

## **GOD IN A SCIENTIFIC WORLD: CREATIONISM v EVOLUTION**

CHELSEA PAGE (Religion, Culture & Society)

**Abstract:** The religion and science conflict is a debate deeply rooted in Western thought, with misconstrued understanding of both fields resulting in a supposed warfare thesis where religion and science are portrayed as polarised enemies engaged in constant battle. This paper aims to disprove this thesis. Focusing on two main opponents in the debate, creationism and evolution, it argues that religion and science are not only able to coexist, but can also complement one another.

It begins with the fundamental Christian belief in, 'creationism', and then presents the opposing, scientific approach of 'evolution', in order to identify the strengths and limitations of both. The paper then attempts to analyse compatible aspects of these seemingly opposing theories to verify the intertwining nature of both disciplines. Arguments relating to 'guided evolution', 'days as ages', difficulties in translation and interpretation, the 'cosmological argument' and Genesis as a mirror of evolution are examined.

The analysis finally considers contemporary efforts to positively reconcile science and religion, before concluding that continued conflict is detrimental to the prospect of a harmonious relationship.

**Keywords:** Big Bang theory, Christianity, Creationism, Darwin, Evolution, Genesis.

### **Introduction**

Religion and science have been portrayed as polarised enemies ever since scientific discoveries began to question the biblical view of creation. In contemporary thought, Darwin's famous theory of evolution is the developmental, nineteenth-century breakthrough that provided opposition to biblical creationism and is thus perceived as religion's predominant threat. However, the biblical view of the origin of the world was challenged long before the development of modern science, so it is perhaps misguided to state that science is the reason for biblical questioning, science has simply provided the resources to enable the exploration of alternative theories.

Indeed, theories surrounding the origins of the Earth and humanity vary greatly in regard to religious belief, with many modern Christian denominations accepting and welcoming scientific viewpoints. Similarly, it is not uncommon for professionals in the field of science to adhere to religious belief, including the belief in God as the ultimate creator. Nevertheless, the disagreement between science and religion has resulted in a divide which this paper seeks to redress.

## **Creationism**

### 1. Literal interpretation

The way in which the Bible is approached and interpreted is important in explaining and understanding the origin of the Earth. One form of interpretation is the literal approach, reading the opening chapters of Genesis as a historical account detailing how God created the world. This is the way most creationists have understood the chapter and it affirms to literalists the Christian, creationist belief that the Bible is the divine Word of God and is therefore trustworthy and valid, requiring no interpretation or search for an alternative meaning. This theory is attractive in that it requires no further analysis or clarification and therefore does not raise questions as to why these passages were written or the meaning within them. That is not to say that it is simple, as this approach has been highly criticised by scholars, science advocates, atheists and the majority of liberal Christian organisations, who deem this theory implausible and fanciful. (Lucas 2001)

Creationism holds the belief that God literally created the heavens and the Earth (Genesis 1:2), the light and the darkness (Genesis 1:3-5), the sky and the sea (Genesis 1:6-8), and the dry land and vegetation (Genesis 1:9-12). This interpretation claims that God created the Earth physically, one process at a time. Following this, He then went on to create human kind, in the form of Adam, formed from the dust of the ground and made into a living soul by God breathing life into his nostrils (Genesis 2:7). This verse (2:7) is particularly significant when exploring approaches to Genesis, as it is often critiqued as being metaphorical; however, many creationists stand by the belief that this is the physical way in which God created the first man (Lucas 2001). It is then said that the first woman was created as a companion, formed from the rib of Adam (Genesis 2:21-23). The two were then commanded to 'be fruitful and multiply, and fill the Earth and subdue it' (NRSV Genesis 1:28). Thus, for creationists, this chapter successfully explains both the origin of the Earth and the origin of humanity.

This process is believed to have been achieved over a period of six twenty-four hour days, indicated by the mention of morning and night, with the seventh being a day of rest and reflection on all that had been made. This seventh day acts as a means of drawing attention to the ultimate goal of creation; the French theologian, John-Calvin (1509-1569), referred to the world as a theatre in which man was placed in order to appreciate God's work and 'adore their author' (cited in Tinker 2010, 50). To creationists this describes the meaning of the Sabbath, acting as a day of appreciation of God's miraculous week of creation.

The structure of Genesis 1 is that of routine and order, a deliberate action disregarding chance. The opening verses of Genesis describe the Earth as being 'formless and empty' (NRSV Genesis 1:2), waiting to be occupied and moulded by God's actions. The rest of the chapter then continues the theme of structure and order, detailing God's creative processes in chronological order (Tinker 2010). This structure is presented as direct parallels falling under the category of 'shapeless' and 'empty'; for instance, day one describes the separation of the light and dark, thus impacting the shapeless nature of the Earth, also on this day God creates lights in order to indicate day and night, thus filling the emptiness (ibid 2010). This indicates that God is the perfect craftsman, working schematically in order to complete his creation, which is further emphasised by the constant use of the term 'good' used to describe each of His creative processes. In the context of Genesis 1, it is most likely that this term closely translates to mean 'efficient', demonstrating God's pleasure in His work (ibid 2010). Terminology and language used in this chapter portray God as the ultimate creator, capable of incredible greatness and acts unparalleled by anyone or anything else.

Whilst Genesis 1 is primarily focused on establishing God as the creator, Genesis 2 recounts the same narrative but shifts focus to the creations of God: the inhabitants of God's Earth. Tinker likens this to a theatrical play: act one setting the scene and introducing the characters and themes, and the curtain being lifted in act 2 for the play to begin. Whilst the focus is still on God, the reader can begin to understand the nature of God and the reasoning behind creation (Tinker 2010).

## 2. Speculation and metaphorical interpretation

Despite this literal approach, the age of the Earth has long been a topic of discussion, with many Christian scholars accepting the belief that the Earth is millions of years old. This was speculated long before Darwin's account of the 'origin of species', as theologians and scholars attempted to understand the opening chapters of Genesis in compliance with this theology. It appears that the modern view of the Earth being only thousands of years old originated just centuries ago in the 1920s, following the writings of Seventh Day Adventist teacher G. M. Price (Lucas 2001).

Whilst the theory of creationism was initially accepted by many, the recent rise in scientific advancement made popular during the age of enlightenment and period of scientific revolution has led to much criticism from those who believe that science is able to provide definitive proof regarding the origin of the Earth – evidence that does not appear to coincide with events mentioned in the Old Testament. This has led to the question of how the narrative was originally understood

and how the majority of Christians have and do understand it in the modern world (Westermann 1981). For instance, rationality suggests that it is unlikely that God physically breathed air into a pile of dust in order to create Adam, and in actuality the verse is a symbolic account of humanity having a soul – the breath of God within them (Augustine cited in McGrath 2011). Likewise, it may have been impossible for the authors of Genesis to have discussed land formation and astronomy in scientific detail, due to the fact that they did not have the technology to comprehend this form of creation, so it may be the case that the purpose of Genesis is to provide some form of creation story in terms that would appear credible at the time. This is not an uncommon feature of the Bible; for instance, in the New Testament many of Jesus' teaching are portrayed as parables, using allegories related to agriculture in order to be understood by the population at the time, many of which worked in farming or cultivation. This does not suggest that God is not responsible for the creation of the universe, but simply implies that the process in which he completed this may have been embellished, thus taking no authority away from God.

### **Evolution**

The theory of evolution was first proposed by the English naturalist and geologist Charles Darwin (1809-1882) and published in his 1859 book *On the Origin of Species*. The book was based on research carried out during a voyage on HMS Beagle to South America and the Galapagos Islands (1831-6). Darwin's famous theory explains how all beings came to be, in the sense of how they evolved by integrating and adapting with nature. Until Darwin's publication, many scientists believed that species had a fixed state, in that they had always existed in their present form. Darwin's proposal was, therefore, an influential scientific breakthrough, being the first of its kind and providing complex detail of matters which had previously been misunderstood or overlooked by naturalists.

Darwin's breakthrough came during a trip to the Galapagos Islands, where he noticed that plant life was slightly different to that he had observed in England, and that certain species of animal appeared to be unique to the specific geographic location. In particular, Darwin noted many variations of finch on the Islands, which were slightly different from those found on the mainland and he aimed to discover why certain species survived in certain locations. He discovered that certain attributes of these birds aided their survival. For instance, birds with longer beaks were able to salvage food and insects in harsh conditions, whereas those with short beaks often could not and as a result died. Hence these birds had adapted in order to meet their environment and cope in specific conditions, making them perfectly developed in order to coincide with their surrounding

environment (ibid. 2010). This led to two conclusions: the animals on the Islands must be descendants of those on the mainland, and the differences in appearance must have been gradual (Sweetman 2010). Darwin's theory of natural selection followed: that if animal breeders and farmers were able to use artificial selection in order to make small changes in animals over just a few generations, then surely natural selection could be responsible for large changes over a larger time span.

This hypothesis was to account for all forms of life, including plant life and, most significantly, human life. Darwin argued that all present species came from common ancestors which, he claimed, were likely to have been single cell organisms that existed around four billion years ago and that all complex life forms had stemmed from these cells. This claim proposes that for the first two million years the Earth was populated by nothing but single cell organisms, with the most complex species, such as homosapiens, the ancestors of humans, coming into existence in the last half a billion years (Sweetman 2010). This topic was later explained in detail in Darwin's second book *The Descent of Man* published in 1871.

One major limitation of this theory is that Darwin did not account for the origin of life itself, only the origin of species; therefore, this model fails to explain how life began in the first place. This is problematic for many, including those who believe that life does not happen spontaneously, as theorised by Louis Pasteur (French chemist and microbiologist 1822-1895) in his law of biogenesis: that life comes only from living things. However, it must be noted that Pasteur's theory is based on what he observed and not necessary all that is possible (Lucas 2001).

Further limitation is due to the fact that much of this evolution theory is theoretical and circumstantial and unobservable to the naked eye. Darwin himself stated that natural selection was far too gradual to witness and therefore his early conclusions were not based on empirical evidence but rather on what he believed to be happening. This lack of definitive proof caused Darwin's theory to be initially rejected, however recent studies and research has led to substantial support for much of Darwin's work.

### **The 'big bang' theory**

Darwin's theory of evolution does not explain the origin of life and the universe and therefore fails to provide an alternative to the theory of creation. However, other cosmological discoveries have been able to provide a hypothesis for this, most notably the 'big bang' theory. In regard to how the

universe came in to being, cosmology states that approximately thirteen billion years ago the universe began expanding rapidly due to extreme high temperatures. After this expansion a cooling period began, during which energy converted into particles, these particles later merged and altered under pressure to become stars, planets and galaxies. Hence, in layman's terms, all matter was formed by atoms and subatomic particles. In the field of science, this explanation is widely acknowledged and a large percentage of the population also agree with, or give credit to, the 'big bang' as a more accurate representation of creation. This is partly due to its ability to provide explanation for almost all natural phenomena (Sweetman 2010).

However, for the universe, including planets, organic matter and humanity, to have come into existence, conditions would have had to have been perfect, and if the ratio of elements were even a fraction different, then none of this would have been able to take place (Collins 2006). This argument is often used to critique this theory by stating that conditions are far too perfect to have been coincidental or the result of an accident, thus a higher force must have designed the universe with intent. Evidently, this theory of creation is not dissimilar to that of the biblical explanation. Therefore, it is also possible that the biblical explanation of creation, as understood by early theologians, underpins the 'big bang' theory (ibid 2006).

### **Arguments for compatibility**

#### 1. Guided evolution

A common argument against the theory of evolution is that many creationists feel uneasy at the thought of God putting such a process into action, stating that God works instantaneously and miraculously (Lucas 2001). However, several Biblical chapters indicate that this is not necessarily the case. It is not uncommon for God to 'create' something over a lengthy period of time. For example, in Isaiah 43:1-15, God is referred to as the 'creator' of Israel, using the same translation of the word 'create' as in Genesis 1. However, the creation of Israel took place over several centuries and hence was not an instantaneous action. Furthermore, the creation of both Adam and Eve took two or three separate processes and was, therefore, not an act of immediate creation (Lucas 2001).

Having said this, it may be possible to combine this way of thinking with the theory of evolution in order to provide explanation for both theories. If, as discussed, God is responsible for creating something over a period of time or in a number of stages, does this not account for evolution? Is it not possible that God is guiding species through a number of stages? This theory is referred to as

guided or theistic evolution, maintaining that God is the creator and evolution is the process that He set in motion, otherwise explained as: God is the why, evolution is how (Lucas 2001).

This coincides with the biblical theory of 'deism', which argues that God created the world and then allowed it to continue to run by itself, a process which Lucas compares to that of a 'wound up-clockwork motor' (Lucas 2001, 124), an analogy used by Nicholas of Oresme in the fourteenth century, Boyle in the seventeenth century and Paley in the nineteenth-century, to argue that the universe could not have caused itself to exist in the same way that a watch could not assemble itself (cited in Barnes 2010). Hence, this theory argues for a God who set the universe in motion and is, therefore, only required to sporadically intervene when necessary. Alexander expands on this, stating the deism describes a 'distant God who winds up the universe at the beginning, sets up physical laws, and then retreats, no longer to interact with his creation, except possibly to perform the occasional miracle' (Alexander 2008, 189).

## 2. Days as ages

One common critique of Genesis 1-2 is the possibility of the entire universe and all that encompasses it being created in a matter of just six days. Creationists hold that these chapters are literal and that God is capable of achieving this. However, other theories attempt to explain creation in more rational terms, for instance the 'day as ages' hypothesis. This theory states that these days are to be taken figuratively and represent a number of stages which took place over an unspecified period of time (Lucas 2001). That they are portrayed as a working week in order to act as a metaphor and provide an allegory, i.e. describing creation as taking place over millions of years would sound mechanistic and would not fit the symbolic nature of Genesis. Completing this task in the space of a week may have been written in order to portray the powerful nature of God, that He is capable of greatness. A common language device featured throughout the Bible is that of hyperbole to emphasise importance, prominence and wisdom. This can be seen in the flood narrative, in which Noah is said to have lived to be three hundred and fifty nine (Genesis 9:28). It is highly unlikely for a man to live to this age and was probably not intended to be an accurate truth, but rather a demonstration of the importance of Noah himself, someone who was seen as righteous and eminent in the eyes of God.

Further evidence of this theory may be indicated in the events of the seventh day of creation as, unlike the previous days, there is no mention of an evening, thus suggesting that this period has not yet come to an end (Lucas 2001). John reiterates this view when Jesus states 'my father is still

working, and I am still working' (NRSV John 5:17), thus suggesting that the Sabbath day is an on-going period of time, or something that creation is moving towards (Westermann 1981). This interpretation rationalises the creation narrative in compliance with scientific belief, without removing God as the creator, or diminishing his ability. It is entirely possible that God was responsible for all of creation, but did so over a succession of millennia, as opposed to days, thus confirming the belief of both religious advocates and scientists (Lucas 2001).

Further problems occur when interpreting the word 'day' in Genesis 1 and 2. As in the English language, the meaning of Hebrew words depends on context and misinterpretation results when a word is taken out of context. The term day, for example, typically has three meanings in Hebrew, each referring to time. The first refers to the period between sunrise and sunset, and is the translation most commonly cited when reading Genesis 1. The second refers to a standard twenty-four hour day, measured from sunset to sunset. The third definition does not use solar reference, but refers to an unspecified period of time, as in the English use of the word in the context of 'back in my day' (Bickel and Jantz 2001). When read out of context it is rather difficult to identify the intended usage and the correct interpretation of 'day' in Genesis. Most creationists withhold the belief that each day in Genesis is twenty-four hours, as supported by the constant use of 'evening' and 'morning', indicating the complete transition into a new day (ibid 2001). However, as with the theory of the Sabbath 'day' as an on-going period of time, this could also apply to the previous days being, similarly, unspecified lengths of time.

Another aspect of the 'days as ages' theory is the appropriateness of using our Earthly time scale. If God is eternal and outside the laws of the physical universe then this too makes Him incompatible with the human concept of time. Hence it would be unlikely for a timeless, perpetual God to work in twenty-four hour days (Berry 1988). Saint Augustine (354-430) also argued this, stating that the six days mentioned in Genesis are included for a literary framework in an attempt to convey the order of creation and emphasize God as the creator of time (Augustine, cited in Berry 1988).

### 3. Translation and interpretation

As the multi-layered translation of the Hebrew word for 'day' has demonstrated, correct and accurate translation of the scriptural language, together with an exact understanding of context is important when interpreting Biblical intent. For instance, there are three different words in the Bible for the word 'create', depending on context. 'Bara' is typically used when referring to the work of God, whereas 'asah' and 'yatsar', meaning 'make' and 'form', are also used. This demonstrates the

importance of context and interpretation when reading scripture as it is difficult for context to be conveyed during translation, thus diminishing the intent of the author (Alexander 2008). It is also significant to note that languages such as Babylonian and Assyrian were undeciphered at the time of Biblical translation and have later been able to aid the understanding of Hebrew words (ibid. 2008).

Alexander (2008) stresses the importance of correct interpretation when reading scripture, stating that Western readers are not very practiced at reading ancient literature and, therefore, have a tendency to interpret with impassive literalism. This, he suggests, is due to the fact that scientific literature has become so dominant in modern culture that it has influenced the way in which we instinctively read texts, even those which are pre-historic.

A further problem comes from unfamiliarity with Middle Eastern culture. For instance, some Western readers have trouble understanding why Jesus rarely gave straight answers, whereas in Middle Eastern culture, it is often not customary and deemed impolite to reply with a straight answer (Alexander 2008). This highlights the importance of cultural and historical understanding.

#### 4. Cosmological argument

The Cosmological Argument is the name given to the notion that there must be an ultimate, first cause for the universe and aims to discover how it initially began. The argument for universal causation was first put forward by the Greek Philosopher Plato (479-347BC), who suggested that all things that are in motion must have been moved by something else, as something without motion is unable to exist (Plato, cited in Craig 2001). Plato did not limit the definition of the term 'motion' to mean that of physical movement, but also stated that motion applied to anything existing within time and space. Expanding on this, he stated that a series of things in motion must have ultimately been caused by something self-motional, a first mover (ibid 2001).

The catholic priest Thomas Aquinas (1225-1274) also expanded on this theory agreeing that all things must have a cause in order to exist as a contingent being and if they cause something else, then they form a contingent series, linked by cause and effect (cited in Sweetman 2010). However, regardless how many events are in the series, it must have an original source, something that initially started the chain. He argued that this first cause could not have been caused by something else, or it too would be a contingent being and the chain would be an infinite loop. He applied this theory to the universe, stating that, whilst all natural processes may be explained by referring to previous events, it fails to explain the whole series and so there must be an ultimate cause. Aquinas

argued that this first cause cannot be physical, in that if something physical caused the creation, then something must have caused that too, so on until we must reach something outside the laws of natural physics. Contemporary philosopher, Dallas Willard supports Aquinas's theory of a nonphysical creator, suggesting that:

even if it were neither self-contradictory nor counterintuitive to suppose that something originated without a cause, the probability of it relative to our data would be exactly zero. There is ... not a single case of a physical state or event being observed or otherwise known to originate 'from nothing' (cited in Sweetman 2010, 177).

William Lane Craig developed this into the 'Karam Cosmological Argument' in an attempt to accredit the origin of the universe to a supernatural, uncaused agent. His theory relied on three points: everything has a cause; the universe was not always in existence; and therefore the universe must have a cause. As with Aquinas, Craig argues that as the cause of space and time, the creator must surpass space and time and exist outside of our universe. Hence, he concludes that the cause of the universe is an 'uncaused, personal agent – one who is immaterial, timeless, spaceless and an enormously powerful creator. This is non-other than God.' (Craig cited in Meister 2009, 197).

##### 5. Does Genesis mirror evolution?

Alexander (2008) suggests that similarities can be drawn between the theory of evolution and the Genesis narrative. If, as the day age theory suggests, each of God's creative processes took place over successive periods of time as opposed to literal days, then it is possible that the opening passages of Genesis are a picturesque portrayal of evolution.

Before creating mankind, God began by forming the Earth, the skies and the seas (Genesis 1:1-19). If these four 'days' were time periods – millions of years – this complies with the scientific explanation that the Earth formed over a gradual process, cooling and forming over billions of years. The next act of creation highlighted in Genesis (1:20-25) was the creation of animals to inhabit the Earth. Interestingly, animals were created before mankind, something that is supported by evolution which claims that organisms and animals came into existence long before homosapiens, hence another similarity is evident.

Another significant comparison between evolution and the Genesis narrative is that of the creation of humankind and subsequent population of the Earth. In biblical tradition, Adam and Eve were the first humans to be created in God's image and were later instructed to 'be fruitful and multiply, and

fill the Earth and subdue it' (NRSV Genesis 1:28), thus making them the original ancestors of humanity. Evolution is an advocate of the concept of common ancestors, stating that humans all began as a single cell organism and subsequently developed into more complex creatures. Hence, it can be seen that both creationism and evolution agree that humankind stems from previous descendants (Alexander 2008).

Furthermore, the first mention of the word Adam (Genesis 1:26-27) has a unique translation, in that it is used to mean 'human kind', this plural, non-personal term is unlikely to have been used if it was referring to a single human being, thus providing the possibility that this verse was describing the creation of human kind as a whole (Alexander 2008). This could suggest that the purpose behind the narrative is to act as a myth referring to real events detailing the early history of humanity. This allegoric account of two human beings being produced in order to populate the Earth may be an account of prehistoric history told in a way that could be more easily understood (ibid). E. F. Kevan, writing in the first edition of the *New Bible Commentary* (1953), agrees with Alexander's theory of an allegorical interpretation of Genesis, stating that:

The biblical record of creation is to be regarded as a picturesque narrative, affording a graphic representation of these things which could not be understood if described with the formal precision of science ... Only a record presented in this way could have met the needs of all time (Kevan, cited in Berry 1988, 59).

## **Conclusion**

Religion and science cannot only coexist, they can also positively correspond with one another. Whilst the conflict thesis is one which is deeply rooted in Western thought, science and God are not only able to coincide, but both can also contain aspects of truth. This has been demonstrated through theories such as theistic evolution and the cosmological argument, which acknowledge the fact that science and religion are focused on different aspects and are therefore able to enrich understanding.

There is no reason for the conflict thesis; it is largely a product of misunderstanding that has manifested itself throughout history as a purportedly necessary conflict within Western society. Moreover, not only is the debate unnecessary, but it is detrimental to both fields. Portraying both subjects as enemies hinders important breakthroughs that the combination of religion and science can offer.

It is naïve to assume that religion and science do not clash at times. Religion is based on ancient culture and occasionally blind faith, something which can be threatened by the definitive nature of scientific exploration. However, there does appear to be interconnectedness between them. Lennox (2009) suggests that questions concerning the meaning of life and why the universe began are always at the forefront of human thought. These questions are often perceived as being the domain of religion; however, science also attempts to answer similar questions. Science cannot, however, answer all of life's questions, neither can religion, but both can put forward theories or suggestions based on what they are able to access and understand (Lennox 2009). Therefore, it appears that both fields can, and often do, support and, in some cases, enhance each other's theories.

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