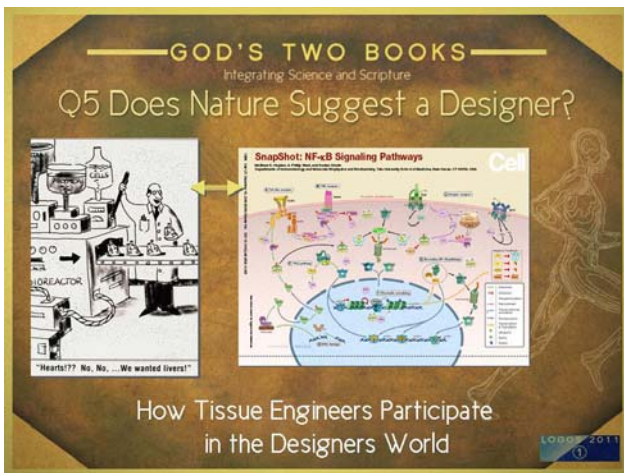
¹⁶ Ralph Muncaster, *A Sceptics Search for God* p. 98.



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.

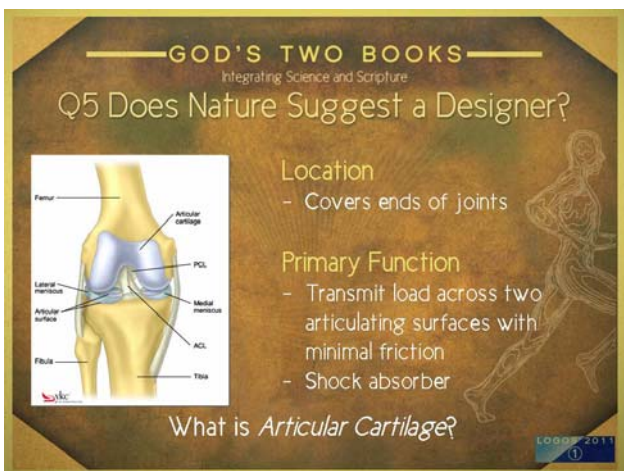
¹⁷ Fred Hoyle and N. Chandra Wickramasinghe, *Evolution from Space* (Aldine House, London: J.M. Dent & Sons, 1981), p. 24.



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?

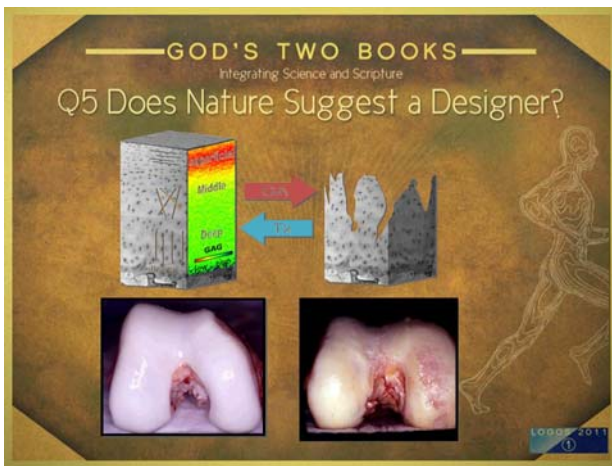
Good Morning Congregation! It is good to be back on the LOGOS Team for today's sermon to talk about a topic, which occupies my thoughts and prayers since I turned 18, namely is it possible that we are created based on "Intelligent Design" or I would rephrase it "Supernatural Design". As you might remember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



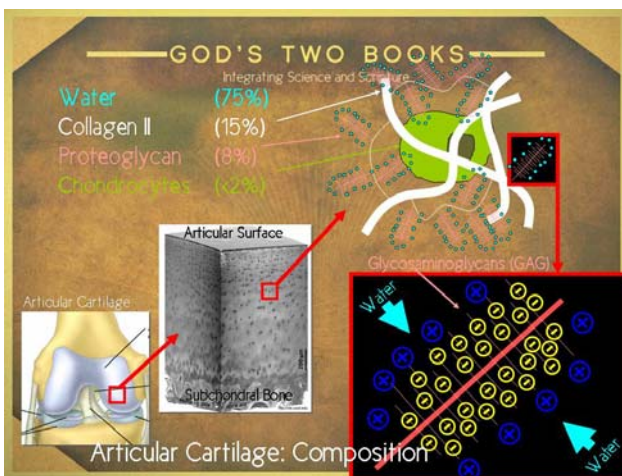
Articular cartilage is a load-bearing tissue that covers the ends of our joints and functions as mechanical damper for the bones. Even in a harsh mechanical environment, it demonstrates excellent properties. Articular cartilage is a hydrogel-like, matrix-rich tissue that contains only 5 – 10 % of highly 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.



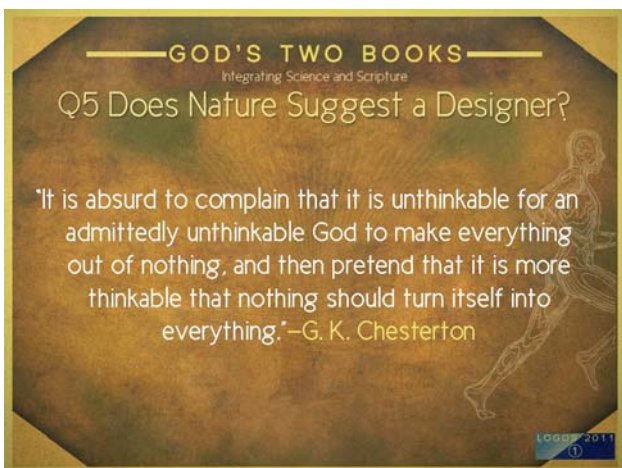
In the superficial zone, the collagen network is aligned parallel to the surface, providing high tensile strength, whereas the glycosaminoglycan (GAG) content is low, resulting in compliant compressive properties. In this zone, the chondrocytes secrete proteoglycan named lubricant, a molecule important 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.

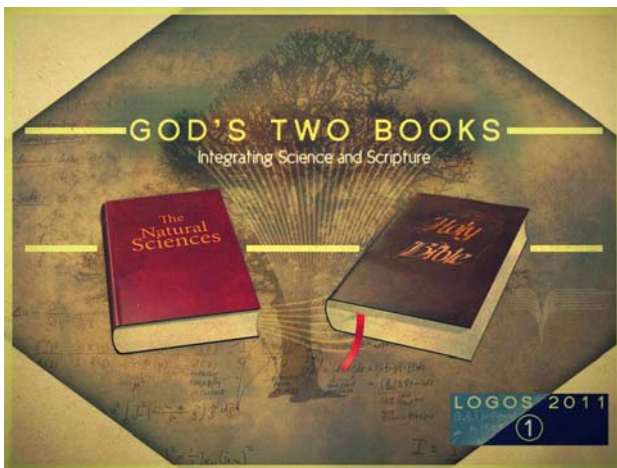


As a scientist and believer I can fully agree with the statement of G.K Chesterton spoken to Darwin and his followers:

"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

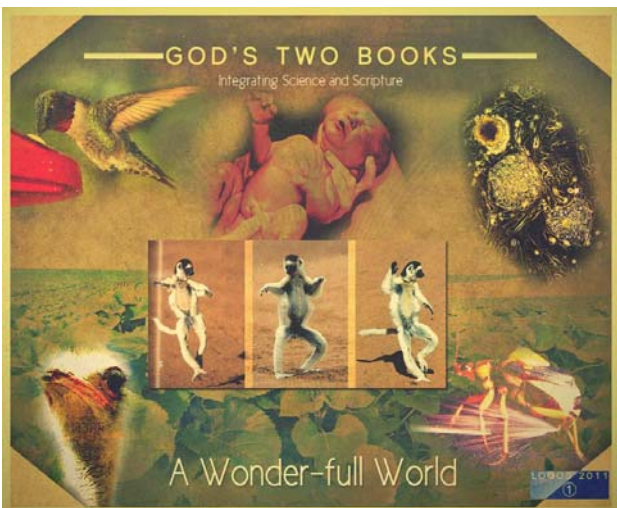
Hhmm. Glycosaminoglycans are running low. Fascinating.



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

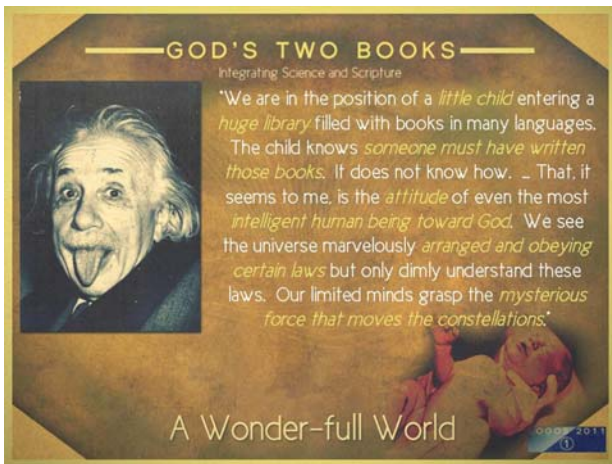


Science and Scripture are eternal enemies if you don't know how to read Nature—if you rule out God's existence before you even look at the evidence. And Science and Scripture are eternal enemies if you don't know how to read the Bible—if you ignore that Genesis was written to an Ancient Culture, who 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.

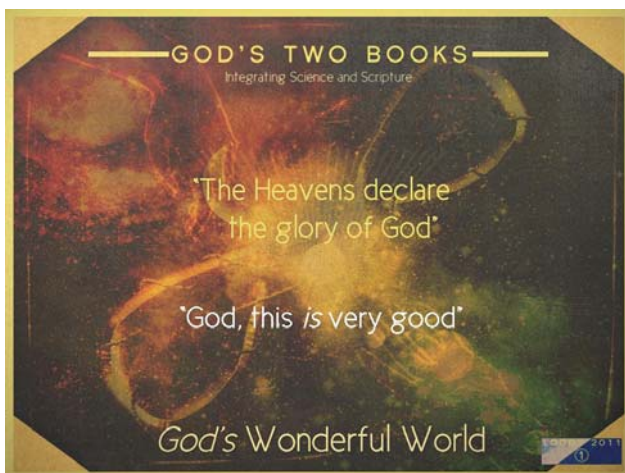
¹⁸ See René Breuel, "Do Science and Religion Contradict One Another?" <http://wonderingfair.com/2011/02/21/do-science-and-religion-contradict-one-another/>.



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.

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.

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 reflect on this during this clip.

VIDEO CLIP: "INDESCRIBABLE"

RESOURCES TO DIG DEEPER

Tight on time? ... If you'll read only *one* book, check out the journey of the 20th Century's most esteemed atheistic philosopher toward God, based on cosmological fine-tuning and DNA evidence ...

Flew, Antony, and Roy Abraham Varghese. *There Is a God: How the World's Most Notorious Atheist Changed His Mind*. New York: HarperOne, 2007.

For a second broad-sweeping book overviewing this complex issue, check out ...

Strobel, Lee. *The Case for a Creator*. Grand Rapids, MI: Zondervan, 2004.

Or, for a more nuanced case by a double PhD Oxford Professor, see ...

Lennox, John. *God's Undertaker: Has Science Buried God?* Oxford: Lion Books, 2009.

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Q4. How sure is naturalism?

(See footnotes within the manuscript, and Dave White's more detailed appendix within these notes, pp. 29-42. For a young earth creationist position on the findings of contemporary science, see <http://creation.com> and *Creation Magazine*. Additionally, consult the following sources.)

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Thought Provokers: Stuff to Shape Your Understanding of Scripture and Science

"How can I believe the Bible is God's Word?" ... Brendan White reflects

Let me share with you the six top reasons I have find most convincing. First, the Bible **claims to be** God's word which is a useful start. Second, the Bible as a piece of literature is totally unique in so many ways. It is a compilation of 66 books, by over 40 different authors, written over fifteen hundred years in three different languages. Despite this the Bible shows an astonishing unity in presenting one message of God's attempt to restore humankind. As if this wasn't enough, it is unique in being by far the best selling piece of literature in human history and has been translated into more languages than any other written work and has survived more attempts to ban, destroy, or intellectually undermine its existence. For these reasons, it undeniably **unique**, and that is to be expected if it is of divine origin.

Third, the Bible contains remarkable evidence of **fulfilled prophecy**.¹⁹ Hundreds of Bible prophecies have been fulfilled, specifically and meticulously, often long after the prophetic writer had passed away. The existence and history of Israel is an amazing example. Most striking are the fulfilled prophecies of the life, ministry, death, and resurrection of Jesus. In the Old Testament there are approximately sixty major messianic prophecies and 270 ramifications that were fulfilled in one person, Jesus of Nazareth.

Fourth, if the Bible is God's Word, it **should be true** in what it teaches. Where the Bible speaks to what happened in history that is something that can be verified as true. When it speaks to an issue relating to science we find something observable. Because the Bible details historical events, its truthfulness and accuracy are subject to verification like any other historical document. Through both archaeological evidences and other writings, the historical accounts of the Bible have been proven time and time again to be accurate and true. In fact, all the archaeological and manuscript evidence supporting the Bible makes it the best documented book from the ancient world. This is even more amazing when you consider that the Bible contains advanced scientific and medical knowledge that was breathtakingly ahead of the ancient world it was written in. All through the first five books of the Bible, God provided the Israelites with wise and beneficial laws to protect health. Other scientific examples include how the bible alludes to a suspended and spherical earth, to the vast number of stars, and to subterranean ocean currents.

Fifth, the Bible contains amongst other things, a great deal of teaching about **how a person may best live**. Stealing is said to be wrong and giving is said to be good. If the Bible is God's Word then these teachings must be true. So people can test the truth of the Scriptures by applying its teaching to their lives. So when the Bible teaches that it is better to give than to receive, that's something we can practically do, to decide for ourselves if the teaching is transformative. It is precisely because of this that the Bible remains one of the most important documents in the history of civilization. The Bible has transformed numerous cultures such as by the abolition of slavery in western society and the ending of cannibalism in the Pacific. The Bible also beneficially changes the lives of individuals. I'm sure we can all recall stories and testimonies of people who were criminals, drunks, prostitutes, or just down and out, who turn to the Bible and find their whole life renovated.

On a person level I find it quite satisfying that the Bible has both verities and mysteries in it—that it is full of things we can verify, and it contains other things that leave us standing in wide-eyed wonder. Reason gives us confidence; revelation gives us hope. The Bible speaks to us with both.

¹⁹ See <http://www.christiananswers.net/dictionary/prophecy.html> for some examples. See <http://www.christiananswers.net/dictionary/prophet.html> for a definition of a prophetic writer.

"Why Trust Naturalistic Evolution?" ... Musings on the Mechanism, by Dave White

Little attention is given to scientific evidence that does not fit with the theory of evolution, and in fact, often people are unaware that any such evidence exists at all. Many Christians are also uninformed about the key mechanisms underlying evolutionary theory. As such, the following document is intended to inform readers about the basic concepts of evolution theory, and provide additional information to anyone who is interested in a self-directed investigation of evidence supporting an alternate scientific view.

It is by no means a complete or comprehensive discussion, and is not intended as an argumentative essay, but merely a basic resource providing triggers for further discussion, thought and research. Furthermore, it does not claim to be scientifically technical. The scientific concepts are deliberately explained using the simplest language possible to convey the basic concepts. Many technical objections and issues have not been addressed as they are beyond the scope of this document's purpose. Of course, like any evidence, especially when it relates to events in the past, the following are not claimed as absolute conclusions, but require interpretation. They are listed here merely as examples worth considering. Many of the concepts are taken from other books, all of which are referenced or found in the resources at the end of this document. If you would like to contact the author of this resource, or know more, please see the end of the document.

Some of the topics that will be covered:

- What exactly does Darwinian evolution propose?
- Are there any valid scientific criticisms of it?
- What about ape-men?
- What about carbon dating?
- Is there any scientific evidence the Earth is younger than billions of years?
- Where can I go if I want to know more?

Defining Evolution (natural selection and mutations)

Whatever your belief about science, it is important to define scientific terms consistently. Perhaps there is no scientific term more widely known and yet more ambiguous, than the word evolution. It is often thrown about in heated discussions, in the media and many books. The term 'evolution', however, has a variety of different intended meanings and interpretations, and if we are not careful it may lead to gross miscommunication and misunderstanding. Now more than ever, with evolution proposed as the only scientifically sound explanation of life, it is therefore imperative to understand exactly what it is the scientific establishment is proposing, and what specifically some Christian groups disagree with.

The first thing to understand is that any concept of organic evolution does *not* deal with the origin of the universe (cosmology), nor the origin of life (abiogenesis). Evolution is concerned with how life diversified, or developed, from simple to more complex. Evolution therefore does not provide us with a complete explanation of our existence, as it does not attempt explanation of how the universe or life began. The Grand Theory of Evolution (GTE) is extended to take in these elements.

Evolution involves changes in genetic composition over time, in other words, it involves changes in the genes (DNA) of living organisms. The genetic changes fall broadly into two categories termed 'microevolution' and 'macroevolution'. *Microevolution* is the gradual change of genetic information at the molecular or microscopic level. For example, a bacteria becoming resistant to antibiotics is an example of microevolution. *Macroevolution* refers to evolutionary change at, or above, the level of 'species' e.g. humans evolving from a common ape-ancestor, or birds evolving from reptiles.

The first form of evolution, microevolution, is accepted uniformly by scientists who are Creationists and Evolutionists, because it is observable. The second form, macroevolution, is the form of evolution which has drawn much attention and controversy. These two different evolutionary forms are commonly referred to by the same word, 'evolution', which has been the source of confusion amongst the general public. To avoid confusion I will refer to macroevolution (the concept that species change into other species) as Darwinian evolution (as it was proposed by Charles Darwin), and the term 'Creationist' to refer to anyone believing the world was created by God in six days.

Misconceptions

Because there are many observable examples of *natural selection* and microevolution occurring, people are often misled to believe that Darwinian evolution has been proved, and that Creationists disagree with these two phenomena.

Scientists and the media often give ambiguous examples of 'evolution'—life finch beak modification over time—in the hope of conclusively demonstrating *macroevolution*. But on closer inspection many of these examples of 'evolution' are simply examples of *natural selection and microevolution*, and are not really anything that Creationists would deny. Let's imagine, for example, that a certain species of fish has a spectrum of scale-colour (i.e. the colour of the fish) from light to dark and for some reason the darker fish are more susceptible to predators. We might observe that in such areas where predators target darker coloured fish the number of dark coloured fish may drop significantly, and perhaps over time the dark colour may be totally eliminated, changing the overall fish colour completely to light. That is observable evidence of natural selection occurring. Some would view this as conclusive evidence that Darwinian evolution has occurred, as the fish have evolved to change colour, and thus anyone objecting to evolution is obviously wrong. In fact, Richard Dawkins in his most recent book, *The Greatest Show on Earth*, uses the example of guppies changing their colour over time as evidence of Darwinian evolution in action.

Such examples as given above are not actually anything Christian's disagree with because firstly, Creationists have no problem with natural selection and secondly, such an example does not prove that an increase in genetic information has occurred; it simply proves that the genetic information, which already existed, has been reshuffled or lost (in this case the genes for dark scale colour has been lost).

The reality is that Creationists acknowledge and accept *natural selection and microevolution*, and have no problem with this because, although it forms the basis of macroevolution, this mechanism does not prove the conclusion of Darwinian evolution—that microbes became men.

How can you agree that natural selection and mutations occur but not believe in macroevolution? As a crude analogy, some people believe that *crop circles + UFOs = alien life*. Now, it is possible to believe that crop circles exist, and that UFOs exist, whilst not believing that aliens exist. We can also see that showing evidence of crop circles or UFOs does not prove the existence of aliens. In the same way, providing evidence of natural selection and genetic mutation does not prove Darwinian evolution because whilst these two phenomena occur, the conclusion about their interaction is disputed (not that believing in evolution is comparable to believing in aliens, merely illustrating the point that proof of a premise does not support a conclusion). Similarly, the wind can move sand. But this does not mean that the natural force of wind blowing is the *sufficient* and *sole cause* of multi-level sandcastles. By itself, the wind is an insufficient cause for the increase in complexity.

Species

At this point it is worth discussing a misconception that surrounds the beliefs of Creationists, which involves the term 'species'. Species are man-made classifications of animals. Different species are determined by biologists based on certain criteria, such as ability to interbreed. Creationists do not necessarily believe that God had to make every species as they exist today. For example, there are many species of 'deer', but this does not mean that every 'species' was created by God exactly as they exist today. Deer may have changed over time (through natural selection) such that different colours, shapes and sizes exist today. But this does not mean that deer evolved from an unrelated creature altogether.

But how did we get so many deer species if God didn't create them all? Well, let's imagine God created two deer. These deer had both genes for dark and light fur, and so were medium brown. If they had offspring, some of those offspring may inherit more 'light fur' genes and be lighter, and others may inherit more 'dark fur' genes and be darker. Overtime, if lighter-colour-deer breed with other lighter-colour-offspring the deer may slowly get lighter over time, and vice versa with dark coloured. This concept is similar to dog breeding. Different dog breeds are known to have developed from a wolf-like common dog ancestor. Dog breeders originally took a dog that has mixed genes and slowly selected offspring with certain traits (e.g. long fur, short stature etc), breeding them with offspring that also had these traits until this trait was so enhanced that it was classified as a different 'breed'. So it is not the case that all different deer or bird species must have been created by God on the 6th day of creation. Rather, these species have developed overtime, but they have always been deer or birds. We possess far more information in our *genotype* (genetics) than is ever revealed in our *phenotype* (material expression in the body). Natural selection as a process encourages expression of particular aspects of the genotype, but always by selecting from already present genetic information. Effectively, natural selection culls genetic variety. In this sense, it is better understood as 'devolution'. Continuous 'selection' leads to a genetic dead end. You can always generate a Chihuahua from a wolf, but starting with a Chihuahua, there is insufficient variety in the genotype to ever produce a wolf, without cross-breeding. Thus, this mechanism is not able to explain how 300,000 DNA base-pairs in the first life could increase in number and complexity of new information to 3,000,000 DNA base-pairs found in humans.

Let's now look briefly at the concept of Darwinian evolution (macroevolution)

How it works

Darwinian evolution involves two basic natural phenomenon; accidental or random genetic mutations and natural selection, with one outcome— new organisms
Some brief biological background is necessary to understand how it works.

Living organisms inherit a certain set of genes (made up of DNA) from their parents. Every so often, something goes wrong with the mechanism that transmits, or copies, these genes, and an organism may be born that is different to its parents. If this accidental mutation of genes (DNA) is helpful in the animal's struggle to survive, it is more likely to be passed on to succeeding generations, in other words to be 'naturally selected'. Natural selection means that an organism is 'selected' by nature to reproduce (pass on its genes) because it is able to survive better than other similar organisms. In this way, beneficial random mutations may be naturally selected or passed on to offspring such that, over long periods of time, new species can arise.

Hypothetical example

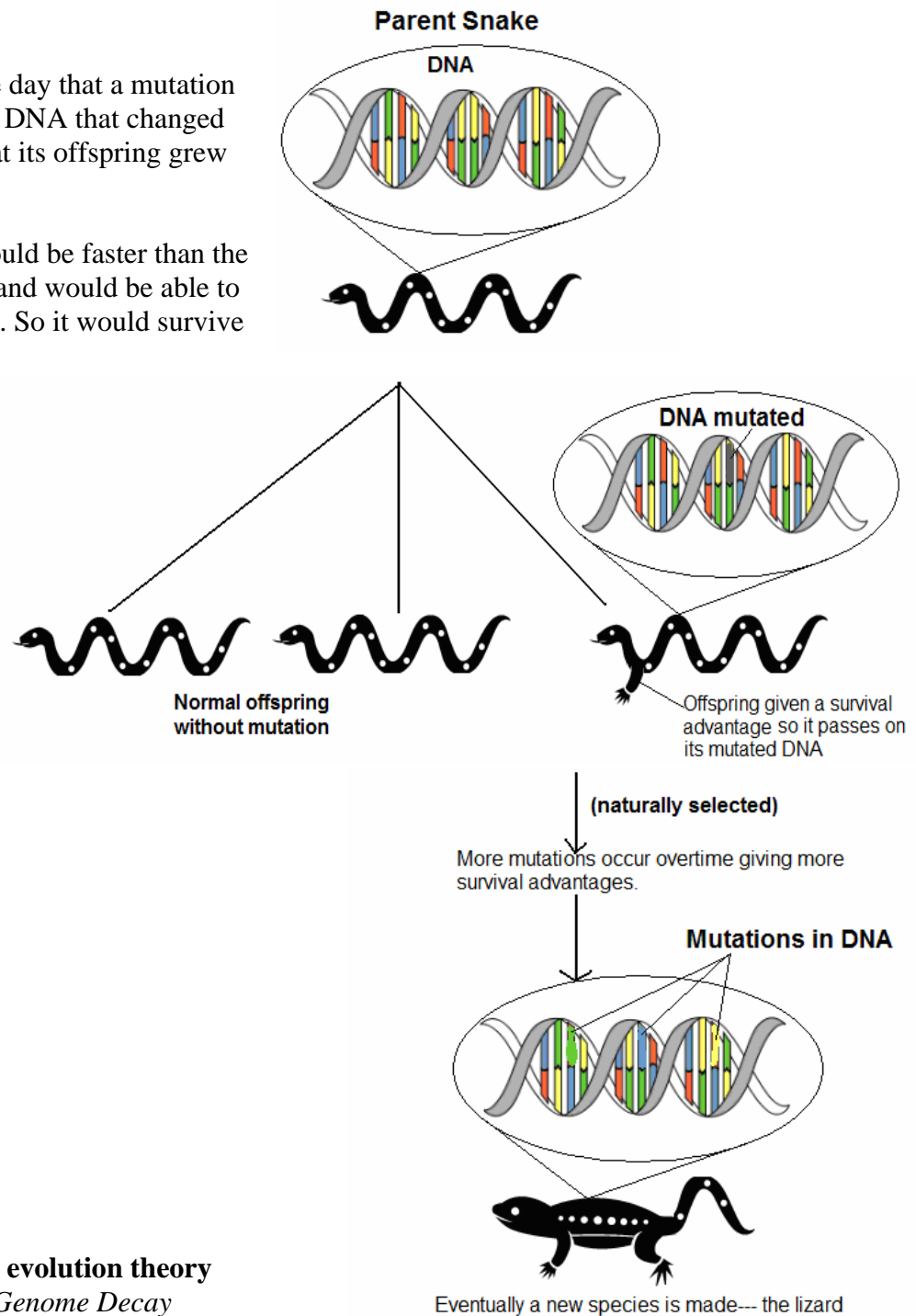
Here is an oversimplified, theoretical example which is not factually correct (i.e. lizards did not evolve this way), to illustrate the concepts of Darwinian evolution.

Imagine a snake in the wild. Inside each of the snake's cells are its genes, made up of DNA. Each time the snake reproduces its genes (DNA) are transmitted to its offspring.

Now let's imagine one day that a mutation occurred in the snake's DNA that changed one of its genes, so that its offspring grew two front legs.

This new offspring would be faster than the other snake-offspring and would be able to climb trees to get food. So it would survive better than the normal offspring and so would be 'naturally selected'.

As time goes by, more mutations may occur and eventually form a new species—the lizard (remember this is not factually correct).



Initial problems with evolution theory

Harmful mutations— Genome Decay

At this point it may be worth discussing one of the first scientific issues faced by Darwinian evolution—that is the fact that almost every random mutation that occurs is not beneficial.

It is an observable and accepted scientific fact that almost all (>99%) of mutations that occur randomly to an organism's DNA are *not* beneficial, but are detrimental, or neutral. This means that if large amounts of time are allowed, negative and neutral mutations would build up and degrade an organism's genetic code. Evolution proposes that natural selection has somehow prevented these detrimental mutations from destroying the genome, despite the fact that there has been billions of years for them to accumulate.

Let's imagine (in a very crude analogy) that the sentence below in capital letters represents an organism's genes (DNA), or genetic code.

MY NAME IS JON AND I HAVE A CAT.

If we imagine that random mutations, or changes, occur over time to this sentence (say 1 letter change every 10 mins), after a while we would not expect to come back and find that the sentence still had meaning, or that it had more meaning than before. Rather, we would expect the sentence to slowly become incomprehensible as letters change randomly overtime e.g.

MY NOLE IT JAN AXD P HACE A MAT

Darwinian evolution, however, proposes that not only do mutations occur that make the sentence more meaningful, but that over time information is *added* to the sentence. They claim that the reason the genetic code (represented by the sentence) doesn't lose meaning, despite millions of years of evolution, is that natural selection helps overcome the random, extremely more frequent detrimental mutations. In other words, whilst a mutation is random, natural selection is not random because a mutation to DNA that is beneficial to an organism is more likely to help the organism survive and thus it helps prevent the accumulation of detrimental mutations, even though they are much, much more common.

The problem with this explanation is that it ignores the fact that the smaller the effect of a genetic mutation, the less likely it is that it will be naturally selected. Eventually, at a certain level, the effects of a mutation are too small to be selected for or against (a phenomenon called the 'selection threshold'). A mutation that has a large beneficial effect *or* a large detrimental effect will make a difference to an organism's survival, and thus will be naturally selected *or* eliminated. *But* a mutation that doesn't significantly alter an organism's survival won't be selected at all. The majority of mutations that occur in biology are exactly this type of mutation: very small, mostly insignificant mutations. Therefore, these very slightly harmful or neutral mutations cannot be eliminated by natural selection (as they are below the selection threshold) and will greatly outnumber beneficial mutations, thus building up over millions of years, slowly destroying the integrity of an organism's genetic code. Even if the majority of mutations are not harmful, but are only neutral, the issue still occurs because overtime many neutral mutations occurring that are not eliminated by natural selection (due to their insignificance) would destroy the genetic information. If however the our genome is not a product of millions of years, but much less time, then these mutations would not have had enough time to degrade our genome's integrity, explaining why we are still functional. Copying a video many times degrades quality; it doesn't add new movie scenes.

Partially functional mutations are not beneficial

Another problem is that many of the biological structures that are proposed to have evolved must have evolved fully functional and complete, or else they would not provide the organism with a survival advantage, and thus would be selected *against*.

For example, insects with wings are thought to have evolved from insects without wings. The mutations that made this happen did not occur all at once, but over a very long period of time. However, each time a mutation occurs it would not be beneficial until a fully functional wing was formed. So natural selection would not 'select' the many small mutations required for wings until every mutation necessary had occurred and a fully functional wing formed. This is because a partially formed wing is not functional until all necessary mutations are present. In other words, scientists must provide a mechanism for how the wing developed step by step, with each step giving an explanation for why that step was beneficial.

Using the example of an insect's wing we can see this becomes very difficult. A flightless insect that developed a partial wing would be at a disadvantage to other insects because this 'wing bud' would add weight (making it slower and more visible to predators) and body mass (meaning it had to eat more), but would not allow the insect to fly until it was properly formed. Furthermore, if an insect did not have the genes for wings then genetic mutations would have to *add* genetic information, not simply change the information that was already there.

Even if we imagine that somehow the many small insignificant mutations necessary for wing development did occur, the insect also needs to develop the mechanisms and capabilities to operate them. Wings themselves are physical structures, but in order to operate them properly an insect needs to have sensory information whilst flying, and also the wings need to be integrated into the insect's nervous system in order to understand how to fly properly. Once an insect developed wings, it would possibly die in its very first uncontrolled flight, unless it had sensory input about its position, speed, direction etc. So only a fully functional wing, on an insect fully capable of flying is truly beneficial. The steps before this are not, and even a wing (if it did somehow evolve) on an insect that had never flown would be dangerous not advantageous. This is merely one example aimed at highlighting the point that many proposed macro-evolutionary structures would not be advantageous at all until they were *fully* developed. Thus any intermediate of these structures would not be naturally selected. A partially formed leg, eye, organ, wing or any other such structure would not be useful.

This is also an oversimplification of the issue because it conceptualises the evolution of structures at a macro not a microscopic level. For example, when we imagine an insect's wing as a visible structure, and consider it evolving from this point of view, it doesn't seem too difficult to imagine a primitive wing forming slowly. But we forget to consider the incredible number of evolutionary steps necessary to evolve microscopic complex processes, such as the immune system and clotting cascade for example, or other incredibly complex, intricate but microscopic processes. It is not simply that an organism must evolve a leg or a wing; it is that at the microscopic level, these structures have biochemical properties of immense complexity. Legs have joints, which involve cartilage, each layer of which is biochemically suited to transfer load containing multiple intricate molecules all interacting to enhance function and so on. Every gene that encodes for even the smallest yet most complex biological processes must also have evolved via mutations and natural selection. We have not even begun to map how many of these processes work (e.g. the immune system), let alone provide a mechanism of evolution for them. Comprehensive, step-by-step plausible explanations of such processes are lacking in comparison to the number of complex biological systems.

Furthermore, some Creationists propose a concept of irreducible complexity. That is, they propose that some structures could not have evolved because they have a minimum number of parts, which must all be present for the structure to function. If any of the parts is not present then the structure fails to function. An example commonly sited is the flagella, which is a kind of tail of bacteria that allows them to move in their environment. The analogy of a mouse trap is often used, which has a minimum number of parts to allow it to function and if any part is missing it is useless. If a structure has a minimum number of parts to be functional then it could not have evolved in small gradual steps guided by natural selection, because natural selection selects for benefits to survival, and only when all parts are present would it benefit an organism. Thus, all steps before the entire part had evolved would be useless.

Let's now turn to a range of other issues surrounding the GTE, beginning with the age of the earth.

Radiometric Dating Explained

One common method for dating fossils is called 'radiometric dating' e.g. carbon dating. In order to understand radiometric dating a brief explanation of chemistry is required.

Atoms contain a nucleus made up of protons and neutrons, surrounded by electrons. Chemical elements, such as carbon or hydrogen, are made up of various numbers of protons, neutrons and electrons. Isotopes are same elements that have extra neutrons in their nucleus. The element Carbon-12 for example, commonly has 6 protons and 6 neutrons. Carbon-14 is an isotope of carbon 12 with two extra neutrons. The extra neutrons of an isotope make them less stable and they therefore break down into new elements (called daughter elements) in a process termed radioactive decay e.g. Carbon-14 (parent) radioactively decays to nitrogen-14 (daughter). Isotopes have known rates of radioactive decay known as a 'half life'. An isotope's half life is the amount of time it takes for half of the parent element to radioactively decay to its daughter element. The half life of carbon-14 is 5,730 years. So every 5,730 years half of the carbon-14 in a sample will radioactively decay to nitrogen 14.

For example, if a sample has 10g of Carbon-14 to begin with, then after one half life there will be 5g of carbon-14 left, as half of it will have decayed to Nitrogen 14. After two half lives there will be 2.5g as half of the 5g will have decayed, and so on. Carbon dating is just one form of radiometric dating based on the isotopes of carbon, but other radiometric dating types exist using other elements that have longer half lives.

How does Carbon dating work?

1. Rays from the sun strike Nitrogen 14 atoms which are in the atmosphere and cause them to turn into radioactive Carbon 14, which combines with oxygen to form radioactive carbon dioxide.
2. Living things are in equilibrium with the atmosphere, and the radioactive carbon dioxide is absorbed and used by plants. The radioactive carbon dioxide gets into the food chain and the carbon cycle.
3. All living things contain a constant ratio of Carbon 14 to Carbon 12 (1 part in a trillion).
4. At death, Carbon 14 exchange ceases and any Carbon 14 in the tissues of the organism begins to decay to Nitrogen 14, and is not replenished by new C-14.
5. The change in the Carbon 14 to Carbon 12 ratio is the basis for dating.
6. The half-life is so short (5730 years) that this method can only be used on materials less than 70,000 years old. (Archaeological dating uses this method.)

Making it simpler

Imagine a cylinder that has 300mls of water in it, sitting below a tap that is dripping at a rate of 50mls per hour. How long did it take for the cylinder to fill up to its current 300ml level? Initially the answer might seem simple enough. If the cylinder has 300mls in it, and the tap drips 50mls per hour then the cylinder has been sitting there for 6 hours ($300/50=6$). However, to reach an answer of 6 hours a number of assumptions have been made:

- it assumes the cylinder started off empty (when it may have started off with 100mls for example)
- it assumes that the tap has been dripping at a constant rate, when perhaps it sped up or slowed down at different times
- it assumes the only source of water is the tap, when perhaps there is additional water being added, say, through another hole

The same principles apply to any form of radiometric dating. The cylinder represents a fossil, and the water represents carbon-14. By looking at how much carbon-14 there is, using the above assumptions we can determine the length of time the cylinder has been there or in other words, the age of the fossil. But as we saw above this requires a number of assumptions such as

1. no C14 has been added to the sample
2. the rate of decay remains constant through the time
3. no daughter element was present initially
4. leaking of the parent C14 did not occur.

(In essence, the assumption is *uniformitarianism*—that present processes are the key to the past, and things continue on today the same as it ever was. Yet this also excludes the possibility of external influence upon the material world, such as by God. If God acted on the world—such as in Noah’s flood, Genesis 6-9—by tweaking a cosmic constant or two, all our calculations would be out. Excluding this possibility is not about science, but about philosophical/methodological naturalism.)

These assumptions may not be reliable as they relate to conditions which happened long ago, and in fact they are often proved to be incorrect. For example, samples older than ~70,000 years old should have no detectable carbon-14 left because this is equal to 10 half lives, and less than a thousandth of the original sample would be left. Carbon-14 is found in many samples required to be much older than 70,000 years. Diamonds, which are said to have formed at high pressure deep in the Earth 1-3 billion years ago have been found to have Carbon-14.¹ There are many other examples of fossils with known ages where the radiometric dating does not match up at all, such as:

- Hualalai Volcano Hawaii, known to be 200 years old, but it was dated at 140-670 million years by helium dating;
- Sunset Crater Arizona known to be 1,900 years old from historical data, dated at 210, 000-230,000 years old by K/Ar dating.²

Furthermore, fossils that are dated by different radiometric dating methods obtain vastly different approximate dates usually millions of years different. In other words, the age of a sample dated by Helium may differ greatly when instead it is dated by K/Ar (potassium/argon) dating.

What about Ape-men?

The text-book drawings of apes slowly becoming human, and the widely publicised fossil evidence of ‘primitive man’ are often seen as unquestionable evidence for Darwinian evolution. *How can anyone deny fossil evidence?*

What is less widely known, however, is that there are numerous documented fossil hoaxes and errors. Furthermore, the majority of the fossil evidence for ape to human evolution is based on fossil fragments, not entire skeletons, or even complete parts of skeletons. The drawings in text-books are artistic depictions of hypothetical appearances by medical illustrators, but are by no means exact representations. There is a large degree of flexibility in illustrating what a living creature may have looked like based on solely its bones. In fact, Ron Ervin (a medical illustrator) explains how he was instructed to make text book illustrations more or less human.³

Some known ape-man fossil hoaxes, mistakes and re-classifications include:

- Nebraska Man
 - o Based on a single pig's tooth
- Piltdown Man
 - o A hoax which fooled the scientific community for ~40 years (1912-1953) allegedly by Charles Dawson
 - o Over 500 students wrote their doctoral dissertations on the Piltdown Man and were awarded Ph.D. degrees from universities around the world
- Lucy
 - o In 1974 Donald Johanson discovered a set of fossils in Ethiopia that were stated to be 40% complete
 - o When experts eventually examined the skeleton it was discovered that they were not likely an ancestor of human kind
- Peking man
 - o once presented as an ape-man but has now been reclassified as *Homo erectus*
- Nut cracker man (*Zinjanthropus Boisei*)
- Ramapithecus
 - o Taught as human ancestor but now thought to be a variety of orangutan

What about fossils that are not known to be wrong or hoaxes?

Firstly, the most plausible candidates for ape-men fossils can arguably be shown to either have almost all human traits,^{4,5} or almost all australopithecine traits, completely lacking intermediate ape-man traits. Scientists often dispute exactly what traits an organism had. For example, the South African ape-men (*Australopithecenes*) are thought by some to be ancestral to humans, but other leading scientists deny this (Sir Solly Zuckerman completely rejects these fossil apes; similarly Oxnard claims that they are not ancestral to man⁶).

The above information highlights that current fossils, upheld as candidates supporting the existence of ape-men, are dubious, and that even though Darwin predicted that there should be numerous transitional fossils, even after 140 years since his time, at best we have a handful of ambiguous, disputed examples. Furthermore, the illustrations and proposed physical characteristics based on the fossil candidates are widely open to interpretation and artistic input.

The next section of this document will look at some scientific challenges to Darwinian evolution.

Problems with the Fossil Record

Lack of Transitional Fossils—missing links

Many scientists have long admitted that the fossil record does not demonstrate macroevolution from one type of creature to another, but shows complete, entirely functional creatures. The fossil record does not show a pattern of slow diversification of species over time, and in some instances shows massive explosions of bio-diversity (see Cambrian explosion below) in a relatively short time period—indeed, much shorter than required by macroevolution.

Many times throughout history fossils have been found that are claimed to demonstrate the transition between one creature, hypothesised to have evolved from another; these are called 'missing links'. Numerous examples of these have been proved to be hoaxes, such as the missing link between birds and reptiles called 'Archaeoraptor Liaoningensis', published in *National Geographic*.⁷ Other examples exist today claiming to be missing fossil links, but the facts of these examples are disputable and open to more than one interpretation. *Archaeopteryx* for example, is another proposed missing link between birds and reptiles. A discussion of this can be found on the Answers in Genesis website.⁸

Cambrian Explosion

The Cambrian period refers to a period of time dated at 542-488 million years ago. During this time all the major groups of animals appeared suddenly in what they call the Cambrian Explosion. Furthermore, no new phyla (a type of classification of animals) have appeared since, i.e., no new major body plans. The reason they are said to have appeared 'suddenly' is because no fossils of these animal groups are known in the rocks older than the Cambrian and they appear "already in an advanced state of evolution."⁹

The rock layers between fossils are also not consistent with the concept that the Earth is billions of years old. One rock layer may be millions of years older than the rock layer directly above it. However, there is no evidence of erosion that would be expected from millions of years of evolution. The Grand Canyon for example, has horizontal divisions of different rock ages often one directly on top another. But if different layers are millions of years older they should have millions of years of decay. Also, it does not explain how fragile fossils could be preserved for such extensive periods of time. Animal foot prints for example may be found in one layer millions of years older than another layer, but if this is the case then the footprint would have been exposed to the harsh environment for extended lengths of time as the younger layer was deposited on top over millions of years.

Haldane's Dilemma

Haldane's dilemma (named after J.B.S Haldane, an evolutionary scientist) suggests that beneficial mutations occur too rarely to explain large-scale biological transformation within the available time (even granting the evolutionary timescale of billions of years).

In order for Darwinian evolution to occur a mutation in a gene must be passed on to offspring. In order for this to happen the offspring must reproduce. Using the possible reproduction rate of an organism, a theoretical maximum mutation rate can be determined. For example, if a gene (allele) increases from one copy to one thousand copies in one generation (i.e. from father to son) then a reproduction rate of one thousand is required. If a species has a smaller reproduction rate then 1000 then the scenario is implausible. Haldane proposed that a maximum speed sustainable over long-periods would be 1 substitution (mutation) per 300 generations.¹⁰ Haldane's dilemma can be applied to the alleged evolution of humans from a hypothetical common ancestor with apes, which occurred supposedly 10 million years ago. At one substitution every 300 centuries (the calculated theoretical maximum rate of evolution) an ape-human like lineage could substitute no more than ~1,700 beneficial mutations, but this number of genetic mutations is not enough to explain the genetic difference between the common ape-ancestor and humans today—roughly 40 million mutations, averaging nearly 70 preserved mutations each generation, despite presently observed rates of fixing only 3-4 mutations per generation.

Whilst Haldane's dilemma is largely dismissed by Darwinian evolutionists, much of the original dilemma has not yet been solved. According to biologist George C. Williams "the problem [of Haldane's dilemma] was never solved, by Wallace [soft selection] or anyone else. It merely faded away, because people got interested in other things. They must have assumed that the true resolution lay somewhere in the welter of suggestions made by one or more of the distinguished population geneticists who had participated in the discussion."¹¹

Geographical distribution of continents and speciation dates

Many scientists believe that the continents of Earth were once connected and that slowly overtime they have drifted apart. Evolutionists use this theory to look at where different animal species are located today, and hypothesise approximate time-frames for when certain species evolved based on their geographical distributions. For example, if two similar species are found on separate land masses that are thousands of miles apart, evolution may propose that these species originally came from a common ancestor that existed before the land masses separated. The problem is that there are many biogeographical anomalies. For example, species of cactus which supposedly evolved in South America 30 million years ago are also found in Africa, yet these continents separated 70 million years earlier (i.e. 70 million years before they were said to have evolved, so how could they be located in Africa?). Furthermore, some related species are often found on continents that never bordered one another.

For those interested in learning more, the technical term for two related species that are geographically separated is 'range fragmentation' and these species are referred to as 'disjunct distributions.'

Some Evidence for a younger Earth

Soft tissue in dinosaurs

A number of dinosaur fossils have been discovered with soft tissue remains such as red blood cells, components of blood vessels (arteries/veins) as well as proteins such as collagen and osteocalcin. Organic material is the soft tissue of living organisms such as skin, and muscle. It makes up the parts of animals that we expect to decay quickly once an animal is dead, in contrast to bone, which has minerals that can last very long lengths of time. But how can even tiny pieces of this soft tissue possibly last millions and millions of years?

In the 1990s, Professor Mary Schweitzer found fossilised haemoglobin in a cross section of T. rex bone.^{12,13} In 2005, Schweitzer announced further discovery in a different T. rex bone of blood vessel remains with red blood cells. In 2007, the protein collagen was found in a T. rex and a hadrosaur (dated older than T. rex).¹⁴

Analysis of collagen stability shows that it would only last 2.7 million years at freezing point, under the most optimal conditions. At just 15°C it would only last 15,000 years.¹⁵

Ancient Bacterial resurrections

Some scientists have claimed to resurrect dormant bacteria found in amber supposedly 120 million years old.¹⁶ A paper in Nature claimed to have revived bacteria found in salt crystals dated 250 million years old.¹⁷

Earth's magnetic field

Materials such as iron are composed of tiny magnetic domains, each of which behaves like a tiny magnet. Most pieces of iron are not magnets because normally the domains are evenly distributed in such a way that they cancel each other out. However, in magnets the domains line up so that the material has a magnetic field. The Earth's core contains iron and nickel, but it is so hot (3000-5000°C) that the magnetic domains of these elements are disrupted.

The Earth's magnetic field poses somewhat of a mystery to scientists because magnetic fields lose strength over time. Therefore, if the Earth is billions of years old, the Earth's magnetic field should no longer exist. Since it does exist scientists must find an explanation, such as the magnetic field sustains itself somehow. The current theory is called a self-sustaining dynamo (electric generator). It proposes that the Earth's rotation and convection circulates the molten iron/nickel of the outer core causing positive and negative charges to circulate unevenly, which would produce an electric

current, generating a magnetic field. But no working model exists for this theory as yet and numerous problems exist. Mercury for example, has a far stronger magnetic field than dynamo theory expects from a planet rotating 59 times slower than Earth. The moon is known to have had a magnetic field, but never had a molten core and only rotates once a month, which does not fit with the dynamo theory and is referred to as 'the enigma of lunar magnetism'.¹⁸

Helium in Zircons

Evolutionists assume that helium comes from alpha-decay of certain radioactive elements in rocks. Helium atoms are very small and chemically unreactive so they quickly diffuse out of the rocks they form in. Yet, in rocks that are billions of years old, there is more helium present than there should be if it had so much time to diffuse.¹⁹

Salt Level of Oceans

Salt accumulates in oceans faster than it escapes. The sea levels are not salty enough to suggest that they are billions of years old. Many processes bring salt into the sea. Water on the land weathers the ground and leaches salt out of them, which is carried to the oceans by rivers. Also some salt is supplied by water through the ground directly to the sea, called submarine groundwater discharge. Austin and Humphreys calculated that about 457 million tonnes of sodium now enter the sea every year.²⁰

Salt is carried out of the sea by small water droplets and ion exchange between clays as well as tiny pores in sediments on the ocean floor. The rate of salt output is much less than input. Austin and Humphreys' calculated that about 122 million tonnes of salt leaves the oceans every year today.

Using salt input and output rates scientists can calculate the approximate maximum age of the ocean. Austin and Humphreys estimated it to be less than 62 million years old.

Population Growth:

Today the earth's population doubles every 50 years. If we assumed only half of the current growth rate and start with one couple, it would take less than 4,000 years to achieve today's population.^{21,22} In order to explain our current population size drastically smaller population growth rates must be assumed than should reasonably be expected. Furthermore, since such large amounts of time have passed with large numbers of ancestors the number of fossilised organisms is inconsistent.

"By arbitrary juggling of population models, of course, the evolutionist can manage to come out with any predetermined date he may choose. People should realize, however, that this does require an arbitrary juggling of figures, based solely on the assumptions of human evolution. The actual data of population statistics, interpreted and applied in the most conservative and most probable manner, point to an origin of the human population only several thousands of years ago. The present population could very easily have been attained in only about 6000 years or so, even if the average population growth rate throughout most of history were only one-sixth as much as it is at present. The burden of proof is altogether on evolutionists if they wish to promote some other population model."²³

Conclusion

The outlined information above was intended for those who want to know more about Creationism and its potential validity as an alternative to Darwinian evolution. Each section is aimed at raising awareness about issues surrounding evolution and providing a point of reference for self-directed investigation and learning, as well as discussion with others. Ultimately, only a very brief discussion is possible here but hopefully, if used appropriately, this information will broaden the scope of knowledge and afford avenues of new understanding. As previously mentioned this information must be carefully interpreted and these issues are often not definitively conclusive.

As you research and ‘Google’ your way through some of this information you will surely find some attempted solutions and refutations, but before these are accepted they must be properly understood and evaluated. Some of the objections to evolution are stronger than others, but one thing is certain, many of them have not been solved even remotely. Furthermore, as initially mentioned, Darwinian evolution does not propose a mechanism for the beginning of life on Earth or the origin of the universe. In order to properly understand our place we must not only understand how we diversified, but how we came to exist. We should not simply accept something because others do, or because it is convenient and comfortable. We should search and seek for truth. As G.K. Chesterton said, “It is absurd 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.”

Additional resources

- *The Greatest Hoax on Earth* by Jonathan Sarfati. (This book is a response to Richard Dawkin’s latest book, and provides a good summary of a range of topics. It is a good starting place for understanding the issues in more depth)
- *In Six Days* (a collection of why 50 scientists from various scientific fields do not agree with GTE)
- www.answersingenesis.org and <http://creation.com> (good web resources with answers to many common questions and additional information from a young earth perspective)
- <http://www.earthage.org/index.html>
- Brief summary for Young Earth evidence Available at:
http://www.earthage.org/youngearth/evidence_for_a_young_earth.htm#Dinosaur%20Blood%20and%20%22Ancient%22%20DNA
- *Signs of Intelligence*, Dembski and Kushiner
- *A Skeptics Search for God*, Ralph Muncaster
- *The Design Revolution*, Dembski
- *Not by Chance- Shattering the Modern Theory of Evolution*, Lee Spetner,
- *Evolution: A Theory in Crisis*, Michael Denton
- *The Mathematics of Evolution*, Sir Fredrick Hoyle
- *The Hidden Face of God: How Science Reveals the Ultimate Truth*, Gerald Schroeder
- *Darwin’s Dilemma* (A DVD documentary about the problems of evolution)

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Is the Book of Genesis Trustworthy? ... By Steve Baso

We know the Bible is old. Genesis is estimated to have been written around 1400 BC. Can we then, as modern Christians, still hold faith in the Genesis text even though its authors were thousands of years removed from our times and had no access to modern scientific thinking and knowledge? Can we trust these documents? Are they even relevant to people living in the information-rich era of the twenty-first century?

We live in a culture where believing in God and the Bible as the Word of God is an unpopular option. Belief in the Bible is seen as archaic and unscientific. It's all just a bunch of stories, right, with no modern relevance or application? As someone who struggled with this very question for almost a year before becoming a Christian, I can confidently say there are many excellent reasons to trust the Bible as a totally unique, sacred text.

It takes faith to believe that the Bible is God's Word, yet upon proper investigation, it is reasonable and even logical to believe. A two-step approach is employed: first we must establish the accuracy and trustworthiness of the Bible, for as Jesus said, if we cannot trust His Word in matters of earthly import, how can we trust His heavenly proclamations (John 3:12)? Secondly, we must dismantle the a priori rejection of the supernatural in light of revelations that can only be explained outside a materialistic framework. In Francis Schaeffer's words, we must establish that God exists and is not silent.

As far as the book of Genesis goes, the question of reliability is a daunting one. Challenges are thrown about that Genesis, particularly the early chapters, narrates the impossible. To most people, the creation account in Genesis 1-3 immediately takes on the appearance of a story, or legend. The concept a global flood? Surely just some fable! Interestingly, however, most ancient cultures have a parallel account of a global flood, with a family preserved in a large boat by the gods—e.g., The Gilgamesh Epic, a Babylonian flood account.

The story of Sodom & Gomorrah was thought to be a fable, like the global flood. Until archaeological evidence placed those cities geographically where Scripture describes, and showed evidence of earthquakes, and layers of earth and bituminous pitch would have been hurled into the air and rained down on the city when the earthquake struck.

The story of Joseph becoming the most powerful man in Egypt, second only to Pharaoh, seems unlikely. But historical sources reveal a man, Yanhamu, a foreigner from Palestine, who was very close to the Pharaoh and was in charge of issuing supplies.

Obviously there are some things that we can't test in the Genesis account. But as we've just seen, we can look at the accuracy and trustworthiness of the account in other areas, and if the account is credible there, that offers some support for things that we can't test. These are just two examples; there are many more where archaeology and historical sources confirm the Genesis account.

So, we have reason to believe that Genesis—whilst not as easy to verify as the Gospel accounts of Jesus' life—is reliable. ... But is it relevant to us today? Absolutely! In fact, the message contained in Genesis is incredibly relevant, more than most people understand.

Every important theme in Scripture has its roots in Genesis: the existence of God; the relational aspect of God (both within the trinity and with man); the worth of mankind (made in God's image); the explanation of human nature (made to be the perfect image-bearers of the King, to rule over his Creation, yet tempted and fallen); the co-creation of man- and womankind; the promise of hope for a future through the Seed of the Woman (the first Messianic prophecy); the hope for mercy and forgiveness offered by the grace God; the love of a father for his son who he offers as a sacrifice.

These are just some of the Biblical themes we encounter in Genesis. In Genesis, we discover meaning and purpose in human existence. We are not accidents, or superior monkeys. We were made with a purpose! We are loved! Genesis explains the human condition, and gives us hope for a better future. It expresses the character of the awesome Creator God, in whose image we are fearfully and wonderfully made.

Hasn't Science Proved that the Bible is Wrong? ... By Steve Baso

Almost every time we share our faith, we will be confronted with some variant of this challenge. It could take the form of evolution, be as specific as an obscure theory of cosmology, or as broad as we have phrased it here. As Christians, how can we answer this challenge in a way that is respectful, yet shines God's truth and light into an area many believe is out-of-bounds for God?

This challenge has grown out of what we could call 'the conflict myth'. The conflict myth is the idea that there is conflict between the study of nature (i.e. science) and the Bible. It suggests that in order to believe the Bible, we have to disregard science, and in order to adhere to science, we must be atheists.

This simply isn't true. Science – the study of nature; the study of the heavens and the earth – grew out of Christianity. Many of the pioneers of science were Christians. It was their belief in a Creator God who ordained rules in nature that lead them to search out those rules.

Why didn't science spring from any other worldviews? I think it's because the Bible has the necessary nutrients. For science to work, you need a real and ordered universe where our thoughts and measurements connect to reality. In pantheism, the universe is God, so matter is to be revered, not dissected. In Buddhism, the universe is an illusion, so meditation, not measurement, is the priority. In Atheism, all is random and meaningless, and our minds are geared for survival, not truth. If there's no Designer, why should I trust my senses or search for repeatable laws? In contrast, the Bible reveals an intelligent Law Giver who commands us to fruitfully tend His garden planet. It's for this reason that most strands of science began with discoveries made by committed Christians. For them, studying God's creation was an act of obedience and worship.

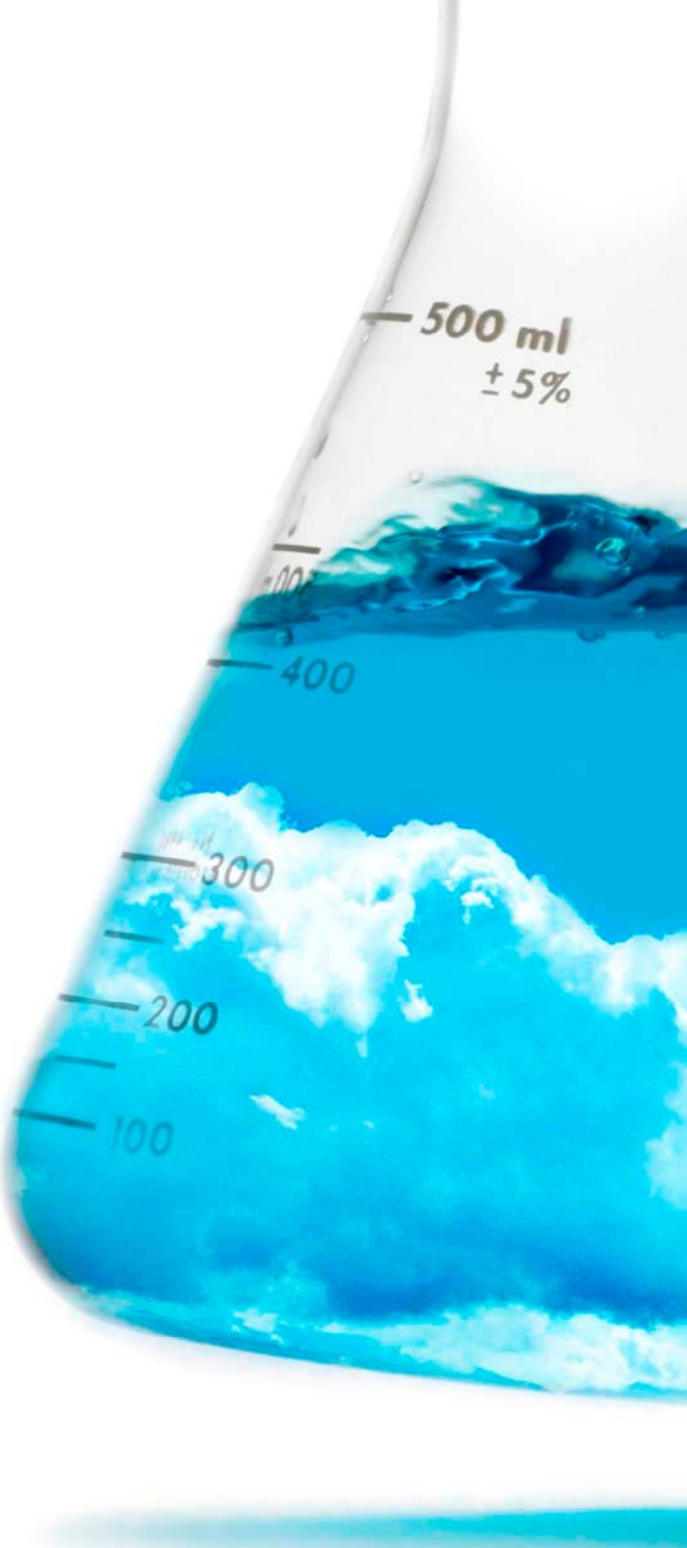
God reveals Himself to us every day as we read His Scripture, and whenever we open ourselves, with the guidance of His Holy Spirit, to read his other book, the book of nature. "The Heavens declare the glory of the Lord" declares the psalmist (Psalm 19)! God's workmanship and power is shown wherever we look – up into the starry sky, down into the depths, of the earth, or inwards to the cells that are the building blocks of life.

Both scientific and religious explanations have much to offer in our search for truth and meaning. Scientific knowing and religious knowing are more similar than different. As humans, we're all limited and biased, so our thinking alone can't guarantee or prove that any given truth claim is correct. All knowing is built on trust, and unless we trust, we can't live. We trust that our senses tell us something true about what is really real, and we trust the authority of people who claim to know something that we don't or can't know for ourselves. So we start with some assumptions, and work from there.

Take historical science surrounding our origins, for instance. Some say science has shown that we evolved through a totally unguided process over the last 15 billion years. But the only way we can scientifically claim this is if we make a couple of assumptions. First, you have to assume that God didn't do it—that's naturalism. And second, you have to assume that natural processes in the past happen the same as they do in the present, otherwise you can't connect today's measurements to yesteryear's events. If some scientists assume God didn't do it then that is a faith claim, and so the conflict is primarily over assumptions, not evidence.

Science hasn't disproven the Bible, or explained away the need for God. On the contrary, when you approach science with an open mind, it directs us in wonder to the works of His Hands.

My Thoughts ...

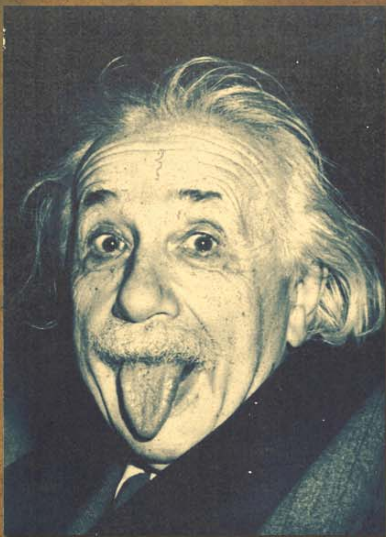




Slender Billed Bronze Cuckoo

GOD'S TWO BOOKS

Integrating Science and Scripture



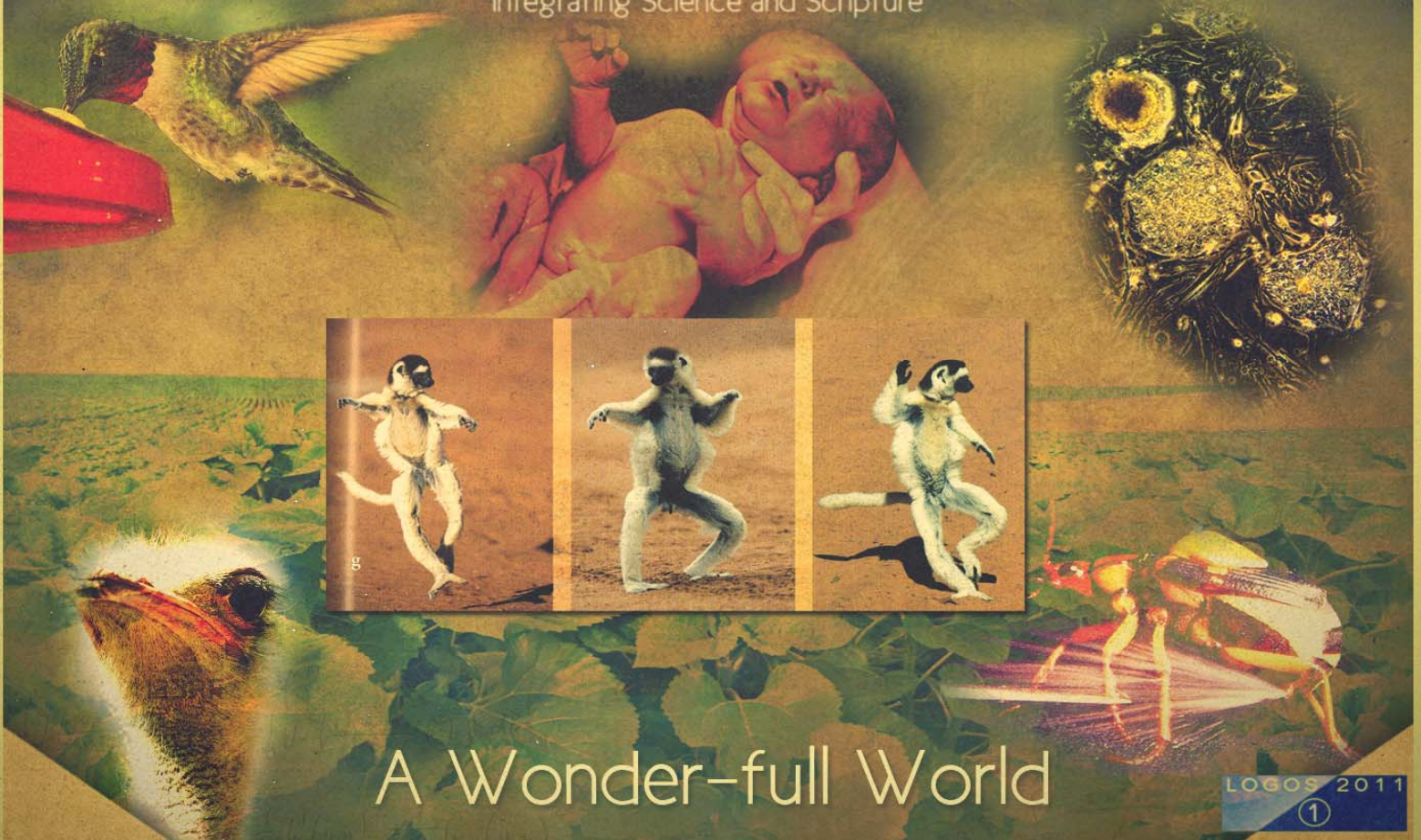
“We are in the position of a *little child* entering a *huge library* filled with books in many languages. The child knows *someone must have written those books*. It does not know how. ... That, it seems to me, is the *attitude* of even the most *intelligent human being toward God*. We see the universe marvelously *arranged and obeying certain laws* but only dimly understand these laws. Our limited minds grasp the *mysterious force that moves the constellations.*”

A Wonder-full World

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GOD'S TWO BOOKS

Integrating Science and Scripture

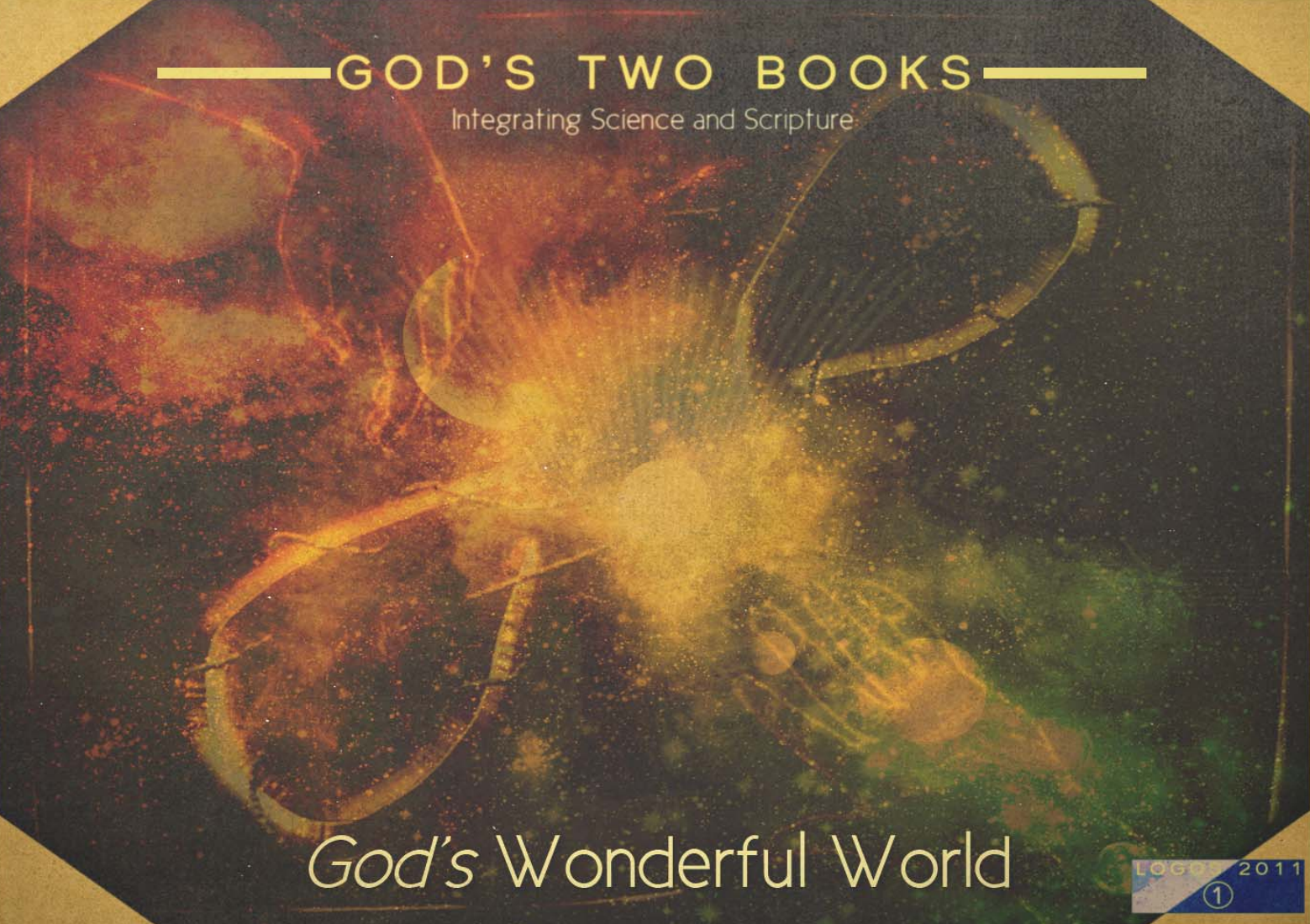


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