



# Let there be light

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*Illuminating the creation / evolution debate*

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## Introduction

‘Evolution versus creation’. That’s how many Christians are conditioned to think about the issues explored in this paper. It is certainly the way I remember the issues being framed when I was a child and teenager. The prevailing view in the circles within which I grew up was that the earth and all life upon it was created specially by God a matter of thousands of years ago. I remember my fascination with a wall chart (still in my possession) which charted history from creation around 4004 BC (precise dates were proposed in the seventeenth century by the brilliant scholars John Lightfoot and Archbishop James Ussher of Armagh in my native Northern Ireland) and giving rapt attention to the engaging presentations of Ken Ham, a well-known Australian advocate of young earth creationism, on a visit to Belfast. Evolution, on the other hand, was a bad word. It was code for the assault of science on faith. As I matured, studying sciences at A-level and then progressing to study medical genetics and medicine at university, I came to realise that the debate was not as straightforward as I had previously thought. In fact, many Christians accepted insights from evolutionary theory and some accepted evolution as the mechanism through which God created the world. Yet the conflict was not simply pressed by eager Christians, there was clearly a secularist agenda at play as well. I remember vividly an early class in biochemistry during my medical studies when the lecturer asked anyone who did not accept the theory of evolution to stand. I stood immediately, albeit somewhat embarrassed to be exposed before the whole class (I wasn’t alone, but the pressure to stay seated was quite strong). Of course, just like the young earth creationists who had presented their position as if it were the only legitimate biblical view, this non-believing biochemist had framed his question in absolutist terms. There was no option to say that we believed in evolution but that God had designed the process or that we accepted some aspects of evolutionary theory but had major concerns about it or any other half-way position. It was simply a choice between staying seated, so indicating acceptance of the theory, implying rejection of any form of creation and demonstrating sanity, or standing, so indicating rejection of the theory, implying belief in young earth creationism and admitting a strange kind of insanity.

This paper has been prepared in response to a request from a Christian group for me to help them understand the main positions on creation and evolution held by Christians. I welcomed the invitation because this was a group that was not seeking simply to be reaffirmed in what they had always believed but to be challenged to think through the issues and to understand what is essential for Christian belief and what degree of room there is for Christians to disagree. Certainly they are right in understanding that the issue is not as simple as an either/or choice between creation and evolution. There may be some creationists and some atheists who would like to frame the discussion in those terms, but I maintain that they are neither doing justice to the evidence of Scripture or to the evidence of nature. In fact, the reality is that throughout the history of the Church there has been more diversity over questions of how God created the world than is sometimes admitted.<sup>1</sup> The publication of Charles Darwin’s *On the Origin of Species* in 1859, contrary to popular belief, did not shake the Christian world to its core. Although some Christians sought to challenge Darwin’s theories head on, most famously in the infamous 1860 public debate between supporter of Darwin Thomas Huxley and church of England bishop Samuel Wilberforce, many theologians had already concluded on the basis of earlier indications from science (e.g., Lord Kelvin’s work on the rate of cooling of the earth) that the world was much older than a few thousand years (current estimates of the earth’s age in mainstream science are in the region of 4.5 billion years) and were very willing to engage seriously with Darwin’s ideas. In other words, the interaction between science and theology, of which debates over creation and evolution are symptomatic, has been much more sophisticated than some scientists and some theologians wish to suggest.

Much has been written on these issues and I refer the reader to the suggested further reading at the end of this paper for some ideas of where to take your reading further. I hope, however, that this paper helps to provide a simple overview of the key issues as I perceive them. I will first discuss my approach, especially how science and faith relate to one another, before providing an outline of the three main Christian views on creation. Then I will explore some of the evidence of nature and Scripture in order to help the reader evaluate the three different views. Finally I will offer some conclusions. There is a glossary of terms towards the end of the article for easy reference.

## My approach – the Word and the world

My intention in this paper is to draw on both Scripture and nature in order to help the reader to weigh up the various possible Christian approaches to creation and evolution. Before considering the evidence we must first say something about the nature of both forms of evidence and how we ought to integrate what we learn from each.

### Handling evidence from Scripture

For the Christian the testimony of Scripture must be foundational in determining our position on any issue. As we consider the evidence of Scripture in our discussion of creation we must be aware of two important issues. Firstly, what is our view of Scripture? Does it have any value in speaking about nature as well as about God? Secondly, how do we handle the different types of literature in Scripture?

We may recognise three broad possible views of Scripture:

- a) *Scripture is simply the opinions of human beings* – their way of describing their experience of God's actions in history or of their worship of Him (the **liberal** view)
- b) *Scripture contains revealed truth from God but only those things that it teaches about faith and practice are necessarily true* – it may contain errors in what it says about the nature of the world (the **infallibility**<sup>2</sup> view)
- c) *Scripture in its entirety is revealed truth from God* – it is entirely without error in everything that it affirms, whether specifically relating to faith or not (the **inerrancy** view)

Those who hold to the liberal view will be entirely open to whatever insights science may provide – it will have primacy over Scripture since it is more recent and built on a more advanced state of human knowledge. Those who hold to an infallibility view will look to science to describe the way the world works but will continue to believe that God can intervene in the world outside the normal rules of science. Those who hold to biblical inerrancy will seek to interpret what the Bible says about the world faithfully and will refuse to accept any perspective from science that conflicts with this view unless it can be shown that their interpretation was flawed. It is my contention that the 'inerrancy' view reflects most faithfully the claims Scripture makes about itself.

Another key issue in biblical interpretation that is relevant to our thinking about creation is the existence within Scripture of different types of literature (or literary genres). Sometimes a view of Scripture as inerrant is described and defended in terms of a 'literal interpretation' of the text. This is a potentially misleading phrase and we must think through carefully what it means. We might support the idea of 'literal interpretation' if it means that we accept the surface meaning of the text without insisting upon a hidden allegorical or spiritual meaning, but it cannot mean that we have to accept every detail in the text as literally true. It would be ridiculous to interpret a line of poetry (for example Shakespeare's line 'All the world's a stage') as strictly literal truth (clearly the world is not a flat space surrounded by spectators; rather, this metaphor says something about the nature of human existence). Scripture contains large sections of poetry and we must acknowledge that this poetry contains figurative elements. Likewise, many of the prophetic portions of Scripture contain imagery that is not intended to be taken literally but which points to important truths about God and His purposes. Another major genre in Scripture is narrative and here we are on firmer ground in that we can accept it as an accurate record of historical events, but we must also be aware that it is not a complete record; rather it has been selected to tell the gist of God's story and to lead us to trust in Him. Also, within any narrative there are some characters who agree with God's perspective and others who disagree with it. So, when we read the words of the serpent in Genesis 3 we are not intended to take what he says as literal truth – in fact we must recognise that his words are lies. Other genres, such as Gospels and New Testament letters, must also be read on their own terms using appropriate tools of interpretation. A complete discussion of genres and biblical interpretation is beyond the remit of this study but it is vitally important that we appreciate the diversity of forms within Scripture and that we seek to base our interpretation on principles that are appropriate to the genre at hand. Nowhere is this more important than

in our reading of Genesis 1-2. Are these chapters to be read as literal history, as embellished history, as myth or as something else? How can our reading of these chapters be integrated with the rest of Scripture, especially what the New Testament says about characters and events described in them and what it says about the origins of sin and death?

What exactly does Scripture say about God's work in creation and in the ongoing operation of the universe? In our approach we must be careful not to highlight those statements in Scripture that seem to support what we now know about the nature of the universe (e.g., claiming that Isaiah 40:22 predicts that the planet is a sphere through the phrase 'the circle of the earth') whilst explaining away those passages that seem to conflict with it (e.g., the idea of the sun rising and setting in Psalm 19:6) as simply poetry. In doing this we are not being fair to the nature of the text. We underestimate the truth of some passages (from the perspective of the human observer on earth, Psalm 19:6 is a completely accurate account of the sun's behaviour and it does not deny that the earth actually circles the sun) and over-emphasise the relevance of others (Isaiah 40:22 is written in poetic language and is not intended to be an accurate scientific description of our planet). We must recognise where poetic language is used without the expectation of a completely literal interpretation and where the language of human observation is being used accurately to describe our subjective experience without intending to contradict how things actually are when the universe is studied objectively.

## Handling evidence from nature

When considering the nature of the evidence that can be gleaned from the natural world there are two key issues. Firstly, what are the limits of science? Is science capable of giving absolute certainty – of proving a theory to the point where it is no longer open to review or challenge? The growing influence of postmodern thinking in the last few decades has led many to question the power of science to explain all aspects of reality. At the same time some within the scientific community speak as if science, given enough time, will be able to explain all of experience and reality. Secondly, what do the findings of science actually say? To what degree does evidence that we have from scientific disciplines such as genetics and geology support the contemporary Neo-Darwinian theory of evolution?

There is considerable difference of opinion amongst theologians as to the degree of knowledge about God that is accessible to human beings without the aid of Scripture. God's revelation of Himself through nature is labelled 'general revelation' because it is available to everyone. Key passages indicating this kind of revelation are Romans 1:18-20 and Psalm 19:1-6. Some people speak about 'natural theology', meaning the knowledge about God that can be gleaned from a study of nature, but there is no consensus among theologians about the degree of usefulness of this approach.

Another issue in our study of nature is the degree to which we expect to see evidence in nature of the activity of spiritual beings. The biblical record leads us to expect that the spiritual and material (physical) realms of existence interact with one another – e.g., demon possession can happen, miracles can happen, the incarnation could happen. In fact in the biblical accounts of miracles it is often difficult to tell where the natural ends and the supernatural begins or what is 'primary agency' (where God acts directly without any intermediate means) and what is 'secondary agency' (the means that God uses to accomplish the miracle). From a biblical perspective the hard and fast distinction that we may want to make between the material and spiritual realms simply cannot be maintained. God is behind natural processes (e.g. the rain, Matthew 5:45 or the growth of the grass, Psalm 104:14) just as he is behind what appears to us to be 'supernatural'. Miracles in this sense are abrupt reminders of the constant truth of God's sustaining power in the universe – glimpses of the unseen reality of His sovereign rule. That is why the miracles of Jesus are most often called 'signs' – they point to the nature of the Kingdom of God, the identity of Christ as the King, the way the world would be if all was aligned with God's rule, and the hope of a future re-creation of all things in which sin and its consequences will be no more. Miracles don't involve so much the suspension of the normal rules of the universe as the intensification in one place and time of the fundamental rule that undergirds all other rules – the creating, sustaining and restoring power of God. Nevertheless, we would expect miracles to create aberrations in the physical world that are not easily explained by the normal principles of nature. They should be detectable as exceptional events in the physical universe.

## Integrating science and theology

How does science relate to theology? Note that it is *theology* rather than *Scripture* that science should be compared with. Science interprets what can be observed (physical evidence) in our universe using certain tools and methods. Theology interprets the text (informational evidence) of Scripture using certain tools and methods.<sup>3</sup> If we equate science with Scripture rather than with theology we run into two risks. Firstly, we may become blind to the degree to which our beliefs about 'what the Bible says' actually arise from our interpretation of it as opposed to coming from the text itself. We must be careful not to cling to a theological position, perhaps even calling it 'biblical truth', if in fact it is not supported by careful interpretation of the text or if it is only one of a number of possible interpretations of the text. Scripture is unchanging, but theology must be constantly open to revision and reform. Secondly, if we see it as parallel to Scripture, we may begin to think that science is unassailable truth rather than a human *interpretation* of the truth. The New Atheists, who seek to spread belief in philosophical naturalism in the guise of talking about 'science', might be quite happy for us to make this mistake, but we must be alert to it. Science is an attempt to infer from the observable, measurable evidence the best explanation for it. Its theories must always be open to review in light of new evidence.

So, then, if we accept that both science and theology can help us towards truth, how can we integrate what we learn from the two? There are, broadly speaking, four possible stances:

- a) ***Science rules supreme in all realms*** – only science is completely reliable and its insights into reality are to be accepted, with theology amended in keeping with them. This view would see science as the best way of discovering all truth, both about the natural world and about God. It depends on a high view of the potential of natural theology and a low view of Scripture that effectively understands it to be the reflections of believing people on what they observed in nature rather than revealed truth from God (what we have called above the *liberal* view). This approach may allow insights from personal subjective experience to influence theology, but these will always be held tentatively in comparison to what can be 'verified' by science.
- b) ***Science has nothing to offer to our understanding of God*** – this view believes that science is useful for solving problems in the physical world but has nothing of any value to contribute to our understanding of Scripture or of God. In practice treats science with great suspicion and is closed to any reassessment of what are perceived to be traditional interpretations of the Bible in light of insights from nature. This view is sometimes seen among Fundamentalist Christians.
- c) ***Non-overlapping magisteria (NOMA)*** – this term was suggested by eminent evolutionary biologist Stephen Jay Gould to describe his belief that both science and religion are important sources of authority and truth but that they speak to distinct aspects of understanding.<sup>4</sup> In Gould's suggestion, science is the appropriate place to look for descriptions of how the world works and how it came to be this way, whereas religion is the authority on questions of ultimate meaning and moral values. In practice it becomes very difficult to disentangle these two authorities, however, as we can appreciate if we think about the example of sexuality. Does evidence from animals, at least some species, of a tendency towards multiple sexual partners and homosexual activity mean that human beings should give up on the idea of monogamy or that homosexuality should be seen as 'natural'? Can insights from religious thought really supersede this evidence from nature? This is only one example of a potential clash in which the magisteria both speak on one issue and we must decide which is to have the final say. Some theistic evolutionists, effectively following the NOMA principle, wish to restrict the Bible only to speaking about 'Why' and 'Who' questions while science speaks exclusively to the 'When' and 'How' questions.<sup>5</sup> Some creationists, on the other hand, want to say that science cannot speak to the 'When' and 'How' of origins, but this claim is generally based on a deficient view that science cannot speak about anything that cannot be repeated and studied through experiments in a laboratory. The fact is that although repeatable experiments are the gold standard for scientific enquiry, science can say much about things that cannot be repeated. It can seek explanations of what is observable, including explanations of how the current state of affairs came to be, albeit that it cannot speak with the same degree of certainty as when laboratory experiments are possible.
- d) ***All truth is God's truth*** – this view, which is the one I want to argue for, recognises that truth is true irrespective of how it is discovered. Both nature and Scripture can reveal truth to us. The tool of human reason can be applied to

both Scripture and nature but we are not dependent on reason alone to reveal truth to us – in fact, at the most fundamental level, we are dependent upon divine revelation. God reveals Himself through both nature and Scripture. Yet Scripture, as verbal communication, is a more refined and precise revelation of God. We can look to science to help us to understand God's works, but science will never reveal the gospel to us. It may help us towards insights about morality and God's design of nature but will never tell us God's name or the grand story of His redeeming purposes. Likewise, Scripture says relatively little about the physical stuff of the universe and how it can be used to advance human health and knowledge. It does, of course, affirm the responsible use of the universe (affirming human beings as stewards over nature) and provides values that should guide our goals for humanity (e.g., the sanctity of human life). It also makes some statements about the nature of the physical world and we should expect these, correctly interpreted, to be in keeping with the discoveries of science. Where the evidence of nature challenges a previously held interpretation it is valid and wise to reassess the interpretation, although we will not be too quick to jump on science's bandwagon, realising that science has been wrong before when it contradicted Scripture (e.g., when scientists insisted that the universe had existed without beginning in contradiction to Genesis 1:1, a view that was later changed when the 'Big Bang' theory was formulated). This view, then, sees both nature and Scripture as potential sources of truth about all aspects of reality – the two magisteria are overlapping. I maintain that this position is best in keeping with both the *infallibility* and *inerrancy* views of Scripture.

I maintain that the Bible leads us to expect that both our reading of Scripture and our observations of nature will provide insights into reality. God reveals something of Himself through both. We must be careful to ensure that our approach to issues where science and theology intersect is not excessively defensive. Too often it has appeared as if theology has been beating a constant retreat – having to stop speaking about certain issues, revise interpretations of Scripture or abandon previous convictions in light of the advance of science. We must be more proactive in our theology and more aware of the diversity of possible interpretations of Scripture so that we can avoid this appearance, but we must also be unafraid to stand against the flow where Scripture speaks clearly to an issue. We must present confidence in Scripture but humility about our interpretations of it. We must distinguish between what the Bible clearly says and our theological systems that reflect human judgement. We must also have a healthy regard for the insights science can bring but a healthy scepticism when it makes claims that are not fully substantiated by the evidence or that stray into the realms of philosophy.

## Christian views on creation

This is what God the LORD says— he who created the heavens and stretched them out, who spread out the earth and all that comes out of it, who gives breath to its people, and life to those who walk on it (Isaiah 42:5)

It is I who made the earth and created mankind upon it. My own hands stretched out the heavens; I marshalled their starry hosts. (Isaiah 45:12)

those will be days of distress unequalled from the beginning, when God created the world, until now—and never to be equalled again. (Mark 13:19)

For by him all things were created: things in heaven and on earth, visible and invisible, whether thrones or powers or rulers or authorities; all things were created by him and for him. (Colossians 1:16)

By faith we understand that the universe was formed at God's command, so that what is seen was not made out of what was visible. (Hebrews 11:3)

You are worthy, our Lord and God, to receive glory and honour and power, for you created all things, and by your will they were created and have their being. (Revelation 4:11)

And he swore by him who lives for ever and ever, who created the heavens and all that is in them, the earth and all that is in it, and the sea and all that is in it, and said, "There will be no more delay!" (Revelation 10:6)

The above verses from various parts of Scripture emphasise the consistent message of the Bible that God is the creator of all things – the inanimate universe and the living creatures that inhabit it. It would be impossible for a Christian to take the Bible seriously without acknowledging that God is the creator of our universe. The great creeds of the Church emphasise the identity of God as creator but do not specify the manner or duration of His creative activity. Nevertheless, among sincere, Bible-believing Christians there has been a range of different ways of understanding the way in which God made the universe. Within a range of views about creation there have been three main positions:

### 1. Young Earth (Recent) Creationism

The belief that God created the universe and a diversity of living organisms by '*fiat* creation' (that is, by calling into existence what had not previously existed) somewhere in the region of six to ten thousand years ago. This view is advocated by organisations such as Answers in Genesis and the Institute for Creation Research.

### 2. Old Earth (Progressive) Creationism

The belief that God created the universe and all living creatures by discrete acts of *fiat* creation over a long period of time, perhaps as long a time period as the current scientific consensus suggests. According to this view, the process of evolution could be responsible for much of the development of new species but direct acts of special creation were necessary at key points in the process to move it forward through the addition of new information. A leading advocate of this position has been Christian astrophysicist Hugh Ross.

### 3. Theistic evolution

The belief that God created the diversity of life over a long period of time through the process of evolution as described by the modern evolutionary synthesis or some variation upon it. The key distinction between this view and progressive creationism is that God did not intervene in the process through acts of special creation – He created an initial universe which had the full potential to develop according to natural processes into the highly complex universe with all of the diverse life-forms found on earth. This view has been advocated by Christian scientists including Francis Collins, former head of the Human Genome Project.

The following table compares these three positions and contrasts them with naturalistic evolution. It highlights what each position claims, how each interprets the evidence of nature and of Scripture and what I perceive as the greatest strengths and weaknesses of each.



	Recent Creationism	Progressive Creationism	Theistic Evolution	Naturalistic Evolution
Did God design and create everything?	Yes!			No!
Did God intervene 'supernaturally' in creating?	Yes – in a short time at the beginning (perhaps one period of six 24 hour days)	Yes – numerous times to progress the process in stages	No – he initiated a process with inbuilt potential for full development	What God? God is an illusion from human ignorance
How old is the earth?	A few thousand years	Very old – in the region of billions of years		
Creation of mankind	Special creation (i.e., directly from matter such as earth)	Special creation or by changing an existing hominid	Through evolution without direct intervention	Not created – just a result of random processes
<b>Approach to evidence from nature</b>				
Fossil record	Formed at the time of a global Flood	Formed over long periods of time		
Factors suggesting an old earth / universe	Appearance of age or explained away	Accepted as evidence that the universe is indeed old		
Factors suggesting design	Evidence of design by God			Appearance of design
<b>Approach to evidence from Scripture</b>				
Genesis 1 – six days of creation	24 hour days (of creation or restoration) described either literally or poetically	Stages of creation (Day-Age / intermittent day) or a literary framework	Literary framework, allegory or poetic description of stages (Day-Age)	Ancient myth
Genesis 2 – creation of man and woman	Special creation described either literally or poetically		Literary framework	Ancient myth
Genesis 3-11 – patriarchs and Flood	An (unbroken?) account of real history. Flood was either global or local	Real history (Flood global or local) described literally or poetically	Literary framework	Ancient myth
Romans 5:12-21	No death of any kind before human sin	No human death before human sin	Spiritual death, not physical death	Religious mumbo jumbo
<b>Greatest strengths and weaknesses</b>				
Strengths	<ul style="list-style-type: none"> <li>• Bible has primacy over nature as a source of truth</li> <li>• Probably majority view in the Church through the ages</li> </ul>	<ul style="list-style-type: none"> <li>• Bible and nature in balance as sources of truth</li> <li>• Fits well with evidence of an old earth</li> </ul>	<ul style="list-style-type: none"> <li>• Accepts Scripture as God's truth</li> <li>• Fits with the contemporary scientific consensus</li> </ul>	<ul style="list-style-type: none"> <li>• Makes the world safe for atheists</li> <li>• Provides a founding myth for a secular lifestyle</li> </ul>
Weaknesses	<ul style="list-style-type: none"> <li>• Insists on a literalistic reading of Scripture that the text does not demand</li> <li>• Depends on contrived explanations for the apparent old age of the universe</li> <li>• Open to serious ridicule from non-Christian scientists</li> <li>• Needs to develop better science</li> </ul>	<ul style="list-style-type: none"> <li>• Must explain why a non-literal reading of Bible should stop at Genesis 2 or 11</li> <li>• Asserts that God intervened after initial creation to advance creation – this is not explicitly stated in Scripture and may be impossible to prove through science</li> </ul>	<ul style="list-style-type: none"> <li>• Is the case for Neo-Darwinian evolution really so watertight?</li> <li>• What about NT references to Genesis 1-11?</li> <li>• How did human responsibility and sin originate?</li> <li>• Risks pushing God out of the picture (tends toward deism) – can miracles be accepted as true?</li> </ul>	<ul style="list-style-type: none"> <li>• Rejects all evidence for God's existence on the basis of pre-supposition that only what is physical is real</li> <li>• Continues the failed experiment of modernism based on human reason</li> <li>• Struggles to explain evidence of design in nature (e.g., gaps in the fossil record; 'irreducible complexity')</li> </ul>

## The evidence of nature

Space does not permit us to survey all of the possible evidence from nature in each of the headings that follow. In addition, in order to maintain simplicity and keep my comments brief, I have decided not to include references or quotations in support of the points I make. For those who are interested in reading further two books are recommended: Lee Strobel's *The Case for a Creator* and John Lennox's *God's Undertaker*.

### Evidence suggesting design

The universe and the life-forms that inhabit it are highly complex systems that have every appearance of having been designed. It is very difficult to separate our reading of the evidence from our preconception about whether or not a designer exists, but this is equally a problem for theists and naturalists. Naturalists claim that this is simply the 'appearance of design' but that in fact everything that exists arose through unguided processes (chance and universal laws of nature) because there is no intelligence behind the universe. Theists believe that things appear to be designed because they were designed by God. The theist will argue that acceptance of the likelihood of a designer (creator) is the simplest and most logical explanation of the facts. Christians have long appealed to the argument from design (the *teleological argument*) as evidence for the existence of God. Naturalists might respond that given the fact that we are here, this simply happens to be the universe that resulted out of all those that might have resulted. Apparent design cannot *prove* the existence of a designer, still less tell us much about the nature of that designer, but the absence of apparent design would be highly problematic for any claim that the universe was created and the fact of apparent design certainly ought to cause us to wonder whether it may not point to a creator. It can legitimately be presented as evidence in the case for a creator.

Some of the strongest indicators of apparent design include:

- **A 'fine-tuned' universe**

Advances in physics and cosmology have led scientists to recognise just how remarkable it is that life is able to exist on earth at all. The fundamental forces that operate within our universe are just the right strength to enable a planet of our size to exist and the chemical reactions that take place in stars to occur. The position of our planet in relation to the sun is perfect for a temperature and climate that is hospitable to life. The variation that would be required in any of around six major constants in physics for life to be impossible is tiny.

- **Information and language at the genetic level**

DNA is the chemical that encodes proteins, which are the building blocks of life, but we now realise that DNA functions as the bearer of information. Whilst science has been able to describe the chemistry of DNA it hasn't been able to explain why it bears information (acting like a language). In any other context we would assume that information and the language that bears it is the result of intelligence. Even if science eventually can explain every details of how nature works, it still would not explain where the information that underpins nature came from.

- **The social dimension of human life**

Human beings bear many physical similarities to animals, most notably to the chimpanzee. This similarity is also evident at the genetic level. When we examine social behaviour we can also see some similarities, but there is such a huge gap between human beings and any other species on earth that we might begin to wonder what makes us so different. Chimpanzees might use rocks as tools to get at food, but human society has developed complex systems for growing food to maximal efficiency, harvesting it and distributing it across the globe. The difference is immense. Why are we so vastly different from animals socially? How did we alone of all species on earth develop the ability to communicate complex ideas to one another, to write them down and to design complex machines? Why do we alone spend vast amounts of time, effort and money on creating art that has no functional purpose?<sup>6</sup>

- **The existence of conscience and morality**

Perhaps the greatest difference between human beings and animals lies in our consciousness and conscience. We are self-aware in a way that few other animals are (most cannot identify a reflection as themselves) and self-reflective in a way that no other species is. Religion and philosophy are unique pursuits of human beings. We have a need to worship, a longing for God, a desire for the supernatural and transcendent. We also have a strong inbuilt sense of justice – a recognition of the principle of right and wrong. However much we seem to be guided by our instincts and base desires in most of our behaviour, we are still plagued by guilt and shame when we act outside what we believe to be moral. We can experience revulsion (often physically) when we see something that we deem to be immoral. We are less good at recognising our own moral failings, but exquisitely sensitive to the failings of others towards us. Across cultures there are certain values ('murder is wrong' may be the most foundational) that are widespread and common. Is all of this just a fluke – an accidental by-product of the evolution of the human brain? Or is it evidence that there is a Law giver, that we were designed for more than selfish survival and that there is a genuine moral law that underpins our existence?

## Evidence suggesting an old earth

There is a great deal of evidence from nature that points in the direction of the universe and our planet being very old – in the order of billions of years. The following three scientific disciplines all agree on this, although I will offer only one example of the evidence under each heading:

- **Cosmology – the study of the structure of the Universe**

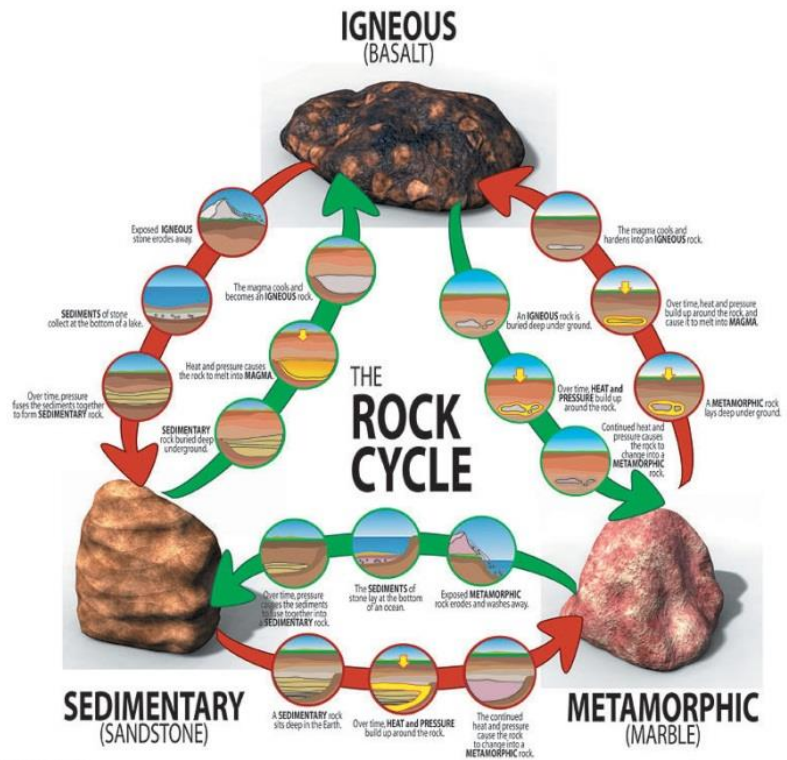
Modern science knows the speed of light and how distant stars are from the earth. We can therefore calculate how long it would have taken light from these stars to reach Earth and the result suggests a very old universe. Some proponents of Young Earth Creationism suggest that the speed of light may have been faster in the past, but there is no indication of this from nature and it would create new problems for understanding how the universe could have functioned. Other Young Earth Creationists suggest that God stretched out a continuous line of light before putting the stars in space (pointing to the fact that light was created on day 1 and the stars on day 4 in Genesis 1). The problem with this suggestion is that what we observe in the stars includes the birth of new stars and the death of old ones. These cannot be happening as we observe them because of the immense distance and if the universe is only a matter of thousands of years old then these events cannot actually have happened at all. We don't just have a situation where God would have created light between the stars and earth but where He created an appearance of past events that never actually happened, what may be called 'fictitious history'. This sounds like deception on God's part and it is hard to understand why He would have done so. Young Earth Creationists may argue that anything created by special creation would appear to be older than it actually is (presumably Adam looked like an adult male when he was created) but although we can see why this had to be so in the case of the outward appearance of living organisms, it is much harder to conceive of why God would have made the appearance of age in non-living creatures or even an appearance of age in a living creature that is not necessary to its function (e.g., if God created trees by special creation would they have had rings looking as if they had grown gradually over many seasons?)

**The 'Extreme Deep Field' (XDF)** – an image that took the Hubble Space Telescope 500 hours to create and which is claimed to show some galaxies as they appeared 450 million years ago.



- **Geology – the study of the solid earth and its rocks**

The rocks of the earth can be divided into three categories. Igneous rocks are formed by the solidification of molten rock (magma) especially as it rises to the earth's surface through volcanic activity and movement of the earth's continental plates. Sedimentary rocks result from the solidification of deposits of either mineral or organic (previously living) materials that settle on the earth's surface, often under water. Metamorphic rocks are formed when pressure and temperature changes the nature of igneous and sedimentary rocks. The standard view amongst geologists is that the formation of these different rock types requires long periods of time – millions of years – and that the shaping of the rocks into patterns we observe through processes of weathering and the action of glaciers has also required long periods. Dating methods using radioisotopes (these measure the amount of a radioisotope in a rock and estimate its age based on the known rate of decay of the isotope and the presumed concentration at the time of the rock's formation) also agree with these estimates for the age of the rocks. Some young earth creationists suggest



that this is another example of apparent age, with the rocks looking older than they are because they had apparent age when God created them. They also suggest that radio-isotope dating is flawed because it depends on assumptions about the initial amount of a radioisotope in the rock and a constant rate of decay. Most significantly, young earth creationists accuse geology of being wedded to a view of the earth that assumes that the slow, gradual processes we observe today have prevailed throughout most of the earth's history. They insist that the biblical flood was an event of global scale and (based on Genesis 7:11) involved immense volcanic activity, dramatic shifts in the continental plates, massive sedimentation and huge pressures. Combined, they suggest, these forces could have produced all three kinds of rocks. They add that the massive loss of life in the flood could account for the presence of coal, oil and natural gas which formed from organic matter and that these could have formed much more quickly than geologists usually suggest because of the massive pressures operating during the flood. Although this account is appealing and may have some merit, there is one major factor that it struggles to explain, which is the appearance of erosion in levels of igneous rock beneath the sedimentary rocks the flood is supposed to be responsible for. A flood could certainly cause erosion, but how could it have had long enough to create the patterns of erosion seen on some of these rocks before the sediment was laid down? The simplest explanation of the geological evidence is an old earth.

- **Palaeontology – the study of the fossil record**

The record of fossilised animal and plant remains in the rocks of the earth reveals many extinct species including many that bear similarities to living species. Young earth creationists generally point to the Genesis flood as the cause of most of the fossils but the simplest interpretation of the evidence would appear to be that there is a long history over millions of years with repeated mass extinctions.



## Problems with the modern evolutionary synthesis

Neo-Darwinian thinking reigns supreme across the scientific establishment as the dominant view about how life evolved gradually on our planet through natural processes that are still operational today. There are, however, some very big problems with the theory that it has yet to explain, for example:

- **Has evolution stalled?**

If Neo-Darwinism is correct, then the same natural processes that operated in the past to produce such a diversity of species should still be operational today. Of course, we would not expect to see evolution in action in terms of observing changes of one species into another since that would take too long a period to be observable over the entire period of recorded human history (only a few thousand years). What we might expect, however, is some evidence of transitional phases in the process of evolution. What we observe on the earth today is a snapshot of life as it presently is but we can ask when we look at a snapshot photograph whether it appears to be a photograph of people standing still (perhaps posing for a family portrait) or in motion (for example an action shot in a game of sport). The current snapshot of life on earth looks more like a portrait than an action shot. There is a huge diversity of species, but these are clearly demarcated from one another. We simply don't see a constant range of organisms across a smooth spectrum, but families of organisms clearly different from one another. Our experience of breeding animals tells us the same. Human beings have input their intelligence into the selective breeding of certain species for centuries, perhaps even millennia in some cases. Considering dogs as an example, all breeds of dogs are subgroups of one species. Setting aside possible physical barriers, these breeds can all interbreed to produce fertile offspring. What has never happened is for selective breeding under human direction to result in two distinct species that can no longer interbreed. Furthermore, when human beings interbreed species that seem to be closely related to one another, the resulting hybrid animals are often infertile. Examples include: mules and hinneys resulting from horses crossed with donkeys; ligers and tigons when lions and tigers are crossed; zorses, zonkeys and zonies resulting from crossing zebras with horses, donkeys and ponies.

- **Gaps in the fossil record**

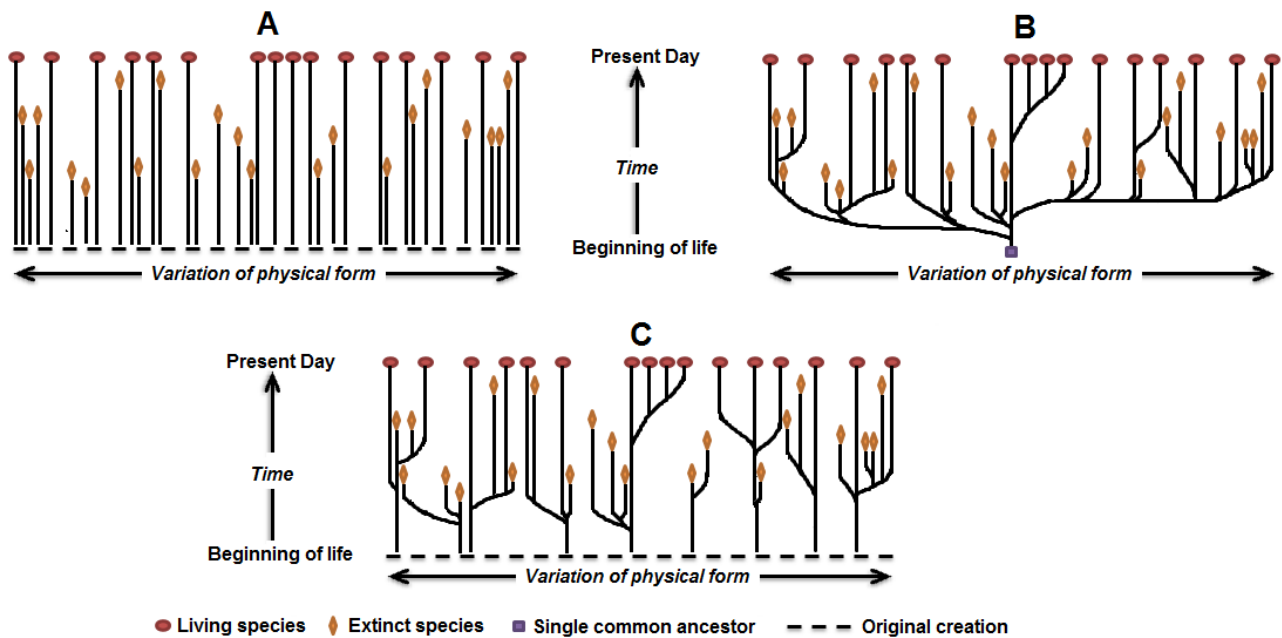
“Every paleontologist knows that most new species, genera, and families, and that nearly all categories above the level of family appear in the record suddenly and are not led up to by known, gradual, completely continuous transitional sequences.”

(George G. Simpson, leading palaeontologist)<sup>7</sup>

When Darwin published his theory of evolution there was much less evidence from fossils than we have today. Darwin expected the gaps in the fossil record to be filled in over time. He expected that a 'tree of life' would emerge from the record showing the gradual evolution of species



from a single common ancestor. In reality, what has emerged is a pattern where there are broad kinds of species that appear at different points in the record but without clear steps linking them to one another. There are also some points in the record, most notably the so-called 'Cambrian explosion',<sup>8</sup> when vast numbers of new species appear within a very small (in geological terms) period of time – too short a time frame for them to have evolved gradually according to Neo-Darwinian theory. Some evolutionary theorists (e.g., Stephen Jay Gould) suggest that this observation can only be explained by a belief that evolution did not happen through a continuous gradual process (as the Neo-Darwinian synthesis claims) but must have occurred through relatively short periods of rapid change against a background of little change over lengthy periods. This idea, called punctuated equilibrium, is also said to explain why we don't observe evolution in action today – presumably we are in one of the long periods of stasis. Punctuated equilibrium raises its own problem, namely what caused the sudden leaps forward and what mechanisms could account for this within the observed time frames – the normal mechanisms proposed by Neo-Darwinian thinkers cannot be sufficient. The idea of punctuated evolution seems to correlate quite closely to what progressive creationists predict.



The diagram above depicts three different ways of interpreting the same evidence, with living species in the present day (dots) and extinct species at different points in the fossil record (diamonds). The number of species in these diagrams has, of course, been greatly reduced compared to what we observe in both the current living world and the fossil record. Species that are closer to one another on the horizontal axis are more similar in physical form. The vertical axis represents time, although different theories will have different ideas about how much time passed from the beginning of life to the present day. Position A represents the traditional 'Creationist' view which believes that in the beginning God created many distinct species, some of which remain alive today whilst others became extinct at various points in history. The image this creates has been called the 'Creationist Lawn' or 'Linnaean Lawn' (after Linnaeus, who established the pattern of naming species in Latin), since it resembles a lawn consisting of individual stems of grass of varying heights. According to this view, similarities between species are due only to similar patterns of design used by the creator. Position B represents the pattern Darwin expected to see – a 'tree of life' in which all branches arise from a single stem, some species being more closely related to one another but all sharing a common ancestor (the square at the root of the tree). Position C is neither a 'lawn' or a single 'tree' but an orchard containing several trees. It allows for various related species to have arisen from common ancestors but rather than suggesting a single common ancestor, it suggests that life started with a number of distinct original species, each of which gave rise over time to various species, some now extinct and some still living. Position A is compatible with Young Earth Creationism, position B is what might be expected if *biotic evolution* (see Glossary of terms) is true, and position C would fit best with Old Earth Creationism or some variations of Young Earth Creationism. One additional point of note is that the points of origin of trees in the orchard could be staggered – that is that new groups of species could have originated at different points throughout the earth's long history rather than all types of species arising at the very beginning. When the fossil record is analysed and connections are drawn between species on the basis of their physical form, the pattern that tends to emerge is an orchard (C). This pattern could also be explained by non-creationist theories such as punctuated equilibrium, but since no convincing mechanism as to how this could operate is on offer and it is incredibly difficult to think what it might be (what could explain the sudden appearance of new forms of life at various points other than the input of new information from a creator?), the simplest explanation may appear to be some form of Old Earth Creationism.

One problem with interpretation of the fossil record is the fact that the way we interpret what is seen will depend on the presuppositions we bring to it. This is especially so with fossilised remains that are claimed to be evolutionary precursors of modern humans (*Homo sapiens*). The person who believes that human beings evolved gradually from a non-human ancestor (note that biotic evolution – the idea that different species evolved over long periods of time by gradual processes from earlier species – does not claim that human beings evolved from apes but that all

primates, including humans, had a common ancestor) will hope to find evidence of our ancestral species. When bones are found that seem to have some human characteristics and other characteristics that are more akin to the great apes these are likely to be interpreted as belonging to a common ancestor. In some cases whole skeletons have been reconstructed based on small fragments of bone, with the 'gaps' filled in to resemble what scientists feel a common ancestor might have looked like. There are, however, other ways that these bones could be interpreted, either as extinct species of primate or as abnormal human skeletons. Within the entire human population today there is significant variation between ethnic groups as to what constitutes a 'normal' skeleton, but there is even greater diversity when the skeletons of people who have disabilities or other diseases that affect bone formation are taken into account. Neanderthals used to be considered a possible human ancestor, but now they are believed either to be a closely related species or simply a subpopulation of *Homo sapiens*! Other supposed common ancestors could be remains of diseased or deformed human individuals or of extinct species that were not ancestors of human beings. The choice to interpret them as our evolutionary ancestors depends on a prior commitment to the theory of biotic evolution.

- **Challenges from genetics**

When Darwin came up with his theory of natural selection the science of genetics simply did not exist. In other words, Darwin and his contemporaries didn't understand the mechanism by which traits are inherited by offspring from their parents. Our knowledge in this area increased dramatically throughout the twentieth century and continues to increase today. The Neo-Darwinian synthesis seeks to bring knowledge of genetics together with Darwin's idea of natural selection to suggest how they might work together to produce evolution. There are, however, some very big problems with attempting to do this:

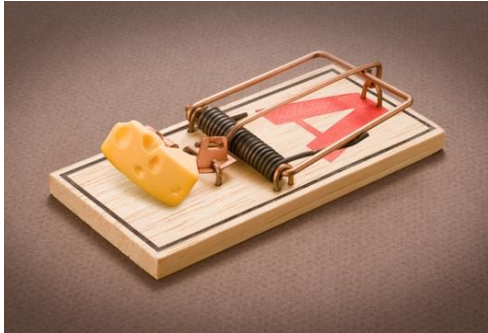
- a) *Mutations tend to be harmful* – the basic truth about genetic mutations is that they tend to be harmful to life. Many diseases are caused by, or contributed to by, faulty genes. Many miscarriages occur because of problems at the genetic or chromosomal level. Cancers occur because of changes in our genes that allow cells to multiply out of control. Minor mutations that change an organism's physical properties may be tolerated if they don't cause any disease but major changes are far more likely to be harmful and a positive major mutation has never yet been reported.
- b) *Changes are resisted by natural processes* – because mutations tend to be harmful, our bodies work very hard to prevent mutations, to kill cells whose DNA has mutated and to correct mutations before the cell can copy them. The mechanisms of nature, then, work hard against mutation. There is no capacity in the body to promote or encourage mutations – no safe space in nature where mutations are allowed to carry on unchecked.
- c) *Narrowing of genetic diversity, not increase* – natural selection is a highly plausible idea that can be seen to operate in species as they adapt to their environment but its end result is not new genetic information but a decrease in overall information. Consider, for example, an imaginary species of mammal that hunts in grasslands and is itself preyed upon by a larger predator. Within the population of animals there is variation in:
  - Size and strength – larger, stronger animals will be more successful hunters than smaller, weaker ones
  - Skin markings – markings that camouflage the animal better in grass will allow it to hunt more effectively and avoid being seen by predators.
  - Sensitivity of hearing – animals with less sensitive hearing will be more likely to be eaten by predators.

Over time we can easily imagine that the animals with good camouflage, bigger size and more sensitive hearing will predominate in the population as they will live longer and reproduce more successfully. We may even imagine that eventually there will be no animals below a certain size, without the advantageous coat markings and with dull hearing. What, then, has happened at a genetic level? The genes that coded for other skin patterns, for less acute hearing and for smaller size have been eliminated from the gene pool and only those that code for the desirable traits have persisted. In other words, we have less diversity, not more! We can see exactly the same phenomenon when we have selective breeding using intelligence or choice. Pure breeds of dog have less variation, both in appearance and at the genetic level, than mongrels. They are also more prone to disease as harmful mutations get concentrated along with the desirable genes. Likewise, human populations

that breed narrowly become less diverse in appearance (witness the similarity within specific ethnic groups) but may concentrate harmful genes (e.g., genes for Tay Sachs disease among Ashkenazi Jews or cystic fibrosis in Northern Ireland). This is a huge problem for Neo-Darwinian theory – natural selection does not produce new information and there is no good genetic mechanism for doing so (since mutation is so undesirable and generally so harmful).

- **The ‘irreducible complexity’ of basic cellular components**

Biochemist Michael Behe has demonstrated the phenomenon of ‘irreducible complexity’ in natural structures.<sup>9</sup> This



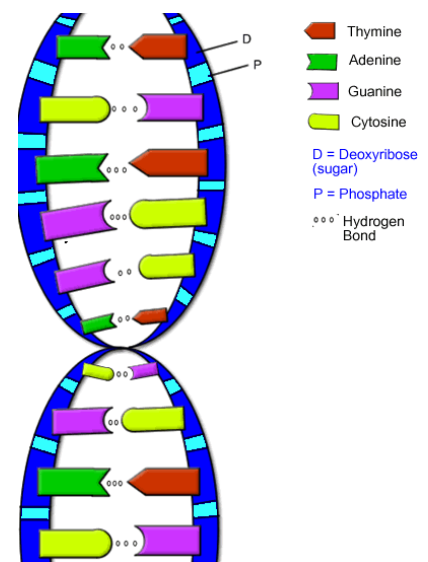
means that there are some natural structures that cannot serve any useful function unless all of the parts are present. A non-natural (manmade) example might be the mousetrap. This cannot work unless it has several key elements: a ‘hammer’ to trap (or kill) the mouse, a bar to hold it down, a spring to cause the hammer to close suddenly, a catch to release the holding bar when triggered by the mouse and a base on which these parts are mounted. If any of these parts are missing the system simply will not work. Behe provides a number of very convincing examples of similarly irreducibly complex systems at the level of the single cell. His theory raises problems for

the idea of evolution by natural selection since that theory requires a change to confer some advantage on those individuals that possess it in order for it to become established in the population. Yet if one of the elements in an irreducibly complex system appears in an organism it will not confer any advantage on it since the other parts are missing. In fact, this additional structure is likely to be harmful to the organism – a waste of energy or a useless appendage. Irreducible complexity is, therefore, a major problem for the modern evolutionary synthesis. It is presented as a major piece of evidence in favour of design, especially by supporters of the *Intelligent Design movement* (see ‘Glossary’).

- **The problem of the origin of life and of information**

“An honest man, armed with all the knowledge available to us now, could only state that in some sense, the origin of life appears at the moment to be almost a miracle, so many are the conditions which would have had to have been satisfied to get it going.” (Francis Crick, co-discoverer of DNA’s structure)<sup>10</sup>

Neo-Darwinian theory cannot, by definition, explain the origin of life. It can only attempt to describe how natural forces could lead existing life-forms to change into new species. It presumes the existence of reproducing organisms. This admission in itself does not mean that the modern evolutionary synthesis is wrong or deficient, it is simply to say that an additional theory must be proposed to explain where these reproducing organisms came from in the first place. There is no widely accepted theory concerning this and certainly no clear mechanism for it. The main suggestion is probably that life emerged from chemicals that arose spontaneously in the mix of more basic chemicals found in the early earth’s atmosphere. Attempts to use statistics to calculate the probability of random chance causing these basic chemicals to form into the complex chemicals found in living organisms (e.g., gases forming basic chemicals which form amino acids which are the building blocks of proteins) result in probabilities in the order of 1 in  $10^{40,0000}$ . The problem becomes even greater, however, when we realise that it isn’t simply chemicals that are needed but the information that programmes how these chemicals interact together. DNA (pictured at right) carries information in the form of a four letter language and further information is carried in the proteins that interact with DNA. The idea that information could have arisen



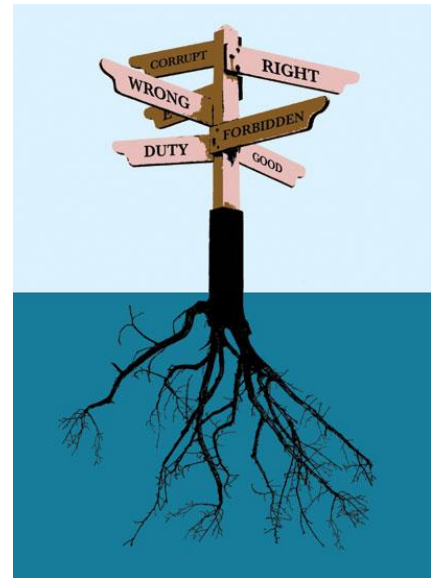
without intelligence is highly counterintuitive, based on our everyday experience. Some scientists, struggling to see



how life could have begun on earth even suggest that the first micro-organisms may have arrived on the planet on a meteor from another planet, but this simply exports the problem to outer space! It is vitally important that people realise that accepting the modern evolutionary synthesis does not solve all of their problems. In fact, the question of how life originated on earth is a greater problem than the question of how life, once it was here, came to be so prolific and diverse.

- **No roots for morality**

A final problem for Neo-Darwinian thought is that the theory offers no clear explanation for the existence of human morality. In fact, the idea of the survival of the fittest, without any balancing morality, points in the direction of favouring the death of less strong individuals. Social Darwinism would appear to be the logical extension of Darwinian biology – why should public policy not give evolution a helping hand towards making our species stronger by allowing less strong, less intelligent individuals to die or at least preventing them from reproducing? Yet the reality is that most people who believe in Neo-Darwinian evolution find this idea deeply disturbing. Even leading advocates of atheistic evolution argue for a compassionate response to the less able in our society. This poses two questions. Firstly, where does this innate moral sense come from? The Christian answers that it is an echo of God's character – His law written on our hearts. The best that Neo-Darwinian thought can propose is that it evolved as a way to ensure survival of larger numbers within a whole population even if it is not explicable purely in terms of the survival of the fittest, but no coherent explanation has been offered as to how exactly this may have happened or how it might be explained in terms of genetics. Secondly, if we now have the technical capability to overcome our species' 'limitations' and enhance its fitness, why would this be morally wrong? Even if morality made evolutionary sense at a certain stage in our evolution, it is only likely to be a hindrance to this new phase. Here is the ultimate irony for Neo-Darwinian thought. We now stand at a point where the blind forces of chance that drives evolution have produced creatures with the intelligence to further the development of the species through artificial means. However, our moral sense, that is either an unfortunate by-product of evolution or a previously helpful aspect of our survival, threatens to limit what we will allow ourselves to do and, in fact, suggests that the unbridled advance of our species may not be an ultimate good. Of course this contradiction is resolved if we accept that we are God's special creation, that morality is a gift from Him and a reflection of His character, and that our ultimate goal is not our own survival and advance but to know and serve God.



# The evidence of Scripture

## Genesis 1 – the six days of Creation



Genesis 1:1 to 2:3 (in this paper I will generally refer to the passage simply as ‘Genesis 1’) is a fascinating portion of Scripture. These 34 verses clearly form a single section – the chapter division falls in an unhelpful place as 2:4 starts a distinct passage with a different feeling and style. The function of Genesis 1 within Genesis is clear – it is foundational for all that follows. Indeed it is foundational for the whole Bible, marking the beginning of God’s great story and introducing fundamental theological themes. It introduces the God whose story unfolds in all that follows and it helps us to understand the world and our place within it. Whilst the purpose of the chapter is clear, there is considerable debate about exactly what kind of literature it represents and how it should be interpreted. Much of the debate has centred on the nature of the six days described in the passage – whether they are actual or figurative and if actual how long they are – but the answer to that question depends on our view of the passage’s genre. In fact, the debate over the duration of the six ‘days’ is not a modern phenomenon – there are indications of a diversity of opinion among scholars of the earliest centuries. Augustine of Hippo (AD 354-430), who probably wrote most about these matters during that period, claimed that they were not 24 hour periods and argued instead that creation had been instantaneous.<sup>11</sup> The conservative evangelical International Council on Biblical Inerrancy, whilst arguing against the idea of God working through macro-evolution to create various species and in favour of the belief that Genesis 1-11 records actual historical events, accepted a diversity of views about the age of the universe.<sup>12</sup> In discussing this passage we will first say something about its literary genre, then about the language used in it, then about the main ways it has been interpreted, and finally about its theology (what it teaches us about God).

### The literary genre

Scripture consists of different kinds of literature, or literary genres, each of which must be interpreted according to different principles. We need to read Scripture as it was intended to be read. Poetry should not be read literally. For example, the statement in Song of Songs 6:6 that the lover’s ‘teeth are like a flock of sheep’ does not mean that she had woolly teeth with legs that were prone to bleating. Statements that describe life the way we experience it or the world the way it appears to us should not be read as if they were intended to tell us about how the universe operates. For example, the claim of Psalm 93:1 that ‘the world is established, firm and secure’ does not mean that the author believed the earth to be non-moving but that we experience the ground beneath our feet as solid. There are two main possibilities as to what genre of literature Genesis 1 constitutes:

- *Narrative* – this could be an account of actual historical events. There is, however, a major problem with this because we are not dealing with a story about human beings and their lives but about God’s actions alone. There was no human observer.
- *Poetry* – some features of this passage, especially repeated words and phrases and the parallel ordering of the days of creation suggest that it is poetic in nature. However, it lacks the usual parallelism of Hebrew poetry.

We conclude that this chapter represents a unique genre which is part narrative and part poetry. Some scholars have suggested that the whole chapter is mythical or that it is at least partly mythical, but myth is not a genre found elsewhere in Scripture (unless we take a liberal view of the authority of Scripture). We should, rather, speak of Genesis 1 as poetic narrative or narrative poetry. This recognition in itself does not solve all of the problems with how we interpret this text, but it is important to realise that the poetic elements of the text open up possible interpretations that are not strictly literal.

## The language

There are a number of special features of the language of Genesis 1 which become important when we attempt to interpret what the six days mean:

- **Day (*yom*)** – this Hebrew word can mean a number of different things including daylight, a 24 hour day or an unspecified period of time. This range of meanings is not dissimilar to our English word ‘day’, which means different things in the following phrases: ‘On the day when I broke my arm’, ‘It was Man United’s day’, ‘Back in the day’. There are examples in the Old Testament of all three meanings. Even in this chapter it is used in two possibly different ways – in verse 5 it is the designation God gives to the period of daylight in contrast to night whereas in the rest of the chapter it refers to each of the seven distinct days of creation. This flexibility of *yom* raises the possibility of these ‘days’ being 24 hour periods or longer periods of time. Some scholars have tried to look at other features of the Hebrew of Genesis 1 to decide what meaning for day is in view here. Some point to the absence of the definite article (‘the’) from *yom* and from the numbers of each day except day six (i.e., verse 5 could be translated ‘day first’ rather than “the first day”, with the reference to “the sixth day” in verse 31 reading ‘day the sixth’). They suggest that this indicates that these are not 24 hour days, but this is not conclusive as this is a unique occurrence. Similarly, some people point to the repeated phrase “there was evening and there was morning” as evidence that 24 hour days are in view. This phrase is, interestingly, absent from day seven, suggesting that God’s Sabbath continues indefinitely. Against this claim, some commentators point out that evening and morning could mean something different on the first three days, before the sun and moon are revealed. Appeals have also been made to the use of *yom* elsewhere in the Old Testament, for example suggesting that when it has a number associated it is almost always a 24 hour day, but even then there are exceptions (in Hosea 6:2 it means a period of time).
- **Kinds (*miyn*)** – the references to kinds of animals and plants in this chapter have led some people to insist that creation of individual species is in mind. Others have objected that ‘kind’ cannot be as narrow as a species (the concept was not known to ancient Hebrews) and must refer to larger groups of related species. Some scholars say that the phrase “each according to its kind” does not refer to types of species at all but is a turn of phrase which could be translated “in all their diversity”. In other words, the emphasis may not be on God’s individual design of each type of animal but on the fact that whatever exists was created by Him – He is responsible for them all.
- **Create (*bara*) and make (*asah*)** – these two different words are used for God’s activity in Genesis 1. *Asah*, which generally means to form something out of pre-existing material, is found in verses 16, 25, 26 and 31. *Bara*, which generally means to create from nothing, is found in verse 1 and only when God creates living things – the sea creatures and birds in verse 21 and mankind in verse 27. Some interpreters place a great deal of importance on the difference between these two words, but the fact that verse 26 uses *asah* of God’s stated intention to make mankind and the very next verse uses *bara* to describe God’s actual creation of mankind suggests that the two words are effectively being used synonymously in this chapter. We must be careful not to force the distinction between them.
- **“And God said”** – this phrase, which marks a creative *fiat* of God, appears ten times in the chapter, once on each of days 1, 2, 4 and 5, twice each on days 3 and 6 and two additional times on day 6 when God speaks to mankind (v.28 and v.29). The repetition of this phrase, as with the repetition of other phrases (“evening and morning” and “it was good”) emphasises the unique literary genre of this chapter.

## Possible interpretations

Interpretations of Genesis 1 have tended to fall into three main groups:

### 1. 24 hour days (completely literal view)

Sometimes called the 'Calendar-day' view, the 'literal' view (literalistic would be better) and the 'traditional' view (this is debatable). Genesis 1 is historical and chronological in order, describing the events of creation in the order in which they actually happened. Proponents argue that the phrase "evening and morning" indicates that 24 hour periods are in view. Within the 24 hour day view there are three important variations:

- a. *One week of consecutive days* – God created everything by instantaneous *fiat* from nothing in six 24 hour days around 10,000 years ago. This is the standard form of the 24 hour view.
- b. *The 'gap' theory (restoration)* – there was a lengthy gap between 1:1, when God originally created the universe, and 1:2, when He begins to restore a disorderly world. Proponents often suggest that an original creation was destroyed by Satan's influence after his fall and claim that this explains the origin of evil, the existence of animal suffering before the Fall, the most ancient layers of the fossil record and why the earth was "without form and void". The gap theory was popularised by Scofield Reference Bible. One major problem with it is that there is no explicit reference to such a gap elsewhere in Scripture.
- c. *Intermittent days* – the six days are literal 24 hour periods but they are only the first days of lengthy periods, perhaps being set apart because they were "days of divine fiat" (as physicist Alan Hayward suggests<sup>13</sup>) on which God spoke to move creation forward. In practice the Intermittent Days view is similar to the Day-Age view, below, since it can allow for an old universe.

### 2. Day-Age (essentially literal view)

Genesis 1-3 is essentially historical in nature but the word 'day' refers to lengthy periods of time lasting thousands to millions of years. Some proponents see the ordering of the events of creation as chronologically accurate, while others think they are not strictly so. The chronological reading finds some support from scientists who suggest that the order is basically in keeping with current scientific theory about the development of the universe, with the exception of Day 4 since the sun and moon would have existed before the earth according to scientists. This problem with the sixth day is sometimes explained on the basis that the sun and moon were not visible from the earth before that point because the atmosphere would have been clouded and the account is written from the perspective of the earth. Proponents often see the six days as representing six stages of development of the universe in each of which God intervened directly to advance creation to a new level. As John Lennox writes: "At each stage of creation God injected a new level of information and energy into the cosmos, in order to advance creation to its next level of form and complexity".<sup>14</sup> Some commentators on Genesis 1 also emphasise that the days are divine days rather than human days (God's workdays) and that as such they are analogical, but not identical, to human workdays. Put more simply we might say that human beings were not present and did not observe the days of creation and hence we must be careful about being too dogmatic about what these days are.

### 3. Literary framework (essentially non-literal view)

The week of Genesis 1 is a literary device to describe the splendour of creation. It contains important theological truths, and the creative *fiats* (words) of God actually happened, but the text is not intended to say anything about how long creation took. Popularised by theologians Meredith Klien, Henri Blocher and Bruce Waltke. John Lennox suggests the distinction between how a builder and a surgeon would describe the building of a hospital.<sup>15</sup> The builder might speak of the process and mechanisms but the surgeon will speak of the design and how parts interrelate to function effectively. According to this view, the days of Genesis 1 are 24 hour days but are a literary device describing the order within God's creation and God's sovereignty over it rather than a literal account of the order and mechanism by which God created. The framework view emphasises the pattern of two triads of days (see the table below). Days 1-3 describe God's forming of three distinct spheres (some say kingdoms) – the heavens, the waters and the land – whilst Days 4-6 describe the filling of these three spheres – by sun and moon, birds and fish and land animals respectively. In each triad of days there is a final additional step on the third of the three days

marked by an additional *fiat* of God – on Day 3 it is the creation of vegetation and on Day 6 the creation of mankind. Thus vegetation grows from the earth but is distinct from it and mankind is related to the animals but distinct from them.

Forming (days 1-3) – “the earth was formless ...”	Filling (days 4-6) – “... and empty”
<b>Day 1:</b> Light and darkness separated (day and night)	<b>Day 4:</b> Lights to govern day and night
<b>Day 2:</b> Heavens separate waters from waters	<b>Day 5:</b> Birds and fish
<b>Day 3:</b> Dry land separated from waters	<b>Day 6:</b> Land animals
<b>Day 3 continued:</b> “Then God said ...” – vegetation	<b>Day 6 continued:</b> “Then God said ...” – mankind

This perspective gains some support from the fact that there are parallel accounts of creation in the ancient world which also speak of a seven day week, although there is a slight difference in structure, since those accounts have three pairs of days followed by a seventh day, and a major theological difference, since Genesis describes one God who is distinct from creation while the other texts speak of warring gods who are part of creation. The Genesis account, then, may have been written to counter false religions by emphasising God’s sovereign control over all created things and to demystify the supposed gods of moon, sea, earth etc. (although it serves this purpose whatever interpretation of the days we accept). A variation on the literary framework position sees the description of Genesis 1 as an account of God ordering the functions of a creation He had already made, with the week culminating with God’s Sabbath marking the ongoing regular functioning of His creation. This view has been advanced by John Walton of Wheaton College.<sup>16</sup>

There have been variations on these three positions, such as the idea that the first three days are lengthy ages but the second three (after the sun and moon appear) are 24 hour days, but these have found relatively little support. The following table outlines the main arguments for and against each of these three positions:

Arguments for	Arguments against
<b>24 hour days</b>	
<ul style="list-style-type: none"> <li>• The most straightforward reading of the text – likely to have been accepted by most readers of Genesis 1 throughout history.</li> <li>• The reference to evening and morning strongly suggests that 24 hour periods are in view.</li> <li>• Death before the fall and God’s curse is not a problem (no death occurred before sin entered the world).</li> <li>• Fits easily with the human work week and the Sabbath based on God’s rest after creation.</li> </ul>	<ul style="list-style-type: none"> <li>• Timescale is completely at variance with evidence from nature for an old earth.</li> <li>• Insists on too literalistic a reading of Genesis 1 that neglects the poetic features of the text and the different possible meanings of <i>yom</i> (day).</li> </ul>
<b>Day-Age</b>	
<ul style="list-style-type: none"> <li>• Allows for the old age of the earth suggested by evidence from nature.</li> <li>• <i>Yom</i> (day) can refer to an age in Scripture.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires death before the fall (but not human death).</li> <li>• How could age-long ‘days’ have evenings and mornings?</li> </ul>
<b>Literary framework</b>	
<ul style="list-style-type: none"> <li>• Recognises parallels with other ancient creation texts.</li> <li>• Recognises the poetic and structural elements in the text.</li> <li>• Removes the possibility of conflict with science as the text says nothing about order, duration or mechanism of creation.</li> </ul>	<ul style="list-style-type: none"> <li>• Why read Genesis 1 as non-historical when the rest of Genesis is clearly intended to be read as historical narrative?</li> <li>• Why would Scripture not begin with a historical account of God’s creation since it affirms everywhere that He did create the universe?</li> <li>• This interpretation is only accessible to scholars and would not be plainly understood by the average reader.</li> </ul>

Each of these three interpretations of Genesis 1 allows for different possible views about creation and evolution, as we shall see in a later section of this paper.

## Theology of Genesis 1

Regardless of which of the three interpretations of Genesis 1 we may accept, we can agree that this wonderful chapter teaches some amazing truths that are foundational to all of Scripture and to our faith. Consider the following list:

- **God's eternal existence** – the words “In the beginning God” open the Bible, showing that God pre-existed and is the source of all that follows. Scripture is His story!
- **God is creator *ex nihilo*** – this Latin phrase means that God created ‘out of nothing’. Although some interpreters suggest that physical matter (stuff) appears to exist already in Genesis 1:2, the use of the Hebrew word *bara* in verse 1 and again later in the passage shows that this is an act of new creation from nothing. This same truth is reaffirmed in Hebrews 11:3, John 1:1-3 and Revelation 4:11.
- **God is distinct from His creation** – unlike the pagan gods which are deifications of aspects of creation (heavenly bodies, earth, sea, forces and powers), the God of Scripture is distinct from His creation. Genesis 1 is a powerful corrective to any idea of pantheism (everything is god) or panentheism (god is in everything). In this passage God creates and shapes creation but He does not become invested in it.
- **God is personal** – God speaks, blesses, recognises the goodness of His work and ultimately creates man in His image. We have a God who is a person as we are – or rather we are persons because our creator is personal.
- **God is one but plural** – there are no rival gods and no conflict in the origin of creation. Everything is created exactly as God designs it and He is able to acknowledge His original creation as good. Yet there are also hints here of a plural dimension in God's person. The Spirit (*ruach*) hovering over the waters in verse 2 is both God and yet distinguishable from God. God refers to Himself in the plural in verse 26. These are surely echoes of the great truth of the triune God that becomes explicit in the New Testament.
- **God's sovereign word is foundational** – the phrase ‘let there be’ is repeated in this chapter. God speaks and it is so – He reigns supreme over His creation and He exercises His rule through His word. God speaking reveals Himself to us – a revelation that will reach its fullness in the person of Christ, the Word incarnate. The creative speech of God also leads us to expect that information is basic to life, a fact that science confirms.
- **Mankind is special** – the whole story of creation is of the formation of a home suitable for human beings and the creation of mankind is the pinnacle of the story. The account of our creation and God's words about us takes up six of the 34 verses. Only before creating mankind does God speak to Himself (v.26). Only mankind is created in God's image, to represent His rule over His creation.
- **God's original creation was good** – this fact is repeated seven times (vv.4, 10, 12, 18, 21, 25, 31). It is only with the entrance of human sin in chapter 3 that God's good creation is spoilt, even though Satan (personified in the snake) is already in rebellion against God.
- **Sabbath rest** – the principle of a rhythm of life with a regular weekly Sabbath rest away from work and unto the Lord is grounded in God's example of resting on the seventh day. This is a rich theological theme throughout Scripture.

## Genesis 2 – the creation of humankind

Genesis 2 parallels chapter 1 by focusing on God's creation of mankind. There are some common misinterpretations of this chapter that must be clarified before saying something about what it does say. These misinterpretations suggest that Genesis 2 contradicts Genesis 1, but I maintain that the two passages actually complement one another:

- *The names of God* – Genesis 1 refers to God only as *Elohim*, but Genesis 2 mainly refers to Him as *Yahweh*. It is often suggested that this difference indicates two different authors or sources. Whilst this may be true, the more important point is that Genesis 1 describes creation from God's perspective whereas Genesis 2 is written from a more human perspective. The focus in Genesis 1 is God's sovereignty and transcendence over His creation. The

focus in Genesis 2 is on His immanent involvement in creation and His relationship with mankind. The two names are perfectly appropriate for these distinct emphases.

- *The order of creation* – it has been said that the order of creation is reversed in Genesis 2, with man created before the animals and plants. This is a misreading of the passage. Verse 5 does not mean there was no vegetation, merely that the earth was relatively arid and there was no horticulture – God forms a garden in verse 8 by contrast. Verse 19 could equally say that God *had* created the animals as that He created them at that point (the Hebrew tense allows for either translation). Clearly the supposed differences in order are no problem if we take the framework view of Genesis 1, but they are not certain differences in any case. We might also wonder whether or not Genesis 2 is meant to be taken as literal history.
- *The busy sixth day* – some people think that day 6 of creation must have been a very busy day for Adam as he named all the animals and received his new wife too. In fact, Genesis 2 does not say that all of this happened on one day.

Having cleared away any confusion, we can now consider what Genesis 2 does teach. We will not consider here what it says about the responsibilities of mankind (the command given by God establishes human moral responsibility and the need for faith in relationship to God) or the relationship between man and woman (this chapter serves as a foundation for understanding marriage), although those would be fruitful discussions, but our focus is on what it says about the creation of mankind. In particular, I want to suggest that this chapter strongly indicates that the human race was created by an act of special creation. This is suggested by:

- a) The language of forming Adam from the earth (v.7) and Eve from Adam's side (vv.21-22). We might wonder whether the 'earth' was literally mud or perhaps an existing hominid, but in any case the description indicates a direct creative act of God rather than an unsupervised process that God had set in place some time before.
- b) The clear distinction between man and all other animals who were not suitable helpers (v.20). This must include any other hominids in existence at the time. We are left to conclude that if God created humankind through a gradual process of evolution there must have been some special intervention that turned a non-human organism into a human being created in God's image.

This implication of a special creation of mankind creates major problems for the idea of theistic evolution. The only way to square Genesis 2 with a gradual evolution of mankind is to take it as non-literal and non-historical.

## Genesis 3-11 – the Fall, the Flood and Babel

Time will not permit us to discuss in any detail these chapters, which form a bridge between Adam and Abraham and include accounts of the flood and the tower of Babel, but there is significant debate about whether they should be seen as literal accounts of actual historical events or semi-figurative (perhaps even semi-mythical) accounts. There is general agreement that from Genesis 12 (the beginning of Abraham's story) onwards we are dealing with real history. Given the frequency of New Testament references to people and events described in these chapters (see below) I struggle to see how they cannot be historical. This raises two important questions:

### a) **Are the genealogies complete or could more time be allowed between Adam and Abraham?**

Archbishop Ussher's calculation of 4004 BC as the date of creation was based on a careful addition of all the ages of the generations in these chapters along with the best contemporary estimates of the dates for Abraham. In addition to questions about the duration of the creation week of Genesis 1, more modern scholarship has raised two other objections to this approach. One objection relates to the exceptionally long lifespans of individuals. I take this to be a non-issue, since it seems perfectly plausible that people may have lived longer if the genetic programme for ageing had not yet been introduced to or activated in our DNA (this may have happened in Genesis 6:3, with God limiting our maximum lifespan to 120 years). The other objection relates to the idea that the genealogies in these chapters are complete. There are examples elsewhere in Scripture of genealogies that are not

complete – for example, Matthew’s genealogy of Jesus (Matthew 1:1-16) omits five names. This is not dishonest, but perfectly acceptable practice in a culture where people were often called sons of their grandfather or great-grandfather and given the concern of Scripture with order and numbers (i.e. rounding to a neat number of generations was acceptable in literature). We must conclude that these chapters may allow for a longer timeframe than Ussher realised.

### b) Was the flood literally a worldwide apocalypse?

The extent and nature of the flood described in Genesis 6-9 is hotly contested. Some geologists say there is no evidence of a worldwide flood of this scale, whilst some young earth creationists insist that the flood can account for most of the evidence of the fossil record and geological formations. Our concern here is simply to ask what interpretations the text allows. Leaving aside the idea that this whole section of Genesis is non-historical, there are three possibilities:

- *Literally the whole planet* – this might seem to be the most natural literal reading of Genesis 7, especially the reference to all the high mountains under the whole heaven being covered (v.19).
- *The part of the earth inhabited by human beings* – this is a possible reading in light of the fact that the aim of the Flood was to destroy mankind and mankind would only have inhabited a relatively small area in the Near East at the time. In this view the high mountains that were covered were not literally all mountains on the planet but only those that were known to human beings. There are other places in Scripture where “whole earth” does not mean the entire planet (e.g., Genesis 41:57; Deuteronomy 2:25; 1 Kings 18:10; 2 Chronicles 9:23; Acts 2:5; Colossians 1:23). This view is difficult to sustain, however, when it comes to the animals, since the language of Genesis 6:17 seems to say that all life was destroyed except what was in the ark, not just human life. It is difficult to believe that the animals had not spread more widely than human beings.
- *The earth as it appeared to Noah (the area known to his culture)* – this view, which sees the flood as only affecting one human civilisation rather than all humanity, is problematic given the repeated emphasis on all humanity being destroyed and the repetition of the creation mandate to fill the earth after the Flood.

The most likely interpretation of Genesis 6-9, then, is that the flood was a worldwide event, but we cannot rule out the possibility that it was confined to the region where all human beings at the time lived.

## Romans 5 – sin and death came through Adam

In Romans 5:12-21, Paul contrasts the results of Adam’s disobedience with the results of Christ’s obedience. Adam’s transgression brought death into the world whilst Christ’s death brought life for many. The way in which Paul contrasts the two suggests strongly that he believed Adam to be a real historical figure and the ancestor of all human beings – only Adam and Christ could represent the entire human race as sinless ‘heads’ of the human race. Paul conceived of the human race in its natural condition as being “in Adam” and those whom God had saved as being “in Christ” (1 Corinthians 15:22). The passage in Romans 5 is worthy of its own discussion and has been interpreted in various ways, but for the sake of our discussion it raises a very important question. Does Paul’s assertion that “sin entered the world through one man, and death through sin” (v.12) mean that the ‘24 hour day’ interpretation of Genesis 1 and the young earth creationist position must be correct? Some people have certainly drawn this conclusion, insisting that Paul describes sin as the cause of all death and therefore that animals cannot have eaten one another and that evolution, which requires many deaths over long periods, cannot have been the mechanism of God’s creation of life. Does this passage support that conclusion? We must answer no for the following reasons:

- **Paul cannot mean that all death is a result of sin**

If this was his meaning then we would have a major problem as it would include death of plants and microorganisms. It is incredibly difficult to imagine any kind of ecosystem in the world in which this was the case. Even if the animals could have eaten vegetation without killing the plants, are we to believe that no viruses or



bacteria died? In fact, the idea that animals were exclusively herbivorous prior to the Fall is not based directly on Genesis 1. After the flood, in Genesis 9:2: human beings are permitted to eat animals for the first time, but there is no comment on whether or not animals could eat one another prior to this. The other passage that might seem to indicate that animals eating one another was not God's original intention is Isaiah's vision of carnivorous animals lying down with animals that would normally be their prey under Christ's rule (Isaiah 11:6), but this poetic passage does not necessarily require a literal interpretation. Even if it is taken as a literal indication of a future paradise where animals do not prey on other animals this does not necessarily require that the same was true in the original creation. We often feel that animals killing other animals is 'cruel' but perhaps we are simply wrong in this assessment. There is no indication in Scripture that this behaviour is wrong, unnatural or a result of the Fall.

- **The passage reveals that Paul has specifically human death in mind**

Verse twelve continues to say that "in this way death came to all men, because all sinned". Human death alone is a result of sin – animal death is not. This principle becomes very clear when we read on to verse 18, where Paul says: "Consequently, just as the result of one trespass was condemnation for all men, so also the result of one act of righteousness was justification that brings life for all men." This verse puts the focus very clearly on mankind but it also parallels sin leading to death with Christ's righteous act leading to life. If we think that animals die because of Adam's sin would we also say that animals can be redeemed on the basis of Christ's death? We must be consistent in our application of this passage.

- **It is not simply referring to spiritual death**

Some commentators have suggested that the kind of death Paul is referring to in Romans 5 is spiritual death. They support this by pointing to the fact that when Adam ate the fruit of the tree in Genesis 3 he did not die physically – the death that came immediately was 'spiritual death'. It was only later that Adam died physically. In fact, the reason for his physical death appears to have been that he was no longer able to eat the fruit of the tree of life which was required to sustain his life indefinitely (Genesis 3:22).<sup>17</sup> Whilst this interpretation of Genesis 3 is, in my opinion, correct, those who apply it to Romans 5 are in error. The fact is that both spiritual death (a term that does make sense in light of passages like Ephesians 2:1) and physical death came as a result of sin. One came immediately; the other was deferred. Christ's redemption solves both problems – in Him we have new spiritual life and the hope of eternal physical life after our resurrection. One aspect of our life in Christ comes immediately; the other is deferred. To suggest that Romans 5 is only referring to spiritual death would be to introduce a false distinction between these two dimensions of death.

We must conclude, then, that Romans 5 is only relevant to human death. It does not require a young earth but leaves open the possibility that there may have been many years of animal death prior to Adam's sin. What it does not allow, however, is human death prior to Adam's sin. Nor does it allow for multiple 'Adams'. This has implications for people who suggest that God created human beings through a process of evolution. It requires there to have been a time either when God specially created Adam from the ground (as a literal reading of Genesis 2 suggests) or when God took a pre-existing hominid and bestowed upon it some quality that meant it was now created in His image, uniquely among any other similar hominids. If this change involved any modification of the hominid's genes or physical make-up this would appear to contradict theistic evolution.

## New Testament references to Genesis 2-11

There are numerous New Testament references to characters and events in Genesis 2-11. Consider the following:

- **Luke 3:34-38** – mentions the generations from Adam to Abraham as ancestors of Jesus.
- **Romans 5:12-21** – Paul bases his theology of sin and death on the actions of Adam (see above discussion)
- **1 Corinthians 15:22, 45** – Paul again describes Adam as a real person whose sin had consequences.
- **1 Timothy 2:13-14** – Paul bases his teaching about the relative roles of men and women on the actions of Adam and Eve and the order in which they were created.

- **Jude 1:14** – Jude refers to the prophecy of Enoch.
- **Matthew 19:4-6** – Jesus bases His teaching about marriage on God’s words to Adam and Eve.
- **Matthew 24:37-38 and Luke 17:26-27**– Jesus refers to Noah and the flood as if they were historical.
- **Hebrews 11:4-7** – Adam, Abel and Enoch are all referred to in exactly the same way as later Old Testament characters. The writer clearly treats them all as real historical examples of faith.
- **1 Peter 3:20** – Peter refers to the days of Noah.
- **2 Peter 2:5** – Peter again describes Noah as a real historical person.
- **2 Peter 3:3-7** – Peter describes those who deny the future coming of Christ as those who forget that the flood happened long ago. He is clearly saying that since one was a real event the other will really happen too.

Collectively these references indicate that Genesis 2-11 are not myth but must be historically true, either literally or with some figurative elements. Certainly the New Testament authors believed that the generations from Adam to Abraham were real historical people and that the flood really happened. If we believe their writings to be truth revealed from God, His inspired Word, then we too must accept that Genesis 2-11 is historical.

## God the creator *and* sustainer

The Scriptures contain many references to God’s activity in sustaining His creation (e.g., Job 38-39; Colossians 1:16-17; Hebrews 1:2-3). It also indicates that God is the giver of all good gifts (James 1:17), the sender of rain (Matthew 5:45), the director of the water cycle (Psalm 104:10-13) and the provider of food (Psalm 104:14). These truths are relevant to our discussion of creation and evolution because they show that God is continually involved in His world even if His actions are often unseen and frequently unacknowledged. This realisation breaks down some of the distinction that we tend to make between the natural and supernatural. In the words of Vern Poythress: “We must beware of thinking that God’s action is limited to what is exceptional, or that *only* exceptional events provide evidence for his presence”.<sup>18</sup> It is challenging for proponents of theistic evolution who claim that God created the world with the full potential for life to evolve without His direct involvement in the process. If God is actually involved in the ongoing governance and running of the universe we probably should not talk in terms that suggest that He has been distant. We must not stray into deistic thinking. Although advocates of theistic evolution may say that God exercises his sustaining work *through* physical laws, the language of Scripture seems to point to God having an intimate, personal involvement rather than simply observing the outworking of laws he set in motion. If we acknowledge God’s direct involvement in his universe, and especially if we accept biblical accounts of miracles including the incarnation of Jesus Christ, it becomes difficult to think of God’s involvement in the process of creating new species without at least acknowledging the possibility of some acts of direct creation. The boundaries between theistic evolution and creationism begin to blur somewhat.

## Conclusions

### ***Read both the world and the Word***

Christians should take seriously both the evidence of nature (the book of the world) and the evidence of Scripture (the book of the Word) in seeking to understand what can be known about this world – both can speak about the ‘how’ and ‘when’ as well as the ‘who’ and ‘why’ questions. Both science, as a human attempt to explain the evidence of nature, and theology, as a human attempt to explain the evidence of Scripture, are legitimate and necessary and the domains of knowledge to which they can speak overlap.

### ***Interpret Scripture carefully, aware of genre and perspective***

We must read the Bible with awareness of different literary genres and notice what it does and does not say. Genesis 1 does not *require* a young earth. Romans 5 speaks about human death, *not* death of all organisms. Genesis 7 may describe a global Flood *or* a local Flood that affected all humankind alive at the time. We must, however, avoid more strained interpretations of Scripture (e.g., the suggestion that Genesis 1-11 is entirely mythical or that Romans 5 refers only to spiritual death) in attempting to reconcile it with evolutionary theory.

### ***Nature suggests an old earth but science is far from explaining everything about the origin of species***

The evidence of Scripture, in my view, points clearly towards the special creation of mankind but is open as to the age of the earth and the existence of generations of life-forms before mankind. The evidence of nature, as currently understood, points towards an old earth but the current theories about the origin of species through evolutionary mechanisms have some very significant limitations and science has no coherent theory about the origin of life.

### ***Young earth creationism is highly improbable in light of the evidence of nature***

Young earth creationism is appealing because of its strong heritage among Christians but, despite the insistence of some advocates, it is simply not required by Scripture and it is incredibly difficult to reconcile with the evidence of nature. I want to maintain an open mind to the possibility that it could be true but it seems highly improbable given our current understanding of the evidence of nature.

### ***Theistic evolution gives too much priority to science and underestimates theological problems***

Theistic evolution of some form is appealing because it fits with the prevailing scientific consensus. It also agrees with young earth creationism that God did all His creating at the beginning rather than in stages but (in its standard form) it denies the possibility of special creative acts by God, which is problematic for our understanding of human identity and sin based on Romans 5. Proponents seem to be so wedded to methodological naturalism that it is difficult to see where any room is left for ‘supernatural’ activity of God in the natural world. They are in danger of becoming deists, relegating God’s involvement in His world to initial creation alone. It is difficult to reconcile belief that God acted specially in redemptive history (particularly in the virgin conception and resurrection of Christ) with an absolute denial of the possibility that He could have done the same in creation. Theistic evolutionists need to be open to the possibility of evidence in nature, such as the sudden appearance of new types of organisms in the fossil record, being best explained by creative *fiats*.

### ***Old earth creationism is appealing but also not without its problems***

Old earth creationism fits with evidence of an old earth, but it requires belief in repeated direct divine interventions (acts of special creation) that are not explicitly mentioned in Scripture (although it doesn’t rule them out) and cannot be proven by science (they will always be open to the ‘God of the gaps’ accusation).

***Special creation of mankind is almost certainly required by a theology of human identity, sin and death***

The one area where I am convinced that an act of special creation must have occurred is with the creation of the first human beings. I believe this partly because of the different genre of Genesis 2 when compared with Genesis 1 and partly because of the theology of sin and human death that is developed in the New Testament along with numerous references to Adam and other characters from early chapters of Genesis. All of this leads me to believe that there was a real Adam (the first human being who is our common ancestor) created specially in God's image. Evidence from genetics increasingly points to common ancestors of all human beings living within the range of tens of thousands of years ago, providing support for the biblical view.<sup>19</sup>

***We can be open about the extent of Noah's Flood***

As regards the Flood of Genesis 6-9, we can remain open as to whether it was a truly global event or a more limited regional event. In either case, the text requires that all humanity was exterminated with the exception of those in the ark. We should not play down the description of the event either – it was truly cataclysmic and may well have had profound geological results. Study of geology should remain open to the possibility that the Flood was global.

***Focusing on arguments for design by a creator rather than mechanisms of creation***

We should welcome the new consensus that is growing among some advocates of all three Christian perspectives that the emphasis in public debate should be on arguments for design by an intelligent creator rather than insisting on the exact timing and mechanism by which God created. It isn't that these details are unimportant but that they are of secondary importance. The most pressing need is to expose the flaws of naturalistic evolution both in its interpretation of the evidence of nature and in its rejection of other kinds of evidence that point to the existence of God.

***Two pitfalls to avoid***

Whatever position we hold to, we should do so lightly and without dogmatism. We must respect fellow Christians who don't share our perspective and seek to grow together towards a greater understanding of the truth. We should aim to avoid two dangers:

- a) Wedding ourselves to a particular interpretation of Scripture that is not required by the text with the result that we make our faith falsifiable if that interpretation becomes untenable in light of growing evidence from nature and/or that we deny the orthodoxy of other Christians who hold to an alternative interpretation.
- b) Being so convinced of methodological naturalism in our approach to the evidence of nature that we become functionally atheist or at least functionally deist. We must not allow ourselves to accept the view that God is uninvolved in the natural world. We must recognise His hand sustaining the natural processes of the universe as well as in His extraordinary actions in the world that appear 'supernatural' to us.

I hope that this paper may help to defuse the debate around creation and evolution to some degree. I trust that I have shown that it is possible to be a Christian committed to the authority of Scripture and to hold to any one of the three positions on creation that I have outlined. This should at least allow us to continue the discussion without unfair accusations and in a spirit of love. We can affirm what unites us whilst openly discussing those things which divide us.

## Glossary of terms

### Creationism

All Christians believe in creation – that is we believe that the God who reveals Himself through Scripture and in the person of Jesus Christ created the universe which we inhabit. In that most basic sense, then, all Christians are ‘creationist’. The term ‘creationism’ has, however, been used more narrowly to refer to Christians who hold to a certain belief about the way in which God created the universe and the life forms that inhabit earth, namely the idea of ‘special creation’. Some creationists believe God did this *en masse* in a very short period of time at the very beginning. They generally also believe that the world is relatively young and so are usually called ‘Young Earth Creationists’. Others believe God did this repeatedly at different points within a long time frame, either by suddenly altering the genes of existing organisms (with or without remodelling their bodies) or by introducing brand new organisms on the planet. This group are known as ‘Old Earth Creationists’.

### Deism

A worldview in which God exists but has no active ongoing interaction with the physical universe. He designed, made and wound up the clock and then left it to run itself. Deism denies the possibility of miraculous or special interventions by God including the idea that Scripture is a special revelation of truth from God.

### Evolution

The word ‘evolution’ is used by different people to mean quite different things:

- *Change over time in response to environment* – there is significant genetic and phenotypic diversity within species and that the characteristics of members of the species can change over time in response to their environment (e.g., finch beaks, colouration of moths) or with the input of human design (the breeding of dogs and other domesticated animals). The natural process of change is correctly called evolution, but it says nothing about whether one species can change into another, how the change comes about or how existing species came to be. Evolution in this sense is non-controversial for Christians.
- *Biotic evolution (or macroevolution)* – this sense of ‘evolution’ goes beyond change within species (or wider types of animals) to suggest that the species that we see today came about by a gradual evolutionary process over long periods of time rather than emerging fully formed. Usually, although not always, it is coupled with the suggestion that all species had a common living ancestor. The currently predominant view in the scientific community of the mechanism by which species originated through evolution is ‘Neo-Darwinism’ (see separate entry). Some Christians accept the idea of biotic evolution, believing that it may be the mechanism through which God created. This view is called ‘theistic evolution’.

“*biotic evolution* [is] the idea – formulated, evaluated, and modified in response to relevant scientific observations and experiments – that all forms of life present today have a common biological ancestry and that living systems have all the capabilities necessary to transform (by such processes as adaptation, genetic variation, natural selection, etc.) from the first form of life to the astounding variety of life-forms that have appeared in the course of time.” (Howard J. Van Till)<sup>20</sup>

- *Scientific naturalism* – some leading scientists and philosophers of science (most notable in the public consciousness are probably Carl Sagan and Richard Dawkins) have used the word ‘evolution’ as a kind of shorthand for the belief that the Neo-Darwinian process happened without any design from or origination with a creator. This claim goes beyond the realms of biology into a philosophical claim that the universe is all that there is – only physical matter, or what is measurable by scientific study, exists. There is no God and no spiritual dimension to existence. In short, ‘evolution’ in this sense is a worldview. Clearly this understanding of ‘evolution’ is not compatible with Christian faith.

Clearly it is important in any discussion about 'creation and evolution' to understand what is meant by 'evolution'. Too often people may assume that the debate is 'either / or', but this arises from the misconception that 'evolution' by definition entails atheism. Likewise, many people believe that Neo-Darwinism is a proven, incontrovertible fact and that therefore belief in God is redundant. In reality, Neo-Darwinism remains a theory, albeit the most widely accepted theory, but even if it were able to be proven beyond question it still would not rule out the possibility of a creator.

### ***Fiat creation***

See 'Special creation'.

### **Genes / genetics**

Genes are sequences of DNA (a chemical) that carry the information necessary to produce proteins and other basic building blocks for life. They are inherited from one generation to the next. Genetics is the study of genes and their activity.

### **'God of the gaps'**

A term first coined in the nineteenth century by Christians who wanted to suggest that any approach that looks for proof of God's existence in the gaps in scientific knowledge should be avoided (i.e., teleological arguments for God's existence are unhelpful). At any point in history there will be gaps in what science can explain about our world. Philosophical naturalists say that these gaps only exist because science has not yet advanced to the point where it can explain the phenomenon. Theistic scientists are open to the possibility that these gaps are a result of God's action in a 'supernatural' way that is not explicable in terms of the regular patterns of nature. There are two major problems with arguments for God's existence from gaps in knowledge. Firstly, advances in science may close the gaps, implying that God does not exist or causing Christians to be constantly in retreat as old gaps are closed and new ones become evident. Secondly, Scripture does not simply describe God's action in the physical world in terms of exceptional events that appear 'supernatural' to us – it also describes Him as ultimately responsible for and intimately involved in the regular patterns of nature. Despite these problems, however, some Christians argue that insisting that God's activity can never be the explanation for the gaps in current knowledge is to place too much confidence in science. Is it not also legitimate to speak of a 'science of the gaps' – a confidence that all gaps in our knowledge about the world that we will ever uncover will eventually be (or in theory could be) filled by science. Although the term 'God of the gaps' is unhelpful, given its pejorative overtones, we are left with a situation where we must either accept that some gaps in our understanding may, at least in theory, be explained by God's actions or that God's actions are undetectable in nature. The fundamental question, then, is whether or not we think God has acted in the world in supernatural ways.

### **Hominid**

A human-like organism that is more closely related to *Homo sapiens* (our species) than any living organism (i.e., than the chimpanzee, which is genetically closer to us than any other species).

### **Intelligent design (ID)**

The Intelligent Design movement emerged from the 1990s onwards, inspired by the work of law professor Phillip E. Johnson, as an attempt to promote arguments for design arising from philosophy and science. The movement includes people who are theists and non-theists and Christians who support each of the three views of creation described in this article. It aims to publish arguments for design without discussing the evidence of Scripture. It has met with resistance from some within the scientific establishment who wish to leave the possibility of design outside scientific discussion. Some advocates of theistic evolution criticise ID on the basis that it represents an updated 'God of the gaps' approach.

### **Methodological naturalism**

A methodology of, or approach to, science which limits it strictly to describing what can be seen and measured in terms of natural processes. It may imply:

- a) *A commitment to philosophical naturalism* – only what we can measure (physical stuff) exists and there is no possibility of supernatural explanations for changes in the physical world (scientific naturalism).
- b) *A definition of the limitations of science* – science is only a suitable tool for investigation and interpreting natural phenomena and cannot reveal truth about the supernatural.

Some Christians want to argue for 'theistic science' as an alternative approach to science.

### **Natural selection**

The tendency for species to change in response to their environment in order to become more suited to survival within it. The basic idea is of 'survival of the fittest' – those individuals that are most suited to life in that environment are more likely to live for longer and to reproduce offspring which are also well suited for the environment. When the environment changes, the species can also adapt to that change. Natural selection was observed and popularised by Charles Darwin. He suggested that it might be a key factor in the origin of new species as one species might change eventually into another.

### **Naturalism**

See 'Methodological naturalism'.

### **Natural theology**

An approach to theology that seeks to develop an understanding of God's nature and character by applying reason to what is observed in nature and experienced in ordinary life. Liberal Protestantism, influenced by Enlightenment thinking about the power of human rationality, rejected the idea of special, verbal revelation from God in Scripture. The Bible was effectively believed to be the result of natural theology – a theological document recounting how God's people interpreted their experience of him. Among Christians who accept that the Bible is actually Scripture, revealed by God, there is a range of views about the value of natural theology. Some reject the term altogether, emphasising the effect that sin has had on the human mind (the noetic effect of sin) and claiming that we can have no knowledge of God without special revelation. Others, pointing to Romans 1:20 and claiming that sin's effect on the mind is less complete, suggest that God has revealed some truth about Himself through nature and that this limited knowledge is accessible through natural theology.

### **Neo-Darwinism**

A theory that describes the origin of species through biotic evolution. It emerged from the 1930s onwards and is currently predominant among the scientific community. It is called 'Neo-Darwinian' because it rests fundamentally on Darwin's ideas but incorporates more recent insights from other scientific disciplines, especially genetics. It is also known as the 'modern evolutionary synthesis', after the title of a book by Julian Huxley. Neo-Darwinism suggests that evolution leads to the separation of distinct species through mechanisms such as mutation (changes in the genetic code), natural selection (the greater survival of individuals whose genes adapt them to the environment so that these genes are more likely to be passed on), genetic drift (the way in which genes are reorganised in offspring) and gene flow (transfer of genes between related populations).

It is important to realise that Neo-Darwinism cannot claim to offer an explanation for the origin of life. It is a theory that describes how life might evolve into more complex and varied forms but it assumes that life is already present. The

basic mechanisms of genetic mutation, drift and flow can only operate where there are genes in breeding organisms and natural selection can only operate where living organisms are breeding in an environment.

### **Philosophical naturalism**

A worldview in which only the physical world exists. There is no spiritual dimension to existence and God does not exist. Scientific naturalism (or scientism) is a form of philosophical naturalism that sees science as the only way to discover truth about the world.

### **Special creation**

The belief that God did not simply use gradual 'natural' processes (e.g., evolution) to bring different species into existence but that rather He acted in a more instant and dramatic way (that would appear to human observation to be 'supernatural') by His own decree to create distinct species. These actions are sometimes called creative *fiats* from the Latin for 'let there be' (a repeated phrase in Genesis 1), emphasising that simply by His word God calls into existence something that did not previously exist. Both young and old earth creationists believe in special creation.

### **Theism**

A worldview in which God exists both as creator of the physical universe and as its continuing sustainer and is free to intervene in nature in whatever way he chooses. Theism allows the possibility of divine interventions that appear 'supernatural' and that change the nature of physical material.

### **Theistic science**

An approach to science that rejects methodological naturalism and allows for the possibility that God's actions may be proposed as the best explanation for some of the evidence of nature. This approach is in direct conflict with methodological naturalism.



## Further reading

The present author has written a number of papers that are available freely on his website, [www.paulcoulter.net](http://www.paulcoulter.net). One paper that is particularly relevant for those who want to think more about what it means for human beings to be created in God's image is entitled 'What does it mean to be human?' (see the 'Apologetics' page under the 'Writing' heading).

The following books are also recommended for those who wish to read further about different views on creation, evidence for design and the relationship between science and faith:

Boyd, Gregory A., and Paul R. Eddy. 2009. *Across the Spectrum: Understanding Issues in Evangelical Theology*, 2<sup>nd</sup> edn. (Grand Rapids: Baker Academic)

Gundry, Stanley N., J.P. Moreland and John Mark Reynolds. 1999. *Three Views on Creation and Evolution*, Counterpoints (Grand Rapids: Zondervan)

Lennox, John C. 2007. *God's Undertaker: Has Science Buried God?* (Oxford: Lion Hudson)

Lennox, John C. 2011. *Seven Days that Divide the World: The Beginning According to Genesis and Science* (Grand Rapids: Zondervan)

Strobel, Lee. 2004. *The Case for a Creator: A Journalist Investigates Scientific Evidence that Points Toward God* (Grand Rapids: Zondervan)

## About the Author

Paul Coulter was born and raised in Northern Ireland where he continues to live and work. He is married to Gar-Ling and they have two young children. Paul studied medical genetics (BSc with first class honours in 1997) and medicine (MB, BCh, BAO with distinction in 2000) at Queen's University, Belfast. He subsequently worked in NHS hospitals and then in the Northern Ireland Hospice before leaving his medical career to engage in pastoral ministry. He also holds an MA in theology (University of Wales), which he obtained with distinction in 2007 and is currently engaged in part time doctoral studies in theology (University of Aberdeen). Since August 2013 he has been a full time tutor in Practical Theology and Missiology in Belfast Bible College, where he previously taught as an associate tutor. He is a member of the Council of the Evangelical Alliance UK and an associate of the World Evangelical Alliance Mission Commission. He also visits various churches and conferences as a Bible teacher, trainer, seminar speaker, apologist and evangelist. You can connect with Paul and access other materials by him through his website:



[www.paulcoulter.net](http://www.paulcoulter.net)

## End Notes

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<sup>1</sup> See pages 39-44 of John Lennox's *Seven Days that Divide the World* for a brief overview of different perspectives in the early church.

<sup>2</sup> I acknowledge that there is no universal agreement about this distinction between infallibility and inerrancy, but this is the general way in which the terms are used in discussions about the nature of Scripture.

<sup>3</sup> This definition of 'theology' assumes that we recognise, as evangelicals generally do, that Scripture is the foundational and only ultimately authoritative source for theology – there are other sources such as reason, experience, tradition and nature, but these are secondary to and subject to Scripture.

<sup>4</sup> Gould, Stephen Jay. 1999. *Rocks of Ages: Science and Religion in the Fullness of Life*.

<sup>5</sup> I am indebted for this insight to the brilliant chapter on 'Progressive Creationism' by Robert C. Newman in Stanley N. Gundry, J.P. Moreland and John Mark Reynolds. 1999. *Three Views on Creation and Evolution*, Counterpoints (Grand Rapids: Zondervan).

<sup>6</sup> For more on the distinctive nature of human beings, especially as compared to chimpanzees, see Chapter 3 of my article *What Does it Mean to Be Human*, entitled 'Is there anything unique about *Homo sapiens*?', available: <http://www.bethinking.org/who-am-i/advanced/what-does-it-mean-to-be-human-chapter-3.htm> [accessed 8 Feb 2013]

<sup>7</sup> Simpson, George Gaylord. 1953. *The Major Features of Evolution* (New York: Columbia University Press), p.360.

<sup>8</sup> This explosion of variety of lifeforms is claimed to have occurred around 530 million years ago and marks the point when complex life-forms first appear in the record. Charles Darwin himself recognised that this phenomenon was problematic for his theory of gradual evolution.

<sup>9</sup> Behe, Michael J. 2006. *Darwin's Black Box: The Biochemical Challenge to Evolution*, 2<sup>nd</sup> edn. (New York: Free Press)

<sup>10</sup> Crick, Francis. 1981. *Life Itself: Its Origin and Nature* (New York: Simon & Schuster), p.88.

<sup>11</sup> For a summary of Augustine's view and a discussion of its relevance see Young, Davis A. 1988. 'The Contemporary Relevance of Augustine's View of Creation', *Perspectives on Science and Christian Faith*, 40(1), pp.42-45. Available: <http://www.asa3.org/ASA/PSCF/1988/PSCF3-88Young.html> [accessed 8 Feb 2013]

<sup>12</sup> See the 1982 'Chicago Statement on Biblical Hermeneutics', available: <http://www.bible-researcher.com/chicago2.html> [accessed 8 Feb 2013].

<sup>13</sup> Hayward, Alan. 1995. *Creation and Evolution: Rethinking the Evidence from Science and the Bible* (Bloomington: Bethany House).

<sup>14</sup> Lennox, John C. 2011. *Seven Days that Divide the World: The Beginning According to Genesis and Science* (Grand Rapids: Zondervan), p.55.

<sup>15</sup> Lennox, John C. 2011. *Seven Days that Divide the World: The Beginning According to Genesis and Science* (Grand Rapids: Zondervan), p.45.

<sup>16</sup> Walton, John H. 2009. *The Lost World of Genesis One: Ancient Cosmology and the Origins Debate* (Downers Grove: IVP).

<sup>17</sup> This interpretation is disputed, with some theologians believing that Adam and Eve had innate immortality prior to their sin, but I am convinced that in fact they had only conditional immortality – they would die without the sustaining power of God mediated through the fruit of the tree of life.

<sup>18</sup> Poythress, Vern S. 1999. 'Response to Paul Nelson and John Mark Reynolds', in Stanley N. Gundry, J.P. Moreland and John Mark Reynolds. 1999. *Three Views on Creation and Evolution*, Counterpoints (Grand Rapids: Zondervan), p.93.

<sup>19</sup> The reader is referred to two popular science books by geneticist Bryan Sykes: *The Seven Daughters of Eve* (2001, Bantam) and *Adam's Curse* (2003, Corgi).

<sup>20</sup> Van Till, Howard J. 1999. 'The Fully Gifted Creation', in Stanley N. Gundry, J.P. Moreland and John Mark Reynolds. 1999. *Three Views on Creation and Evolution*, Counterpoints (Grand Rapids: Zondervan), pp.167-8.