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**Science and the Bible: Are They Incompatible?**

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**Science and Theology**

I would like to begin by highlighting an important point. Christian belief in creation takes its emphasis from the *relationship* between God and the world, as shown in the Bible. Any questions about *how* or *when* God created the world have been secondary issues.

When the early theologians came up with the idea that ‘God created the world out

of nothing’ they did so as a way of explaining the God-world relationship in theistic terms. For them, the importance of the statement was that it makes clear that God and the world are separate, that the world is not made out of eternally existing matter, and that the world only exists because God chose to create it.

Some scientists often miss this important point. For example, in a passage that is often quoted from his book ‘A Brief History of Time’, Professor Stephen Hawking suggests that because his version of the ‘big bang’ cosmology removes any datable ‘beginning’ it leaves no room for a Creator God. He seems to think that the doctrine of ‘creation out of nothing’ requires that there be a point in time that can be identified as the moment of creation.

However, Christian theologians have recognised that identifying the moment of creation is not necessary. As Professor Alister McGrath puts it:

“***Augustine (*of Hippo*) argued that God could not be considered to have brought the creation into being at a definite moment in time, as if ‘time’ itself existed prior to creation. For Augustine, time itself must be seen as an aspect of the created order. Augustine thus speaks of the creation of time (or ‘creation with time’), rather than creation in time.”***

So, since time itself is part of the created order, God could well have created time with the character that it has in Hawking’s cosmology, which does not allow the identification of a datable ‘beginning’. Therefore it is by no means the case that the absence of such a

beginning ‘leaves no room for a Creator God’.

This example illustrates the limits beyond which science cannot take us. By its very nature science deals with what theologians call ‘secondary causes’, that is, with interactions within nature. It cannot deal with ‘primary causes’, that is, the ultimate origin and purpose of nature. As Professor Paul Davies puts it:

***‘though science may explain the world, we still have to explain science. The laws which enable the universe to come into being spontaneously seem themselves to be the result of very ingenious design.’***

What he says about the origin of the cosmos can also be said about the origin of life as well. It may be that discoveries in chemistry, molecular biology and biology will one day provide a coherent and convincing argument that, given the right conditions on some planet, intelligent life is bound to come about by a natural process. But again we are left wondering

*why* the properties of matter and the laws of nature are such, that impersonal matter should be able to give rise to intelligent persons.

Of course, it is always open to someone to shrug their shoulders and say, ‘We’re here because we’re here’ and leave it at that. However, Prof. Davies expresses the intuition

that many people have had down the centuries that an intelligent mind (God) behind a universe in which intelligent life has appeared is a satisfying and reasonable primary cause, especially when otherwise we are left simply with a chain of secondary that have no ultimate explanation.

To summarise, what I have tried to argue so far, is that there is no incompatibility between the biblically-based classical Christian doctrine of creation and modern science, provided one understands the different levels at which science and theology work and the limitations this puts on each of them.

As what I have said so far might seem a bit abstract I will try to explain it with an example in the form of a parable.

**The parable**

It was a warm summer evening. Two people were walking along the beach listening to the gentle lapping of the waves and looking at the star-studded sky. They both spotted a light flashing out at sea. One of them was a professor of Physics who got out a stopwatch and timed the flashes. He got out a photometer and measured the brightness of the flashes. He set up a spectrometer and recorded their spectrum. He noted the position of the light against the background stars.

As he drove home along the coast road he stopped a couple of times and noted its position again as it appeared to move against the background stars, and did some triangulation calculations on his laptop. When he got home his wife said, ‘You look excited dear, did you see something interesting tonight?’ ‘Yes,’ he said, ‘I saw what I deduced was a heated tungsten filament, enclosed in a silica envelope, emitting a regular pattern of flashes of visible radiation at an intensity of 2,500 lumens from a distance of about 850 metres offshore.’

The other person on the beach that night was a teenager. When she got home her mother

said, ‘You look excited dear, did you see something interesting tonight?’ ‘Yes,’ she said, ‘I saw a boat signalling SOS. I phoned the Coastguard, and they sent out the lifeboat.’

This ‘parable’ shows how the same event may have more than one level of explanation. Science, by the very methods which it uses, is restricted to the study of material things – matter and energy – and so its explanations are always expressed in materialistic terms. Science explains the mechanisms of nature – in the parable, how the flashing light was produced. It cannot answer questions about meaning and purpose – in the parable, why someone was shining the light and the message it carried. The scientific explanation could only go as far back as the tungsten lamp (the secondary cause). It couldn’t get back behind it to the mind of the person using it (the primary cause).

**Science and the Bible**

There are both atheists and Christians who see the creation story in Genesis 1:1-2:4a as providing a rival account to the ‘creation story’ told by modern science and who think that this is where the Bible and science clash head-on.

This is the position taken by Professor Richard Dawkins. In ‘The Blind Watchmaker’ he refers to the creation story in Genesis as an alternative to the theory of natural selection. It is also the position held by fundamentalist Christians, who believe that:

*The Bible is the written Word of God, and ... all of its assertions are historically and scientifically true in all the original autographs. To the student of nature, this means that the*

*account of origins in Genesis is a factual presentation of simple historical truths.*

(Christian Research Society court submission)

Such a statement ignores the reality that we use language and literature in many different ways. On many occasions, the Bible asserts that people think things in their heart, decide things in their heart, or hide God’s word in their heart. The Creation Research Society submission would lead us to conclude that the heart rather than the brain is the physical place for intellectual and decision-making activity.

A commonsense approach to language tells us that there is as much scientific validity in these biblical statements as in the statement that I love my wife with all my heart. In saying this I am not suggesting that the heart is the physical origin of our strong emotions. I am simply using a common modern phrase to express a truth in a non-scientific way.

Both Professor Dawkins and his fundamentalist Christian opponents ignore the importance of making sure that we interpret the Genesis creation story properly. In reality we interpret everything we hear or read. Most of the time, our interpretation of what we read or hear is done subconsciously. If my wife came home from work and said, ‘I’ve been banging my head against the wall all day’, I wouldn’t start looking for bruises. However, if she had been working in the garden and suddenly came in crying and said, ‘I’ve banged my head against the wall’, I would look for bruises. In neither case would I need to stop and consciously analyse what she said. However, sometimes it is particularly important to do our interpretation consciously and thoughtfully, to ensure that we do it well.

It is with a ‘commonsense approach’ to reading texts that I want to look at Genesis 1:1-2:4a to consider the question, ‘Are Science and the Bible Incompatible?’ It is, after all, the passage that seems to come to most people’s mind when that question is asked. Such a commonsense approach to understanding any text involves asking questions like the following:

***• What kind of language is being used?***

***• What kind of literature is it?***

***• Who is the expected audience?***

***• What is the purpose of the text?***

***• What relevant extra-textual knowledge is there?***

**The use of extra-biblical knowledge**

I am going to start with the last of these questions. Most Christian biblical scholars have recognised the need to do their interpretation of the Bible in the light of wider knowledge. Augustine, for example, has some strong words to say about those who do not do this.

*“...it is a disgraceful and dangerous thing ... to hear a Christian ... talking nonsense on*

*these topics (i.e. astronomy etc.); … the shame is not so much that an ignorant individual is derided, but that people outside the household of faith think our sacred writers held such opinions, and ... the writers of our Scriptures are criticized and rejected as unlearned men.”*

From this it is clear that Augustine had great respect for scholarly learning, including what we might call ‘scientific’ activity, and believed that proper attention should be given to it when interpreting the Bible.

In his Letter to the Grand Duchess Christina, Galileo expressed a concern for a proper understanding of the relationship between knowledge gained from the Bible and that gained from the study of nature.

**‘... *the intention of the Holy Ghost is to teach us how one goes to heaven, not how heaven goes.’***

The argument is clear. God has given us the capacities that mean that science is a valid and necessary path to truth about nature. The Bible has a limited purpose, which does not include teaching us about astronomy.

**What kind of language?**

When talking about Genesis 1, I am sometimes asked whether, in the original language, it is written in poetry or prose. The answer is that while it is not written in classical Hebrew poetry, neither is it ordinary Hebrew prose. It is what some scholars call ‘elevated prose’, that is, prose which is carefully structured and has some of qualities of poetry. This is the kind of prose that, in many cultures, is used during religious worship (liturgy).

Scholars, such as John Calvin in the 16th century, say that the language used in the Bible is that of the common person, and that when the Bible refers to the natural world it is therefore the ‘language of appearance’. Things are spoken of in terms of the way they appear to be to the ordinary ‘unlearned’ person.

‘**Moses ... relates those things which are everywhere observed, even by the uncultivated, and which are in common use.’**

Calvin expands further on this principle when commenting on the following passage:

***‘God made the two great lights – the greater light to rule the day and the lesser light to rule the night.’*** Genesis 1:16

In the light of what was known in his day, Calvin accepted that, if taken literally, this is scientifically incorrect. He suggested instead that Moses wrote in a popular style things which, without instruction, all ordinary persons with common sense, are able to understand. Moses adapts his language to common usage. We, of course, know that the Moon is not self-luminous but simply reflects sunlight. To be anywhere near scientifically true if taken literally in the way the Creation Research Society says it should be, this verse ought to say that God made a great light and a great mirror!

Galileo’s understanding of the nature of the language used by the Bible when referring to the natural world is the same as Calvin’s as the following two quotations from the Letter to the Grand Duchess Christina show.

***‘(The) propositions set down by the Holy Ghost were set down in that manner by the sacred scribes in order to accommodate them to the capacities of the common people, who are rude and unlearned.’***

***‘It is necessary for the Bible, in order to be accommodated to the understanding***

***of every man, to speak many things which appear to differ from the absolute truth so far as the bare meaning of the words is concerned***.’

These two quotations express the same ‘accommodation’ understanding of biblical language as Calvin adopted. The following quotation from Galileo recognises that, as a result of this, the literal sense of the biblical text may sometimes not agree with the scientific understanding of the natural event being described.

***‘...nothing physical which sense-experience sets before our eyes, or which necessary demonstrations prove to us, ought to be called in question (much less condemned) upon the testimony of biblical passages which may have some different meaning beneath their words.’***

With regard to Genesis 1, which as we shall see, Augustine understood as a symbolic story, he comments:

***‘The narrative of the inspired writer brings the matter down to the capacity of children.’***

**What kind of literature?**

At least as early as the Second Century there were some Christian thinkers who argued that the opening chapters of Genesis were never intended to be taken as a chronological account of how God created the world. This was long before the rise of modern science, so they were not trying to make the Bible agree with science. They saw things in the text of these chapters themselves which led them to understand them in a non-literalistic way. Origen of Alexandria, an early Christian theologian, for example, wrote:

***What man of intelligence, I ask, will consider that the first and second and***

***the third day, in which there are said to be both morning and evening,***

***existed without sun and moon and stars, while the first day was even without***

***a heaven? And who could be found so silly as to believe that God, after the manner of a farmer ‘planted trees in a paradise eastward in Eden’… I do not think anyone will doubt that these are figurative expressions which indicate certain mysteries through a semblance of history.***

That last sentence is very important. In it Origen is recognising that it is wrong to come to a piece of literature with a preformed idea of what kind of literature it is. We might be completely wrong and therefore totally misunderstand it. The sensible thing to do is to look for clues within the piece of literature itself that indicate what kind of literature it is, and therefore how we are to understand it.

The Genesis story conveys the idea of a planned and ordered creation. In a symbolic story God is depicted as a worker who does a week’s work. At the end of each day God stands back and surveys what has been achieved. At the end of the week he decides that he has done a very good week’s work!

God initially brings into being something that is ‘formless’ and ‘empty’. The first three days are spent giving it form, through a series of ‘separations’. The result is an empty structure. The next three days are then spent filling the structure with creatures that are appropriate to the different aspects of the ‘form’. The creation of the heavenly lights on the fourth day can now be seen to make perfect sense logically within the structure of the story even though it does not make sense if the passage is read with the assumption that it is a scientific account of creation.

**What was the Original Audience?**

The creation story was intended to be read by or, more likely, read to, ancient Hebrews who were worshippers of the Yahweh, the God of Israel. As mentioned earlier, the language used has a liturgical character, which means that Genesis 1:1-2:4a may have been written to be used in an act of worship.

**What is its Purpose?**

Augustine, Calvin and Galileo are united in seeing the main purpose of the creation

story in Genesis 1:1-2:4a as theological. The real importance of the story is not as a chronological account of creation but as a teaching aid to lead us to a proper understanding of God’s purpose in creating the world and its creatures. As Calvin puts it:

***‘Six days were employed in the formation of the world; not that God, to whom one moment is as a thousand years, had need of this succession of time, but that he might engage us in the consideration of his work.’***

As our knowledge of the religions of the ancient Near East has increased vastly over the past 150 years or so, thanks to archaeological discoveries of relevant texts and their translation, biblical scholars have increasingly come to see the creation story as primarily a strong piece of theological argument.

Its main purpose was to set out the Hebrew understanding of creation against some of the ideas that existed in the religions of the peoples among whom the Hebrews lived. Perhaps the most obvious example of this is the story’s monotheism at a time when the worship of many gods (polytheism) was commonplace. The Hebrew bible story is different; there is only one God in the story, the Creator of all else that exists.

Another example is the fact that the Sun and Moon are not called by their names but are referred to only as ‘lights’. An attentive reader might wonder why this is, since there are perfectly good, common words for Sun and Moon in Hebrew. The probable answer is that in the Semitic languages, of which Hebrew is one, the words ‘sun’ and ‘moon’ are also the

names of gods. The peoples around the Hebrews worshipped the heavenly bodies as gods and goddesses. The Hebrews themselves were tempted to follow their example, as indicated by the prohibitions against the worship of ‘the Sun and the Moon and the stars, all the host of heaven’ in the Hebrew Bible. Genesis 1:14-19 is an attack on all such worship. The heavenly bodies are simply ‘lights’ (like big oil lamps!) created by the God of Israel. Moreover, humans do not exist to serve these so-called ‘gods’, rather the ‘lights’ are there to serve humans, as sources of light and as calendar-markers.

**Conclusion**

I hope that I have helped to make the point that if Genesis 1 is read as I think it should be, as a theological argument expressed in a symbolic story addressed to ancient Hebrews, and not as a scientific text, it is extremely fruitful and relevant today.

Far from being incompatible with science, Genesis 1 provides a framework within which we can pursue our science and technology for the positive benefit of humankind and the rest of creation. It affirms that we live in an ordered and structured cosmos and that humans, as creatures made in the image of the Creator, can expect to be able to understand this order and structure.

Six follow-up questions:

1. The article suggests that when we look at a passage from the Bible we should be questioning the text in five different ways. For example, we might ask ‘What kind of literature is it?’

Find the other four questions mentioned and list them in what you consider to be their order of importance. Explain your choice of top question.

1. What does the scholar John Calvin say about the kind of language used in the Bible?
2. What is the purpose behind the language of the Bible when it says ‘God made the two great lights...’ instead of calling the Sun and Moon by name?
3. At the beginning of the article, Dr Lucas writes about creation and the relationship between God and the world. Explain what you understand by the phrase, ‘God and the world are separate.’
4. What is Augustine of Hippo’s idea or assertion about the concept of time?
5. The article gives an example of a modern parable to show how the same event may have more than one level of explanation. Work independently or with a partner to think about an event (don’t worry about it being a parable) which has more than one explanation or view point.

Your event should have a scientific or objective explanation (its secondary cause) and an explanation involving motive or intention (its primary cause).

Here are some situational starters – but try to think of an event or situation of your own:

Supermarket shopping

Making a sandwich

Emptying the dishwasher

The last five minutes of a football match