THE UNIVERSITY OF ZAMBIA

THE SCIENTIFIC THEORY OF EVOLUTION AND CHRISTIAN BELIEFS: A PHILOSOPHICAL INQUIRY WITH SPECIAL REFERENCE TO ZAMBIA

BY

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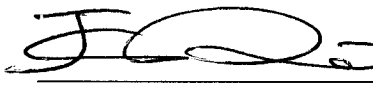
A Dissertation Submitted to the School of Humanities and Social Sciences of the University of Zambia in Partial Fulfilment of the Requirements of the Master's Degree in Philosophy and Applied Ethics.

Lusaka, Zambia

2006

DECLARATION

I, JULIUS KAPEMBWA, do hereby declare that this dissertation represents my own work, and it has not previously been submitted for a degree, diploma or any other qualification at this or any other University.



CERTIFICATE OF APPROVAL

This dissertation of JULIUS KAPEMBWA has been approved as partial fulfilment of the requirements for the award of the Master's Degree in Philosophy and Applied Ethics by the University of Zambia.

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ABSTRACT

The relationship between the Darwinian theory of evolution and some Christian beliefs is complex and has generated controversy between scientists and philosophers. The relationship has been perceived by many as necessarily one of conflict, a perception that has been highlighted in more recent times by the evolutionary biologist and self-confessed atheist, Richard Dawkins. This dissertation presents the arguments by both scientists and biblical literalists and makes a critical evaluation of both. It makes clarifications that expose the flaws in the thinking that has perpetuated the antagonistic view of the two. It also sets the framework for future enlightened debate on science/religion discourses in general, and those on evolutionary biology/Christian belief in particular. The problematic issues that arise from relating the theory of evolution and some Christian beliefs are outlined while drawing out the relevance of the research to Zambia in particular.

Part of the problem in relating the theory of evolution to Christian beliefs lies in problems of biblical interpretation in general, and with regard to the creation accounts in *Genesis* in particular. Biblical literalism, which is characteristic of Christian fundamentalists, gives a literal rendering to the biblical creation accounts that fuels the conflict view between the theory of evolution and some Christian beliefs. However, the allegorical approach to biblical interpretation does not necessarily result in such a perception. Biblical literalism has found particular support in what has dubiously been called "creation science" which regards *Genesis* to be offering a scientific account of the history of life. This, however, seems to be based on an erroneous approach to literary interpretation that ignores important elements such as the literary genre in question and the general cultural background within which the creation accounts were written. Consequently, the allegorical interpretation appears to be the far more reasonable and acceptable approach.

The design argument for the existence of God which focuses on the order and apparent purposefulness in the natural world is very popular among Christians. It has, however, found perhaps its most challenging criticism from the Darwinian theory of evolution which offers an account of the history of organic life that might seem to rule out the existence of God. Richard Dawkins shows how, on a certain level of interpretation, Paley's argument from design is flawed. He holds that given the explanatory versatility of the theory of evolution, atheism is the only intellectually

acceptable position. He maintains, therefore, that belief in God is obsolete and, as a scientific hypothesis, redundant.

An extensive critique of Dawkins' argument is presented showing it to be invalid and based on questionable premises. A reformulated version of the argument from design is then presented based on the purposeful directionality of organic life that can be found in neo-Darwinism. This renders it reasonable to postulate the need for the existence of God as an adequate explanation. Furthermore, the conclusion is reached that Dawkins' basis for attacking Christian beliefs is rooted in an unacknowledged metaphysical philosophical position (i.e. evolutionism) rather than a scientific one. From an explanatory point of view, therefore, theism rather than evolutionism is found to be a far more tenable, reasonable and comprehensive account of the order and purpose that can be detected in the natural world. As a result, the conflict model is rejected.

Three alternative non-conflict models are finally considered for relating the theory of evolution and Christian beliefs as opposed to the conflict model represented by Dawkins on the one hand, and Christian fundamentalists on the other. These are identified as the *independence, dialogue* and *integration* models. Of the three, the independence and the dialogue models are found to be unsatisfactory. This is so because, although the independence view treats Christian beliefs and neo-Darwinism as valid on their own terms, it posits that they must remain separate in explanatory discourse. The dialogue approach, on the other hand, while identifying some points in common between the two, such as some presuppositions and methodological similarities, does not go far enough to show how the scientific account complements and helps in clarifying the understanding of some Christian beliefs. It also fails to show how Christian beliefs provide the metaphysical framework that offers a rational explanation for the findings of science. Consequently, the conclusion is reached that the integration model is the most satisfactory from a philosophical point of view on account of its elegance, coherence and explanatory fruitfulness.

DEDICATION

For my father (1937-1997) and my sister Fridah (1982-2006). Without you it is so hard for me to find meaning in this life.

ACKNOWLEDGEMENTS

For the successful completion of this work, I am greatly indebted to my supervisor, Professor Clive Dillon-Malone for his guidance and critical comments. I would also like to express my gratitude to the librarians at the University of Zambia main library and at St. Bonaventure Franciscan Formation Centre for their kind assistance during the research. Lastly, this research would have been extremely difficult without the financial support I received from the University of Zambia through the Staff Development Office.

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CHAPTER 1
INTRODUCTION

Background

Relating the scientific theory of evolution and Christian belief is a subject that lends itself to a number of academic approaches. Three such approaches are historical, theological and philosophical. Although the differences between them are not always clear-cut, it is the third approach in whose context the subject at hand will be studied. Though Christian belief and evolutionary theory fall under religion and science respectively, in philosophy, their discussion falls under the philosophy of religion rather than the philosophy of science. This is largely due to the fact that a lot of scientific findings, hypotheses, theories and laws can be seen to impinge on religious belief which, in philosophy, duly falls under the philosophy of religion. Additionally, some scientists, as well as some philosophers, do actually make explicit attacks on religious belief. In so doing, they are presenting arguments that begin with scientific premises and make a leap to metaphysical conclusions. This warrants their being philosophically evaluated.

In a philosophical inquiry like this one, what is at stake is essentially the evaluation of the 'scientific' arguments in as far as they have, or are seen to have a bearing on Christian belief. The Christian beliefs are more or less those traditionally addressed by philosophers of religion and at the core of which is the belief in the existence of a personal God. However, given that our topic has a science dimension, some elements of the philosophy of science will inevitably be brought into the discussion albeit to a rather restricted extent. These elements will include the kind of subject matter of science, and the kind of questions it attempts to answer. This inquiry focuses exclusively on one field of natural science, that is, evolutionary biology.

Statement of the Problem

In Zambia, the majority population is Christian. Christianity took root in Zambia during the second half of the nineteenth century. Christian fundamentalism, which is widespread in the United States of America, in recent years, has rapidly permeated Zambian society especially after, and perhaps because of, the declaration of Zambia as a Christian nation in 1991. This is evidenced by the rapid increase in the number

of new churches that have been registered. As illustration, for the year 1992 some 28 new churches were registered compared with 302 in 2003. This is not to mention the phenomenal registration of 680 churches in 1997 alone.[1] One way in which Christian fundamentalism has been spread is through the establishment of local churches with roots or headquarters in America. Another, perhaps an even more pervasive way, is televangelism particularly on the worldwide Trinity Broadcasting Network (TBN) and on the nationwide Zambia National Broadcasting Corporation television (ZNBC TV).

The term "fundamentalism" emanated around the early twentieth century from a trans-denominational movement that sought to promulgate fiercely a number of fundamental beliefs seen to be vital for salvation. One fundamental belief that is problematic in view of this study is the belief in the literal inerrancy of the Bible on account of which fundamentalists are also referred to as biblical literalists. This is the view that every word of the Bible is true in a literal sense. Some fundamentalists go further adding that the Bible "is the only source of truth "(McMullan, n.d.: 3). This is most conspicuous in America where fundamentalists seek to influence school syllabuses and lawmakers on issues pertaining to science in general and to the theory of evolution in particular. Christian fundamentalists are particularly opposed to the theory of evolution because they perceive it as undermining the absolute authority of the Bible. The Bible, for them, is an all-in-one book containing not only spiritual knowledge but also scientific knowledge, and that includes the origin of organic life.

McMullan (n.d) notes that fundamentalism is by far the most dynamic religious movement in the United States, and even in the world today, with the exception of a few regions such as the Arab world. This is clearly true for Zambia. He goes on to identify Seventh Day Adventists (SDAs), Jehovah's Witnesses, and Baptists as some of the mainline fundamentalist churches. Additionally, Ellingsen cites the Holiness and Pentecostal movements as falling, by and large, within the fundamentalist Christian tradition (1988: 49). All these have notable representation in Zambia with the Pentecostals dominating televangelism while the Jehovah's Witnesses (and SDAs, to a lesser extent) are well known for their persistent door-to-door literature evangelism and Bible studies. Therefore, the fundamentalist attitude to modern

[1] Interview with Ms Rebecca Sakala, Director of the Registrar of Societies, February 8, 2006.

scientific theories in general, and to the theory of evolution in particular, is not to be unexpected among the Zambian populace.

The theory of evolution is especially singled out and summarily dismissed through a now famous straw man fallacy. It is presented as if it claims that humans are descended from monkeys. As such, a serious scientific theory regarding our origins is rejected as ridiculous and untenable especially given that no monkeys so far have become human. Fundamentalists instead promote creationism, "the view that species suddenly came into existence and have not evolved by natural process from other species, and that the age of the Earth is orders of magnitude less than geologists deduce, some few thousands of years, instead of about 4,000 million" (Peacocke, 1986:41).

In other words, the Fundamentalists teach that the *Genesis* account of creation is literally and not allegorically true. Further, the apparent implausibility of the theory of evolution and its subsequent rejection is increased in Zambia by the fact that in traditional African religious belief systems, God is primarily seen as the immediate and direct Creator (Mbiti, 1989:39). To give a more specific Zambian example, the Tonga people of southern Zambia "have traditionally believed that *Leza* (God) imbued creation with a *fixed* order in accordance with *Leza's* design . . . . (Dillon-Malone, 2004: 11; *my emphasis*).

The 'evolution-Christianity' problem is not as pronounced at the public level in Zambia as it is in other countries such as America. However, though not widespread, the problem is not completely absent as evidenced by the pro-Darwinian "Mercutio" column in the *National Mirror* and *The Post,* and the diverse reactions to it from different quarters of the Zambian society.[2] Views have continued to be expressed such as the one by Lydia Sibanze who, in a newspaper article, argued that "God is not [so] confused that he should cause animals to give birth to humans"[3] Further, as the population of the educated increases, the problem is likely to become more widespread and grow more intense. This is the view shared by Ms. Mweembe, the chief curriculum specialist in the Ministry of Education.[4]

In the past, and even now, much of the debate surrounding the theory of evolution has been conducted in a polemical, rhetorical and partisan fashion, and not

[2] The column ran from the early 1990's to 2003 when its author, David Simpson, died.
[3] From the *Sunday Times of Zambia.* January 23, 2005. p.8
[4] Interview conducted at the Curriculum development Centre on January 13, 2005.

one of authentic inquiry aimed at clear understanding and truth. Additionally, Richard Dawkins – one of the most popular and forthright writers propounding the irreconcilability of religious belief and evolution – laments that even though Darwinism has profound philosophical implications, "philosophy . . . [is] still taught as though Darwin had never lived" (1976:1). Philosophers are, hence, challenged to pay due attention to Darwinism in as far as inferences of philosophical significance can be, and are drawn from it. The need to respond to this call is even greater when the inferences impinge on such an important and ubiquitous way of life as Christianity, which also happens to be Zambia's official religion.

It is important, therefore, to carry out an inquiry that aims, in part, at setting the context for the debate in a systematic and critical manner. This is clearly preferable to the partisan and polemical approach that is bound to create more problems and confusions than solutions and clarifications.

Purpose of the study

The purpose of this research is to discuss critically whether challenges posed by the theory of evolution to Christian belief are rationally grounded. Conversely, some Christian responses will also be critically evaluated. The dominant, though not exclusive, focus will be given to the issues raised and the arguments advanced by the atheistic evolutionary biologist, Richard Clinton Dawkins. Dawkins is a materialist and a reductionist: he holds the position that matter is the fundamental reality and that the entire evolutionary process that includes animal as well as human behavioural phenomena, including religion, can be explained in terms of genes. He further believes that the scientific method is the only reliable path to knowledge or truth. In addition to an evaluation of the 'evolutionistic' arguments, these positions will also be critiqued. In short, the goal of this enterprise is the assessment of the logical validity, soundness and coherence/consistency of argument on both the materialistic and the Christian side of the debate, and ultimately to say which is the more reasonable position and possibly suggest a satisfactory explanatory model.

The question that this research attempts to answer, and one that pinpoints this research's theme is, "Does the theory of evolution undermine belief in a Christian God and other corollary beliefs?" This is a valid question because Dawkins, for example, postulates a theory that purports to answer the ultimate questions of our existence and dispels any notion of purpose and meaning in the so-called 'creation'

(Dawkins, 1986: x). On the contrary, Christians believe, according to the Bible, that everything in the world is created by God who gives purpose and meaning to it. This belief already has a firm foundation in traditional African religious beliefs. Hence, the answer to the above question, which is the central task of this research, has far-reaching implications for Christianity. The research also seeks to find alternative ways of relating the theory of evolution and Christian beliefs. It is important to note that this study is not intending to assess the truth-value of the theory of evolution for that is a biological rather than a philosophical venture. It will rather assess the validity of the metaphysical inferences drawn from it.

Significance of the study

The significance of this study is partly spelt out in the words of the philosopher Alfred North Whitehead who wrote the following:

> When we consider what religion is to mankind, and what science is, it is no exaggeration to say that the future course of history depends upon the decision of this generation as to the relations between them. We have here the two strongest forces . . . which influence men, and they seem to be set one against the other . . . . (1967: 181-182).

It cannot be over-emphasised that any contribution to the understanding of the two with a view to how they may be properly related is important. This is perhaps most evident in the relationship perceived to exist between Christian beliefs and the science of evolutionary biology.

This research is relevant to the Zambian understanding of the Christian religion. It will make a unique and useful contribution to the on-going academic and public debate on science and religion in general, and to the relationship between evolution and Christian belief in particular. The discussion will shed light on, and provide a possible framework for any future debate on evolution in a predominantly Christian cultural environment such as is the case in Zambia. This is especially so given the growing number of the educated and the rapid spread of fundamentalism. More and more people are getting higher education and becoming aware of international controversies (be they ethical, political, economic, scientific or religious) with a bearing on their lives while, on the other hand, the 'Christian nation' declaration has created room for vocal fundamentalist Christian groups to proliferate. Additionally,

as no research of this kind has ever been conducted in Zambia, it is hoped that this inquiry, which raises and discusses numerous issues, will provoke further interest, readership, enlightened discussion and research into the subject.

It is important that Zambia's future leaders (would-be church ministers, politicians, scientists, and teachers) receive a rounded view rather than remain dogmatically cocooned in one worldview into which they are most probably socialised during their early years. Currently, some Christians, as noted by Mercier,

> read only their own books and none other; they consider knowledge from other sources useless and dangerous since it creates only doubt and confusion. It is enough to surrender to the letter of 'The word of God' and propagate it tirelessly (1995: 68).

As opposed to this attitude which is clearly directed against science and philosophy, a Bible commentary on *Genesis* urges that the theory of evolution should be taught both in church and in school. This, according to Davidson, is important in order to "save our pupils from receiving a shock when some day they . . . hear some . . . lecturer discoursing upon the latest scientific theories about the origin of the world and man" (1953: 38). This research, by presenting and analysing the explicit and implicit evolutionist arguments against Christian belief as well as the counter-arguments, will help to achieve a more balanced understanding of both science and religion. Both the limitations of science and the dangers of Biblical literalism will be exposed while giving a four-fold typology of the different ways available for discussing the relationship between science and religion. In this way, to the extent that the theory of evolution or neo-Darwinism on the one hand and the Christian Scriptures or religious beliefs on the other have some truth to offer, so much the better for students and churchgoers alike; they will have gained fuller knowledge. If, on the other hand, they choose one and discard the other, they will be able to do so with intellectual integrity rather than out of arrogance or ignorance. This research, therefore, has both theoretical and practical significance.

One point at which science and religion seem to meet is what is usually referred to as the 'design argument'. Evolutionary theory tries to describe how different life forms have evolved over billions of years to their present state where they are well adapted to their environment and have reached a high level of biological complexity. On the other hand, Christianity tries to invoke the same biological phenomena in

arguing for the reasonableness of Christian belief in a transcendent being. One problem that arises from this is how or whether the theory of evolution can be reconciled with the Christian doctrine of creation. A further problem is the inference drawn by some writers that if evolution is true, then it is unreasonable to hold the belief that there is a transcendent being or God. The problems will be discussed in more detail in subsequent chapters.

CHAPTER 2

THE ARGUMENT FROM DESIGN

Philosophy is concerned with the rational justifications that are, or can be, given for holding certain beliefs. The Christian belief in the existence of God is sometimes supported and defended, or undermined and attacked by adducing evidence from the natural world. Such arguments for and against the existence of God are referred to as *a posteriori* because they essentially depend on drawing inferences from the facts of the natural world. One *a posteriori* argument for the existence of God that draws upon evidence from natural phenomena is 'The Design Argument'. The aim of any proponent of the design argument, according to Thomas, "is to analyze and draw out the implications of certain aspects of experience which seem to point to the existence of God, and then to show that they offer the most reasonable explanation of the world and man" (1970: 138).

The design argument provides a meeting point for Christian belief and evolutionary theory as allies, enemies, or strangers. This is because the data about the natural world that partly constitute the premises of the argument are also the subject matter of natural science to which biology belongs in its quest to describe and predict biological phenomena. This chapter aims at presenting and briefly discussing the design argument and the problems that it raises in the relationship between Christian belief and neo-Darwinism. The design argument, as William Paley presented it, brings out the problems more clearly, because it makes direct reference to biological phenomena that evolutionary biology purports to explain, that is biological complexity.

One or Two Arguments?

The 'design argument' (the argument from design) is sometimes linked with 'the teleological argument' (from *telos*, Greek for purpose, goal or end). However, some writers treat the teleological argument as a separate argument from the design argument. Here, however, they will be considered as one argument. This is not without some good justification. Davies (1982: 50) distinguishes between 'design *qua* regularity,' and 'design *qua* purpose'. The former refers merely to the occurrence of regularity or orderliness in the natural world while the latter refers to order that is in line with the fulfilment of some goal. In other words, the order is a sufficient

condition for the realisation of certain ends. Paley's version of the design argument encompasses both the notion of regularity and purpose so that separate treatment of the design and teleological arguments is not necessary. Nevertheless, recognising the distinction is important.

It is also important to mention from the outset that there are broadly two kinds of teleological argument. These are the analogical teleological argument and the inductive teleological argument. The former is exemplified by Paley's argument because it is based on some apparent analogy between some X's and some Y's as will be shown below. On the other hand, the inductive teleological argument is based on the anthropic principle discussed in the fifth chapter. Basically, the anthropic principle states that the evolvement of the world was so designed as to produce human beings endowed with the capacities of self-awareness, intelligence and moral awareness.

Aquinas' Version

In the history of philosophy, an early statement of the design argument usually referred to is that of Saint Thomas Aquinas (*c.*1225-74) though others can be found that preceded it such as in Cicero's *De Natura Deorum* and in Plato's dialogue *Timaeus*. Aquinas' argument is worth noting. In his *Summa Theologica*, Aquinas presents his famous 'Five Ways' which represent five different arguments in support of the existence of God. His 'fifth way' expresses the design argument as follows:

> We see how some things, like natural bodies, work for an end even though they have no knowledge. The fact that they nearly always operate in the same way, and so as to achieve the maximum good, make this obvious, shows that they attain their end by design, not by chance. Now things which have no knowledge tend towards an end only through the agency of something which knows and understands, as in the case of an arrow which requires an archer. There is therefore an intelligent being by whom all natural things are directed to their end. This we call "God". (Cited in McGrath, 1999: 10).

The gist of Aquinas' argument is not hard to understand. Inanimate things, being devoid of intelligence or knowledge, by themselves cannot have any directionality. A paintbrush cannot of itself, without being directed, produce the *Mona Lisa.* It must be grasped in the hands of an artist who, with skilful strokes, will produce that which

he has conceived, that is, his goal. Why, then, do things in nature have certain designs that enable them to reach the goals toward which they tend? For example, a tiny acorn seed, given the right conditions, grows to become a giant oak tree. The answer for Aquinas is to be found in a transcendent agent who designed natural things toward their ends and to this transcendent agent, he gives the name of 'God'.

Paley's Version

Another version of the design argument is presented by William Paley (1743 – 1805) in his *Natural Theology; or Evidences of the Existence of God and Attributes of the Deity, Collected from the Appearances of Nature*. The sub-title of Paley's work also accurately depicts the aim of eight famous essays that were known as the *Bridgewater Treatises* whose purpose was to collect evidence from various aspects of the natural world to be used to prove the existence, power, goodness and wisdom of God.

Paley's statement of the design argument begins with a detailed description of a watch. The components in a watch are intricately arranged to produce motion with the watch's hands moving at different speeds in order to indicate with a very high degree of accuracy the time of the day. Additionally, the components such as the spring, the wheels and the cover are made of materials that make possible the working of the watch and enhance its performance. Had the parts been differently arranged or different materials used, motion would not be produced and the resulting mechanism would not indicate time. Now, if we were walking on a path and found a watch, Paley argues that we would come to the invincible conclusion that there must be "an artificer or artificers who formed it for the purpose which we find it actually to answer, who completely apprehended its construction and designed its use", namely, the watchmaker (Cited in Feinberg, 1985: 28).

Paley then moves on to make an analogy between the watch and the natural world. He says:

> Every indication of contrivance, every manifestation of design, which exists in the watch, exists in the works of nature, with the difference, on the side of nature, of being greater and more . . . I mean, that the contrivances of nature surpass the contrivances of art, in the complexity, subtlety, and curiosity of the mechanism (Cited in Davies, 1982: 51).

From the natural world, Paley gives examples of complex organs of organisms such as the human eye and the wing of a bird as exhibiting an extremely high level of design for the purposes of seeing and flying respectively. The natural world has innumerable examples of organs adapted to the performance of a given role in the organism, and of organisms well adapted to survive and flourish in their surroundings. In the case of the watch, Paley concluded that the design found in it entailed that a watchmaker existed who designed it. It follows by analogy, according to Paley, that for nature (that is organs, organisms, and the natural world at large) there must be intelligence, a mind that explains the design and purposefulness therein. The designer of these organs and organisms is what is called 'God'. In short, there cannot be design without a designer; intelligence or thought is the *sine qua non* of design. Something with the foreknowledge that if the parts are arranged in a certain way, the outcome will be something capable of performing some specific preconceived goal. In the case of the watch, the designer is the watchmaker, while in the case of nature it is God.

Conclusion

In essence, then, the design argument presents as its evidence the manifestation of orderliness, interconnectedness and directionality in nature and how this, in organisms, is specially suited to the realisation of certain ends. This order and purposefulness, many Christians argue, is so overwhelming that it could not have come about by sheer chance just as stones by themselves cannot put themselves one on top of anther to make a church building. There is present all the indications of forethought and contrivance. Hence, this order, purposefulness and directionality, it is argued, can only be explained by a transcendent thinking being who designs the natural world with a purpose in mind.

Despite the force of the argument from design for the existence of God, however, a serious challenge has arisen from the theory of evolution, and in particular from the more specific critique presented by Richard Dawkins. As Dawkins' critique relates not only to the theory of evolution but also to the fundamentalist interpretation of the Bible, it will be necessary to discuss both the theory of evolution and approaches to biblical interpretation in the next two chapters before moving on to discuss the work of Dawkins in greater detail.

CHAPTER 3
THE THEORY OF EVOLUTION

Human beings, by virtue of possessing reason, ask questions and grapple with them for satisfactory answers. One fundamental question, whether formally articulated or not, that human beings everywhere from time immemorial have been faced with is that regarding the origins of life in general and human life in particular. This quest is evidenced by the presence of creation myths in almost every culture that has ever been studied by anthropologists. The early philosophers were not to be left out in this search for origins. With the philosophers, however, there took place a shift from cultural-religious views to more individualised efforts to present a systematic account of the emergence of life.

The Greek pre-Socratic philosophers, Anaximander (611-547 B.C.) and Empedocles (*c.*492-*c.*432 B.C.), are noteworthy in espousing unique accounts that may be appropriately tagged 'evolutionary'. Anaximander speculated that life first emerged in the sea and at a later stage spread to land, while the notion of the 'survival of the fittest' can be found in Empedocles' crude attempt at showing the origins of living organisms. Besides the accounts given by the early philosophers, several other 'evolutionary' accounts of our origins appeared prior to the definitive work by Charles Robert Darwin (1809-1882). To mention but two, there were works by George Buffon (1707-88) (*Histoire Naturalle*) and Jean-Baptista Lamarck (1744-1829) (*Philosophie Zoologique*). Darwin was, therefore, by no means the originator of thinking about the history of organic life forms in evolutionary terms.

Darwin's Theory of Evolution

Darwin was undecided about his career early in his life. His indecision, however, came to an end when, at the age of twenty-two, he was invited to become resident naturalist on a government ship, the HMS *Beagle* which was to set out on a five-year scientific expedition. This marked a decisive turning point not only in the young Darwin's life but also in the evolutionary view regarding the emergence of organic life, for Darwin elevated the notion of evolution to the status of a scientific theory. A theory performs an explanatory role for empirical regularities exhibited by phenomena and, generally, it tries "to afford a deeper and more accurate understanding of

the phenomena in question" (Hempel, 1966: 70). Darwin managed to construct an explanatory model for the understanding of the origins of different kinds of organic life. He, however, did not postulate a theory about the origin of life, something that has been added by some neo-Darwinists like Dawkins (cf. Dawkins, 1986). Darwin's use of 'origin' in the title of his book is with specific reference to the evolutionary development of species from earlier ones.

While on the HMS *Beagle* voyage to South America, the Pacific Islands and Australia, Darwin made extensive observations of the animal and plant life whose peculiar distribution caused him to wonder. He observed, for instance, that the finches on the different neighbouring islands had different physical characteristics which were suited to their environment and the food type available on the respective islands. Astounded by these observations, he said, "I never dreamed that islands, about fifty or sixty miles apart, and most of them in sight of each other, . . . would have been differently tenanted" (Cited in Patterson, 1978: 103). He later applied his mind to the vast accumulation of raw data collected from the expedition. It occurred to him that the data that could not be explained by existing theories might be attributed to 'evolvement' by which species seemingly arose from other species. He speculated whether his hypothesis regarding the species in the South American islands such as the Galapagos could not be extrapolated to include all organic life forms on earth. For him, the observations he made of fauna and flora on the small islands "seemed to throw light on the origins of species – that mystery of mysteries, as it has been called by one of our greatest philosophers" (Darwin, 1928: 17). Thus, inductive reasoning had brought Darwin from his particular observations to a possible universal explanation for all living organisms.

Important questions, however, still remained unanswered. How did evolution occur? The answer came in 1838 with Darwin's reading of Thomas Malthus' *Essay on the Principle of Population.* Malthus postulated that the relationship between human populations and food supply was asymmetrical; human populations increased geometrically (1, 2, 4, 8, 16 . . .) whereas food supply increased arithmetically (1, 2, 4, 6, 8 . . .). He argued, therefore, that human population must be decimated from time to time through catastrophes such as famines and diseases and other harsh environmental conditions in order to maintain the balance between human populations and food supply. Only the favourably adapted would be able to survive these catastrophes. Darwin had also postulated the same principle as being at work

in all diverse life forms. It thus dawned on Darwin that evolution must occur through the mechanism of 'survival of the fittest' or 'natural selection.' What also seemed obvious to Darwin was that the 'selection' was not random but was rather done based on certain criteria.

In stating his theory, Darwin said simply: "This preservation of favourable individual differences and variations, and the destruction of those which are injurious, I have called Natural Selection or Survival of the Fittest" (Darwin, 1928: 81). Evolution is thus a two-step process with the first step being the occurrence of *variations* in every generation or population. In any given population of living organisms of the same species, there are always some variations among the members. The second step, *selection*, arises from the fact that the resources in any given environment are limited, and environments change from time to time and from place to place (Patterson: 1978: 1). Hence, the variations provide the material for selection. What this means is that in the struggle for survival, those individuals or groups of individuals will be selected who have "a higher degree of fitness relative to a given environment than is possessed by competitors in the same environment" (O'Hear, 1997: 74). The individuals who are fit relative to the environment in which they are found will tend to live longer, leave more progeny, and proliferate more rapidly than will those individuals with a lower degree of fitness relative to the same environment. Ultimately, over eons of time, this will culminate in the preservation of such favourable "variations, and the corresponding reduction and finally elimination of other less favourable variations so that the gradual transformation of species occur" (Barbour, 1966:85).

Darwin neither initiated nor fully established the theory of evolution, though it may be modestly stated that he did provide its core by identifying the process of natural selection. This process seems to be part of the scientific enterprise owing to the cumulative nature of scientific knowledge. Very few, if any, scientific theories were propounded and completed in one stroke. The emergence of the heliocentric theory of the universe clearly shows how some theories become better in terms of their explanatory efficiency with the passage of time during which fresh observations are made. The theory of evolution is no exception to this gradual development of scientific theories. Indeed, Darwin himself, in spite of his remarkable contributions to evolutionary theory, had some uncertainties about the details of natural selection. For example, for evolution to work, favourable characteristics must be retained by

being passed on from parents to their offspring. Yet Darwin did not know exactly how this happened. Some of Darwin's puzzles, however, were to be resolved by his contemporaries and others by his later 'followers'.

Neo-Darwinian Evolution

The current theory of evolution is often referred to as neo-Darwinian, 'Darwinian' because it is based on Darwin's idea of natural selection, and the Latin prefix 'neo' (or 'new' in English) because it incorporates a number of findings in biology since 1900 that corroborate the theory by shedding more light on how natural selection really works. However, according to Richard Dawkins, the answers to Darwin's riddles that have consolidated his theory were so obvious that if Darwin were to have learned about them, he might have exclaimed: "How extremely stupid not to have thought of that!" (Dawkins, 2003:94). What, then, constitutes the 'neo'?

The sources of the variations in organisms and how these were transmitted from ancestors to progenies was one of the major problems in Darwin's theory. However, though Darwin himself was totally ignorant of the way in which these instructions for inheriting biological traits are passed on from generation to generation, his contemporary Gregor Mendel (1822-84) found the answer in his lifetime. Mendel carried out "a long series of experiments with pea plants from which he developed a theory that explained many of Darwin's difficulties" (Patterson, 1978:14). The answer to Darwin's difficulties was to be found in something we today take for granted, that is, genes. Darwin, however, was oblivious of Mendel's discovery as it only came to be recognised by the biological scientific community in 1900, eighteen years after Darwin's demise! Henceforth, it became clear that genotypic variation that is exposed to selection is a largely chance phenomenon that is primarily a product of sexual recombination and mutation (Mayr, 1988:532). Genotypic variation refers to the fact that all organisms, with the exception of identical twins and clones, have different genetic codes.

The neo-Darwinian synthesis was later reinforced by yet another important discovery in biology. In 1953, Francis Watson and James Crick discovered what is called the 'double-helix' structure of the deoxyribonucleic acid (DNA) molecule. In what Dawkins sees as a gross understatement, they concluded: "It has not escaped our notice that the specific pairing we have postulated immediately suggests a

possible copying mechanism for the genetic material" (Cited in Dawkins, 2003:73). It is probably the 'possible' that in Dawkins' view makes this an understatement.

Some Reactions to Darwin's Theory of Evolution

Right from the publication of *The Origin of Species* to date, Darwinian evolution has been met with responses ranging from unveiled hostility to fervent support. These responses have come from a wide range of scholarly disciplines which include biology, theology, and philosophy. Reactions have also come from Christian and non-Christian lay persons. It is not hard to see why Darwin's theory caused - and continues to cause - so much controversy. His theory was so radical that it impacted on the scientific, religious, and common sense thinking of his day as well as that of our day. In unequivocal terms, he states his aim as to "show that species had not been separately created, and . . . that natural selection has been the chief agent of change" (Darwin, 1992: 149). Taken at face value, this seemed to be a denial of the Christian belief in a divine Creator and the authority of the Bible. The following two landmark cases highlight the controversies that arose following Darwin's statement of the theory of evolution.

Huxley versus Wilberforce

The frontal confrontation between evolutionary theory and some brands of Christianity emanates from the latter's denial of humans' common ancestry with all the other organisms via a gradual process of natural selection. This conflicting situation is depicted by an encounter which took place between the then Bishop of Oxford, Samuel Wilberforce, and Charles Darwin's staunchest contemporary supporter, Thomas Henry Huxley. This was during a meeting of the British Association at the Science Museum in Oxford in 1860. There are several slightly varying reports of the exchange between the two men. The following quote is a recollection of the clash by Thomas Huxley's grandson, Sir Julian Huxley. In an apparent effort to parody the theory of evolution and its implication of common ancestry, Bishop Wilberforce quipped: "Is it on your grandfather's or on your grandmother's side that you trace your descent to an ape?" Huxley's grandfather responded by saying:

> It seems to me that one has no reason to be ashamed of having an ape for an ancestor. If there were an ancestor whom I should feel shame in recalling, it would be rather a man . . . who . . . plunges into scientific questions with which he has no real

> acquaintance, only to obscure them by aimless rhetoric and distract his hearers from the real point of issue . . . . (Tax, 1960: 43).

The above quote depicts a case of conflict in the relationship between science and religion in general, and between evolutionary theory and Christian belief in particular. The conflict arises in part as a result of fear among some Christians that challenging the supposedly historical and scientific assertions in the Bible would undermine its authority on spiritual and moral matters. The fundamentalists or biblical literalists worry that if they give the evolutionists an inch, they would take a mile, and thus jeopardise the entire Christian belief system.

The Scopes 'Monkey' Trial

The second historical event that portrays some reactions to Darwin's theory of evolution was a court case at Dayton in Tennessee, USA in 1925. The trial, popularly known as the 'Scopes Monkey Trial', followed the enactment of a law that prohibited the teaching of the theory of evolution in all universities and all other public schools of Tennessee. The American Civil Liberties Union (ACLU) wanted to challenge or test the law, and one John Thomas Scopes, a biology teacher at a school in Tennessee, was recruited to admit to teaching this theory. The defence's prominent lawyer, Clarence Darrow, was an atheist while the prosecution side featured William Jennings Bryan, an arch anti-evolutionist, as one of the assistant prosecutors. Bryan's services were sought by the World's Christian Fundamentals Association (WCFA) which, as the name indicates, represented Christian fundamentalism/biblical literalism.

According to the court verdict, Scopes lost the case because he admitted teaching the theory of evolution which the Butler Act had outlawed. However, in the case, seen as Bryan versus Darrow, the verdict fell against Bryan. This verdict, however, was on account of Bryan's die-hard fundamentalism and not at all on the triumph of atheism. It was not atheism but biblical literalism that was on trial. This is because Bryan and his team "argued that the teaching of evolution in schools should be forbidden because it is contrary to scripture" (Barbour, 2000: 15). It was whilst arguing against this that Darrow's side demonstrated to the Biblical literalists that a literal interpretation of the Bible led to absurdities and inevitably to conflict with the scientific evolutionary theory.

From the Scopes trial, it is clear that the conflict view of relating the theory of evolution and Christian beliefs is perpetuated, at least in part, by the brand of Christianity known as fundamentalism or traditionalism which denotes a Christian movement whose "popular image is that it pits the Bible against science" (Carmody and Carmody, 1989: 196). This conception is not entirely wrong as fundamentalism, also known as biblical literalism, is committed to a literal interpretation of the Bible. One of the basic assumptions of fundamentalism is "that Scripture comes from God without error and ought to be defended against science . . . ." (Carmody and Carmody, 1995: 198). For Christian fundamentalists, it follows from this that the Bible contains not only religious truths vital for salvation but also scientific truths about natural phenomena. As a result, secular science is acceptable if and only if it is in line with biblical knowledge. And since the neo-Darwinian theory of evolution seems to sharply contradict the literal reading of the two creation accounts in *Genesis* it is regarded as wrong, if not the work of the devil.

Conclusion

This chapter has attempted to present the theory of evolution as propounded by Darwin and how it has developed from the time of publication of *The Origin of Species.* What has come to be known as neo-Darwinism is the theory of evolution as conceived by Darwin with additions from other branches of evolution such as genetics and molecular biology. Some cases have been mentioned to highlight the kinds of debates that were sparked by Darwin's theory especially regarding its perceived bearing on Christian beliefs.

CHAPTER 4
CHRISTIAN BELIEFS AND THE BIBLE

What follows is an outline and brief discussion of the phenomenon of Christianity. Additionally, an exposition of the Bible in general and the *Book of Genesis* in particular, will be given. This chapter, therefore, aims at making clear the basis for different approaches by different Christian groupings to the issue of neo-Darwinism.

Christianity

Christianity is one of the world's major religions. The phenomenon of religion itself is one that does not allow for a straightforward, universally accepted definition. Indeed, the diversity and complexity of religions has made it difficult to derive a common denominator for them all. However, for the present purpose, it suffices to define religion as a phenomenon "constituted by a set of beliefs, actions, and emotions, both personal and corporate, organised around the concept of an Ultimate Reality" (Peterson, *et al.,* 1991: 4). The focus in this paper restricts itself to aspects of 'religious beliefs' within Christianity upon which evolutionary biology has a bearing. This is for the obvious reason that only Christian beliefs, as opposed to practices, lend themselves to a philosophical examination for consistency, coherence, plausibility, and truth.

Christianity may be understood as the religion that accepts, and attempts to practice the teachings of Jesus Christ. It has a system of beliefs at the core of which is the belief in the existence of a personal, eternal, all-powerful, all-knowing and perfect transcendent being referred to as God, Yahweh or Jehovah. However, to talk of Christianity is misleading, to some extent, as it seems to imply homogeneity within that religion. Nothing could be further from the truth. This has led Smart to go so far as to say that "one is often tempted to drop the singular and speak only of Christianities" (1979: 11). Christianity is therefore merely an umbrella term for a plethora of denominations of various sizes and different sets of beliefs. For example, in Zambia, there are over thirteen thousand organisations registered as Christian churches or denominations.[5] Even in these denominations, unanimity on beliefs is not guaranteed as has been evidenced by the split over homosexuality and celibacy in

[5] Interview with Ms Rebecca Sakala, Director of the Registrar of Societies, February 8, 2006.

the Anglican Church and the Catholic Church respectively. An apt imagery for this characteristic of Christianity is that of a river with so many tributary streams which are also inclined to separate depending on the geographical or topographical terrain they encounter.

Moreover, as McGrath points out, within Christianity, "a number of strands of thought need to be discerned. It is unwise to assume that each of these strands adopts an identical approach to the issue [of neo-Darwinism]" (1999: 29). The response of the various Christian denominations to an issue such as the neo-Darwinian theory of evolution will depend largely on the theological or religious school of thought to which they subscribe or belong. McGrath (1999) identifies four such schools of thought, *viz.*, Liberal Protestantism, Modernism, Neo-orthodoxy and Evangelicalism. These different schools emerge as a result of differences on biblical interpretation in general, and on how to relate Scripture and science in particular. It is, therefore, necessary to discuss the contentious subject of biblical interpretation because the discussion will shed some light on the ensuing analysis.

Interpreting the Bible

To begin with, what is the 'Bible'? A brief etymology of the word will be of some help. The word 'Bible' originates from the Greek, *ta biblia* which in English translates as 'the book*s*'. In Latin the word became singular, hence, the 'Bible' (Charpentier, 1981: 6). It is the Greek root, though, which shows why the Bible is usually described as a collection of books, or as a library.

The Bible, however, is a unique library because, although it contains about seventy different books by tens of authors, it is believed by Christians to have been inspired by God. It is regarded as the source of, among other things, moral teachings and theological truths about God and his relationship with his creation. For the current purpose, the Bible is important as a *Christian* Scripture. However, among the Christian fraternity, there are to be found many intra and inter denominational differences on how to interpret the Bible.

A writer who wishes to communicate effectively his message or ideas to an audience must use the 'language' with which the audience is familiar. In other words, he must use the types of literature (literary forms or literary genres) that will fulfil his purpose best. Ellis emphasises this point when he says that the writer, in as far as he wants to be understood and accepted, is not free. He says: "No matter who

he is, he is bound by the literary forms or conventions of his day" (1976: 119). Literary forms/genres are simply different ways of expressing things to fit the specific needs of the audience. They include poems, epics, stories, tragedies, hymns, satire, comedy, and myths. These are as much current in the present day literature as they are in ancient writings.

The Bible, being a collection of books written by different authors over a wide span of time to different audiences and for different purposes must have a wealth of literary genres. The authors of the books wrote them in different social, psychological and cultural contexts. All these factors affect the way that the respective authors write for their particular audiences. It is imperative, therefore, for the discerning reader to take cognisance of these factors and the literary genre employed in order for him to properly and correctly understand or interpret Scripture. This is crucial because "the measure of truth of what an author writes . . . is determined by his purpose, and his purpose or intention is known principally from his literary form" (Ellis, 1976: 117). Each literary genre has special rules for its interpretation. Ellis points out that the "recognition of these various types and the correct application of the proper norm of interpretation is . . . important for the study of biblical literature" (1976, 116). This may not have posed a serious problem for the biblical authors' contemporaries who were familiar with the culture and literary genre being used. However, for modern readers of the Bible, it is problematic, and it is a major source of misunderstanding in particular in the Christian belief/neo-Darwinian evolution debate or controversy.

Two major approaches to biblical interpretation are noteworthy, *viz.*, the *literal* approach and the *allegorical* approach. While the former "argues that the [biblical] passage in question is to be taken at face value", the latter stresses that certain sections of the Bible are written in a style which it is not appropriate to take literally" (McGrath, 1999: 9). The literal approach is typical of fundamentalists who, according to Carmody and Carmody, possess the "mentality that tends to read documents, especially Scripture, without attention to the historical and literary mentalities of their authors" (1995: 239). Other non-fundamentalist Christian bodies, however, such as the Catholic Church, for instance, subscribe to the allegorical approach. An understanding of these different approaches to interpreting the Bible is critical as it largely determines how a Christian body responds to the issue of neo-Darwinian evolution.

The Case of *Genesis*

The *Book of Genesis* is the first book in the Bible. This book contains perhaps the best known narrations of the origins of the physical world and its constituent diverse life forms. These narratives about origins are usually referred to as 'creation accounts' or more technically, as cosmogonies. Consequently, the interpretation of the creation accounts given in *Genesis* is crucially important in the evaluation of the relationship between Christian belief and neo-Darwinian evolutionary theory. The two accounts seem to be trying to answer the same question, that is, 'how did the fauna and flora originate?' However, the understanding among many Christian believers and unbelievers alike that the two are competing explanations has become a major source of controversy. Later, we will examine whether this understanding is warranted.

Like any other book in the Bible, *Genesis* is acknowledged to have been written by human beings under God's inspiration. There is more or less general agreement among scholars of the Bible that *Genesis* contains two not one, creation narratives (cf. Tos, 1963: 54-55). These are found at *Genesis*.1:1–2:4 and *Genesis*.2:4–3:24 whose authorship is attributed to the Priestly and the Yahwist writers respectively. The second of the two accounts is so called because, throughout, it uses the word Yahweh instead of God. The Priestly author on the other hand put into writing, "the traditions that came down through generations of priests connected with the Temple of Jerusalem" (Tos, 1963: 74). In his account, therefore, he has emphasised issues that were of special interest to the priestly tradition such as the Sabbath. The two accounts differ also in style as the Priestly account is formal, repetitive and carefully structured while the Yahwist one has more detail and uses anthropomorphisms, a way of talking about God by attributing human qualities to him.

Many theologians have identified the literary genre of the two creation accounts as *myth*. Unlike the popular use of the term 'myth' to refer to a false belief, however, myths are a universal element in human culture and they serve the purpose of giving some answers to humanity's great questions such as where the world and life came from. Charpentier defines a myth as "taking a great question that we ask ourselves and projecting it, in the form of a story, on an unreal world, on a time before time began, the time of the gods when man did not yet exist" (1981: 21). Hence, the *Genesis* creation accounts, being mythical, "are not set in any specific place or

related to historical events. The people in them have a larger-than-life character" (Edwards, 1999: 8). This entails that a reader who sees the stories as historical and the people as real, will inevitably end up with a misinterpretation of the texts. In other words, taken literally, the narratives are false and any arguments based on them will be unsound.

One way to understand myth is to think of it as consisting of *form* and *content.* The two qualities must be distinguished from each other. The form refers to 'packaging' by way of using popular expressions, phrases and the contemporary knowledge of the world as a vehicle for transmitting some idea or message. The idea or message constitutes the content. With regard to the Priestly creation account, it is essentially conveying some religious truths though the author "does not hesitate to use for his own purposes traditional mythological material" (Richardson, 1953:24). The myths' contents are salvific truths, yet the human writer is not free from using the literary forms and knowledge of the world of his contemporaries to whom he wishes to communicate. The writer "communicates a divine thought to us through the medium of the so-called scientific notions which are part of the mental culture of his time" (Gleason, 1953: 106). The contemporary reader, therefore, must create a rapport with the ancient author by first understanding his culture and the text's literary genre as the two are prerequisite to a correct interpretation of Scripture.

Diverse Interpretations

The above view, however, is not representative of the entire Christian community. The Catholic Church takes the allegorical approach of viewing the *Genesis* creation accounts as myth with underlying theological and moral lessons. A publication of the Jehovah's Witnesses circulating in Zambia, *The Watchtower*, cites the Catholic position given in *The New American Bible* as saying the following:

> To make the truths contained in these chapters [of *Genesis*] intelligible to the Israelite people destined to preserve them, they need to be expressed through elements prevailing among the people at that time. For this reason, the truths themselves must therefore be clearly distinguished from the literary garb. (2005:12).

Representing the fundamentalist viewpoint, the Jehovah's Witnesses outrightly denounce the allegorical approach in an article revealingly sub-titled 'Mixing Scripture with Speculation'. They equate the allegorical approach to scriptural inter-

pretation with speculation. The end result of such an approach, they argue, is wrong interpretation of the Scriptures in general, and the *Genesis* creation accounts in particular. With scriptural references, the Jehovah's Witnesses argue that Jesus and the apostles Peter and Paul "taught that those early chapters of *Genesis* were literally true" (*The Watchtower*, 2005: 12). They, therefore, like other fundamentalists, hold the view that the *Genesis* creation accounts are historical narratives with real people and that the cosmogonies presented in them are scientifically sound.

Fundamentalists, however, place themselves in a rather problematic situation because the creation myth is actually one that is very widespread. There seems to be an easy explanation for this. Human beings are naturally artistic. Some ways in which this has been manifested is the widespread evidence of sculpture and pottery for which soil provides ready raw material. People all over the world from time immemorial have moulded clay objects including some after their own appearances. More specifically the ubiquity of the creation myth has been found in the following cultures: the Bassari, and the Ewe-speaking people of West Africa, the Pima Indians of Arizona, the Hindus (Upanishads), the Mesopotamians, the Babylonians, the Hebrews (Bible), the Batek of Malaysia, the Chinese in the Far East, and the Toradjas of the Celebes. It is little wonder then that this apparently universal cultural element forms the basis for most, if not, all of humanity's creation stories. As Christian rhetorically asks, "What was more natural and more obvious than to know, deep down in his blood and bones, that an unknown Sculptor shaped his body from the clay of the earth and brought it to life?" (1994: 411). Indeed, it did not require a huge leap of imagination to postulate a supernatural 'sculptor or potter' for all the plants and animals, including human beings, found in the world.

In spite of the geographic separation of these peoples, the myths are surprisingly similar. For example, the starting point is nearly always a condition of chaos. Humans are moulded out of clay in the image of the creators and the clay 'humans' are animated by the creators' breathe. This may be illustrated by the following quote from a Chinese Myth:

> The goddess Nü-kua stooped and took from the ground a lump of clay. From this she fashioned . . . a tiny creature. The head she shaped after the pattern of her own . . . and the first human being came to life and danced and made sounds of joy to delight the eyes and ears of the goddess (Birch, 1961: 5).

This sounds very much like the accounts in *Genesis.* It is, however, with myths of the Near East, or more specifically, with the Babylonian creation myths, such as, the *Gilgamesh, Atahasis* and the *Enuma elish* that scholars have drawn similarities with the creation accounts found in *Genesis*. The similarities are somehow inevitable as the Babylonian myths were familiar to the authors of the *Genesis* cosmogonies who drew from them. On the other hand, Clifford argues that the similarities are misleading because, on closer analysis, the *Genesis* accounts bear theological truths which are lacking in the other myths (1994: 140). Thus, the authors of the *Genesis* accounts may be seen as trying to substitute a theologically correct . . . account of creation for the theologically false and depraved . . . myth" (Ellingsen, 1976: 86). Many other Bible scholars argue that the *Genesis* creation accounts are unique in that, unlike the other myths, they contain certain truths of a theological and moral nature such as monotheism, God's transcendence over his creation, the special place of humans in creation, and the relationship between God and humans.

Catholics, as well as other non-fundamentalist Christians, would be happy to admit that the *Genesis* creation accounts are myths similar to creation myths in other cultures. They would argue, however, for the theological correctness of the *Genesis* accounts and the incorrectness of the others. On the other hand, fundamentalists would argue for the scientific superiority of the *Genesis* cosmogonies over the others. This seems an insurmountable task given that they are so similar, and that the Bible story actually did borrow from some of them. The question we now have to confront is how the non-fundamentalist and the fundamentalist interpretations of the *Genesis* accounts tie up with the scientific theory of neo-Darwinism. Given the literary and anthropological evidence, the allegorical approach seems more tenable than the literal one. Nevertheless, the interpretation given by Christian fundamentalists deserves a hearing.

Christian Fundamentalism vis-à-vis Darwinism

Christian fundamentalists hold that the *Genesis* creation accounts are literally true and, therefore, scientifically accurate. Those labouring to prove this are usually referred to as 'creationists', and their enterprise, 'creation science' or 'scientific creationism'. Their basic premise is that "God has laid down laws in scripture and that these apply to the whole of the universe. These laws, being God given, are normative for scientific as well as for religious purposes" (Luscombe, 2000: 172).

At best, creationists try to show that there is congruence between the creation accounts and 'true' science.

The fundamentalists' belief in biblical inerrancy compels them to demonstrate that "we should take the biblical stories of creation as scientifically factual. And since Darwin's [theory of evolution by natural selection] does not correspond with the word of God, we must conclude that it is false" (Haught, 2001: 72). This, for them, follows from the belief that the human beings who came up with the theory of evolution are fallible whereas God, the 'author' of the Bible, is infallible. In other words, Christian fundamentalists employ the rule of thumb that whenever there is a clash between what they think God says, (that is, literally) and what evolutionary biologists say, the latter must be rejected as untrue. The bottom line for Christian fundamentalists is that God created the diverse species in the same state as they are today.

Although, thus far, the creationists are in agreement, there is a split among them regarding the interpretation of *Genesis*. To mention only two, there are 'young earth' and 'old earth' creationists. The difference between them lies principally in their interpretation of 'a day' in the creation accounts. The former, who seem to be the more prevalent in Zambia, view a day as a twenty-four hour period and the earth as only about 6,000 years old; for the latter, a day could mean thousands or millions of years. Hence, the 'old earth' creationists are more open to modern scientific findings that show the earth to be about four and a half billion years old.

It may be safely stated that, whether 'young earth' or 'old earth', the creationist reasoning and position is widespread among many fundamentalist Christian denominations in Zambia. This is not surprising given that most of them have their roots, administratively, or otherwise, in the United States where creationism is so rife that there are frequent and on-going campaigns to ban the teaching of the theory of evolution or, at least, to give an equal amount of time to the teaching of creation science.

Christian Fundamentalism in Zambia

In what seems to be a fairly representative view of Pentecostal and Holiness churches in Zambia, the Victory Ministries, who are the forerunners of televangelism in this country, are of the view that God created the world and every natural thing in it in six twenty-four hour days. Reverend Rufus Mukusulo,[6] theology lecturer at the Victory Bible College, reasoned that God created simply by saying 'let there be such-and-such,' and it was so. He wondered how that could take a long period as suggested by some Christians and evolutionists. He illustrated this point by referring to a soldier giving orders which are followed immediately. In a biblical literalist fashion, Reverend Mukusulo further argued that since God ordered the land to produce living creatures according to their *kind* (*Genesis*. I: 24-25), the evolutionary theory, which purports that humans came from a monkey, does not hold any water. This view of the theory of evolution is either simply uninformed or deliberately misleading. It exemplifies the *straw man* fallacies with which so many discourses in the evolution/Christianity debate are replete. The straw man fallacy involves making the illegitimate move of presenting a weak or misleading form of your opponent's position or argument in order to easily knock it down or make it look absurd, ridiculous and implausible. Rev. Mukusulo's view of the creation is clearly in mortal conflict with the neo-Darwinian theory which postulates that species emerged gradually from lower forms of life over aeons of time. If one of them is true, then the other is false.

The Jehovah's Witnesses, who may be fairly taken as representative of mainstream biblical literalists, and with a countrywide membership in Zambia, fit well into the 'old earth' creationist category. They, and most, if not all, Christian fundamentalists regard the story of creation in *Genesis* as both historically and scientifically credible. They differ, however, with the Victory Ministries position over the duration of creation. For them, 'days' referred to in the creation account are not necessarily twenty-four hour periods, but could mean long periods of time. However, both Jehovah's Witnesses and the Victory Ministries as represented by Mukusulo do agree that the creation story and the appearance of various ready-made life forms are all accurate and in line with, or supported by 'true' science. This is referred to as concordism, which is, "the effort to treat the Bible as though its

[6] Interview at the Victory Bible College in Lusaka, on 8th August, 2005.

apparently literal expressions were teaching facts of science" (Gleason, 1953: 105). For example, with regard to the stages of creation mentioned in *Genesis* I, the Jehovah's Witnesses hold that "science agrees that these stages occurred in this general order" (No Author, 1985: 37). The idea is to show that in fact the literal reading of the Bible is fully supported by 'correct' modern science.

Additionally, the argument from design is probably the most popular in Zambia, and the most widely discussed of the arguments for the existence of God. It is also found in different forms in several passages in the Bible, and it is one every Christian probably knows in one form or another. Many Christians, clergy and lay, do indeed invoke the argument, albeit without its rigour in philosophical discourse, especially with the aim of showing the 'doubting Thomases' the overwhelming evidence that points to the existence of God.

The Christian reformer John Calvin said that God reveals "his perfection in the whole structure of the universe, and daily place[s] himself, in our view, in such a manner that we cannot open our eyes without being compelled to observe him" (In McGrath, 1999: 10). Furthermore, the Jehovah's Witnesses, referring to Romans 1:20 endorse as "sound reasoning", the following words from Philo of Alexandria: "the world is the most artificial and skilfully made of all works, as it was put together by someone who was altogether accomplished and most perfect in knowledge. It is in this way that we have received an idea of the existence of God" (*The Watchtower,* 2005: 11). In agreement, Pastor Choolwe Mwetwa of the Baptist church in Lusaka, in an anti-Darwinian tone says that if given a choice between chance and a rational, all-powerful and moral being as the source of the marvellous order found in nature, it is the latter choice that he would opt for and hold with intellectual dignity (Mwetwa, 2005: 21). The key point in all these statements is that the existence of God may reasonably be deduced from our observations of aspects of the natural world.

Conclusion

By accepting the fundamentalist literal interpretation of the *Genesis* creation accounts of the origins of life, creationists thus, clash head-on with Darwinian evolutionists. Unlike Catholics and other non-fundamentalist Christians who accept an allegorical interpretation of some texts of the Scriptures, fundamentalists not surprisingly, have to bear the brunt of attacks on Christian beliefs by evolutionists, particularly atheistic ones such as Richard Dawkins.

CHAPTER 5

CHRISTIAN BELIEFS AND NEO-DARWINISM: A CRITIQUE OF RICHARD DAWKINS

There are various models for seeing the relationship between neo-Darwinism and Christian belief. Some of them will be discussed in the next chapter. This chapter focuses on the confrontational model of relating the theory of evolution and Christian belief, and particularly, to the assessment of Dawkins' attack on Christian belief. The confrontational or conflict view may be described as stating that "religion is utterly opposed to science or that science invalidates religion" (Haught, 1995: 3). It arises from historical and philosophical considerations. Historically, there have been cases where the two have 'clashed', each with fervent supporters. Philosophically, the nature of religious belief and science seems to show that the two cannot co-exist. Their nature renders them mutually exclusive. This chapter will attempt to show that Dawkins' views of both science and Christian belief are misleading, that the premises of his argumentation are questionable, and that the arguments are unsound.

Richard Dawkins

Richard Clinton Dawkins is an accomplished scientist in the field of zoology/evolutionary biology. He is also a Fellow of the Royal Society which is the ultimate recognition of a scientist in Britain. It is, therefore, no surprise that even an ardent critic of his, Alister McGrath is full of praise for Dawkins the scientist. He says of Dawkins' doctoral research: "The thesis is a model of objective, detached, evidence-based scientific research" (2005: 110). McGrath also acknowledges Dawkins' unique capacity to communicate evolutionary ideas with ease even to lay persons. Hence, as an evolutionary biologist, Dawkins only receives criticism from his colleagues, within the same discipline or from related ones, who hold views divergent from his. For example, some evolutionists hold that organisms or species, and not genes, are the unit of selection. Others, like Stephen Jay Gould, hold the 'punctuated equilibrium' view of evolution rather than the gradual and uniform one. Punctuated equilibrium is the version of the theory of evolution that holds that the process of evolution is characterised by long periods of stasis, during which there are little or no changes among species, and brief periods of rapid changes in species.

This kind of disagreement (between Dawkins and Gould) among scientists is not unusual as is evidenced by disagreements among quantum physicists. Even on theories that are generally accepted by the scientific community, there are bound to be differences among scientists over the details.

Ironically, however, Dawkins' popular notoriety has arisen not so much from his careful scientific research as from his illegitimate use of his scientific theory to attack Christian beliefs. He thus launches missiles against non-scientific targets. He does not confine himself to scientific matters but goes further to make truth-claims about religion such as the non-existence of God. Knowledge of Dawkins' brand of neo-Darwinism and his metaphysical underpinning is therefore vital to the understanding of his attacks on religion in general and on Christian belief in particular.

Dawkins' neo-Darwinism

Dawkins is a thoroughgoing neo-Darwinist who upholds Darwin's theory of natural selection and the later additions to the evolutionary theory that culminated in the modern evolutionary synthesis. While regarding Darwinism as 'universal and timeless' and as the core of the theory of evolution, he sees 1953 when the molecular structure of the DNA was unravelled as the year the theory of evolution went digital, that is to say, genetics became digital. The DNA molecular structure showed exactly how genes replicate themselves with a very high degree of fidelity with no information gain or loss (except in the case of mutations) as they pass from one generation of organism to another. This is the reason Dawkins uses the information technology adverb 'digital'. Genes themselves contain nothing but information that guides or directs the growth and development of an organism. Dawkins sums up his view of the evolutionary theory by saying that "Darwinism works only because - apart from discrete mutations, which natural selection either weeds out or preserves - the copying process is perfect" (1995:23).

Another aspect of Dawkins' evolutionary view that deserves to be noted is what he regards as the unit of selection in the theory of natural selection. By 'unit of selection' is meant that which survives or perishes depending on its fitness or adaptation vis-à-vis a given environment. Lack of unanimity among scientists of any particular scientific discipline about the details of any scientific theory is neither uncommon nor strange. With regard to evolutionists, some regard the individual

organism, group of organisms, or species as the unit of selection. For Dawkins, it is the gene. The organisms themselves are merely the means or 'survival machines or vehicles' built by the genes, and in which they survive from one generation to the next. Hence, for Dawkins, genes are ruthlessly selfish, 'caring' for nothing apart from their own survival. They build bodies that they inhabit only for a short while, namely, the organisms' life span. The genes that build bodies that are best suited for survival in a given environment are preserved as, through sexual reproduction, they are passed on to future generations. On the other hand, those genes that build less suited bodies perish in the long run. This occurs over many generations spanning thousands and millions of decades.

Dawkins' Worldview

A worldview may be seen as spectacles through which one looks at reality. Dawkins' worldview goes beyond neo-Darwinism as science. For him neo-Darwinism is "a totalising framework, by which the great question of life are to be evaluated and answered" (McGrath, 1999: 43). Dawkins has elevated neo-Darwinism from a theory that attempts to describe the various life forms and how they have emerged to a universal truth that offers ultimate explanations to the whole of reality. The blurb for *The Blind Watchmaker,* for instance, boasts that neo-Darwinism can, and does answer "the biggest question of all: why do we exist?" Elsewhere Dawkins says: "We no longer have to resort to superstition when faced with deep questions: is there a meaning? What are we for?" (1976: 1). Dawkins, would, of course not object to the additional question, 'Is there a God?' What he means is that neo-Darwinism can now answer such deep questions. This seems to declare all fields such as philosophy and religion which previously grappled with those questions as 'superstition', and redundant.

Furthermore, Dawkins' worldview is one that has no place for purpose. He says that the world "we observe has exactly the properties we expect it to have if there is at bottom no design, no purpose . . . nothing but pointless indifference" (Cited in Hunter, 2001: 153). Thus, the world as Dawkins sees it is devoid of design and purpose. Things just are, and that is that! Taken together, Dawkins' views fall under a metaphysical position referred to as *scientism.* More specifically, his position is known as *evolutionism.* For him, neo-Darwinism is "a universal philosophy of life, rather than a mere scientific theory" (McGrath, 1999:7).

Everything is to be viewed from, and judged by, a neo-Darwinian standpoint. Hence, Dawkins' view is that of an evolutionary materialist which he fails to recognise for what it is, that is, a metaphysical rather than a scientific position.

Scientism (also known as naturalism, scientific materialism or dogmatism) is the epistemological position that science "is the only valid type of human knowledge" (Alexander and White, 2004: 16). This implies that the scientific method alone can yield certain or reliable knowledge of reality. Scientism partly rests on the materialistic metaphysics that reality is essentially composed of material things. Richard Dawkins is a thoroughgoing proponent of scientism/evolutionism as he singles out scientific evidence as providing good reason for believing something while he argues that religion provides none (Dawkins, 2003: 284-285). It is no surprise, then, that his view of neo-Darwinism contradicts Christian belief. This is demonstrated in his criticism of William Parley's design argument.

Dawkins' Criticism of the Design Argument

Both Aquinas and Paley seem to have been convinced that whenever order and purposefulness occurs, be it in a watch or in nature, there must also be a designer. This type of reasoning is known as argument by analogy. The strength of such an argument relies on, among other things, the number of relevant similarities, and the nature and degree of disanalogy between analogates, that is, the entities being compared. If the number of relevant similarities is small and there are significant dissimilarities, then the argument will be a weak one.

Dawkins' acknowledges Hume's criticism of Paley's argument. Hume, who was an empiricist, pointed out that a watch and an organism were not sufficiently similar to warrant the conclusion that they both resulted from design. He went on to argue to the effect that order could be attributed to design *only* to the extent that order has been *observed* to result from design. However, the order that is claimed to be found in various life forms has not met this criterion. We are not entitled, therefore, to conclude that these life forms are a result of design (Hospers, 1990: 306). We have 'observed' a watch being designed and so we are entitled to draw the conclusion that the order we find in it is a result of design. However, since we have never 'observed' any organism being designed, he argued, we are not entitled to conclude that the juxtaposition of parts in any organism is a result of design by some intelligent being. A major disanalogy between a watch and an organism is that the

former is mechanical while the latter is organic and hence something that could simply grow from a simple beginning into a highly complex entity without any external agency.

Dawkins finds Hume's criticism good but insufficient. He says all Hume did was to logically demonstrate that as far as design in the natural world is concerned, "God isn't a good explanation, so we must wait and hope that somebody comes up with a better [explanation]" (Dawkins, 1986: 6). This better explanation, Dawkins says, came some eighty-three years after Hume's death with the publication of Darwin's *Origin of Species*. It is neo-Darwinism, says Dawkins, which conclusively refutes the design argument as it gives a sound explanation of the same phenomenon that was earlier thought to have been explained by an intelligent designer to whom the name 'God' was given.

One of Paley's premises in his design argument is the awesome complexity and apparent purposefulness of design in nature. Dawkins duly shares in Paley's sense of wonder and thinks that his conclusion to a divine designer is understandable with respect to biological development and complexity given the biological knowledge of the day. Truly, a watch has a watchmaker in the same way that any other artefact is designed and assembled by some human agent. However, the question persists: Were organisms likewise designed and their parts expertly put together by some engineer? Dawkins answers in the negative. Hence, for him, Paley's reasoning is "utterly and gloriously wrong". He elaborates:

> The analogy ... between watch and living organism, is false. All appearance to the contrary, the only watchmaker in nature is the blind forces of physics, albeit deployed in a very special way. A true watchmaker has foresight: he designs his cogs and springs, and plans their interconnections, with a future purpose in his mind's eye. Natural selection, the blind, unconscious, automatic process ... which we now know is the explanation for the existence and apparently purposeful form of all life, has no purpose in mind .... If it can be said to play the role of watchmaker in nature, it is the blind watchmaker (Dawkins, 1986: 5).

Dawkins, in essence, admits the existence of the complexity and beauty of biological entities in nature. These qualities, he argues, are so great that they almost naturally lead to the "illusion" that they are a product of design-for-a-purpose as they did in Paley's case.

For Dawkins, the illusion of design and purpose is a product of evolution. He depicts humans as purpose-intoxicated creatures that "find it hard to look at anything without wondering what it is 'for,' what the motive for it is, or the purpose behind it" (Dawkins, 1996: 112). Thus, when we observe complexity and beauty in organisms, we immediately make an inference to some intelligent being who designed them with a clear purpose in mind. Dawkins argues that this reasoning is totally flawed.

Dawkins further argues that the tendency to infer design and purpose from any complex thing that performs some function, comes from the fact that human beings are themselves creative designers (1986: xi). Our anthropomorphic mind-set, he seems to be saying, causes as to posit God as the designer of organisms. Dawkins argues that to do this

> is to explain precisely nothing, for it leaves unexplained the origin of the Designer. You have to say something like 'God was always there', and if you allow yourself that kind of lazy way out, you might as well say 'DNA was always there', or 'Life was always there' and be done with it (1986: 141).

Dawkins' argument is that since theists cannot explain the origin of God or his designer, they are not warranted to posit him as the designer of organisms. To say the buck stops at God is, for Dawkins, arbitrary and a mere *ad hoc* improvisation or intellectual sloth.

The true and only answer to the riddle of complexity and beauty in nature, according to Dawkins, is to be found in the process of natural selection. Dawkins is convinced that the mechanism of natural selection is not directed or guided by any intelligent being. However, he acknowledges that the existence of organisms with their complexity and beauty does call for an explanation. He writes: "God and natural selection are, after all, the only two workable theories we have of why we exist" (Dawkins, 1982: 181). The two 'theories' are thus depicted as being mutually exclusive and in mortal competition to explain biological data. They cannot both be right; if one stands, then the other falls. As far as Dawkins is concerned, the 'God hypothesis' has been defeated since natural selection has fully solved the riddle of our existence and the intricate adaptations of organisms to their environments for which it earlier seemed reasonable to invoke God. The God hypothesis has been disposed of and declared redundant. According to Dawkins, we can and should,

therefore, discard the Christian belief in the existence of God and adopt atheism with intellectual integrity. This conclusion is clearly totally unacceptable to Christians who see the natural world and its various life forms, and the order and beauty they exhibit, as God's handiwork.

Dawkins' dismissal of the argument from design and any notion of meaning and purpose in the world, however, cannot be summarily discussed as philosophical naïveté. His ideas have found support from the philosopher Daniel Dennett who, too, advances 'Universal Darwinism', that is, the view that neo-Darwinism can answer all questions of our existence. Darwin's idea of evolution is considered so dangerous by him because it overturns Christian beliefs in a designer God, in any meaning and any purpose in the universe. He says that there is no 'message' (meaning or purpose) to be deciphered in nature. In the words of Haught, Dennett is saying that, "If evolution has any message at all, it is that the universe is devoid of message" (2000: 12). The cosmos is for him, as it is for Dawkins, without any explanation whatsoever – it "just is".

An Assessment of Dawkins

Some positive aspects of Dawkins' attack on Christian belief do exist. For our purposes, however, objections will be raised regarding his criticism of the argument from design, and generally against his neo-Darwinian worldview which enhances conflict between the theory of evolution and Christian belief. Dawkins' view that neo-Darwinism has rendered the God hypothesis redundant is not entirely without justification.

If neo-Darwinism is true, then what are fatally wrong are the literally-interpreted creation stories of *Genesis*. Although McGrath accuses Dawkins of being 'theologically illiterate', he fairly acknowledges that "Dawkins offers a powerful, and in my view credible, challenge to one way of thinking about the doctrine of creation . . . ." (2005:13). What McGrath has in mind is the Christian fundamentalist/creationist interpretation of the creation accounts in the early chapters of *Genesis*. As shown in chapter four, Christian fundamentalists (particularly the 'young earth' creationists) interpret the creation accounts literally. By so doing, they completely miss "the religious point of *Genesis* by placing it alongside *On the Origin of Species* as though the biblical text could provide a superior *scientific* account of

the origin of life" (Haught, 1995: 53). If the creation account is seen as a scientific hypothesis competing against the theory of natural selection, then the latter offers the better view since it explains the data better than the creation stories. Furthermore, if God is conceptualised as the being that created the world and all its life forms in six twenty-four our days, then God does not exist! Dawkins should be excused if he seems to impose this naïve idea of God on Christianity as this may be attributed to the fact that, regarding the issue of evolution, the Christian fundamentalists are the most outspoken of the brands within Christianity. Christian fundamentalists are to a large extent to blame for the naïve view of God against which Dawkins directs his attacks.

Many writers of high intellectual standing have proclaimed the neo-Darwinian challenge to Paley's type of design argument as decisive. On this point, at least, they happen to concur with Dawkins who sees the argument employed by Paley as fatally erroneous thanks to David Hume and Charles Darwin. The former, according to Dawkins, demonstrated logically that the presence of order does not require a designer while the latter demonstrated scientifically that there was indeed an alternative and natural explanation for the appearance of complex design in living things. The physicist Paul Davies also states, with reference to Dawkins' *The Blind Watchmaker:* "No designer is needed to produce an eye or a wing. Such organs appear as a result of a perfectly ordinary natural process" (1993: 203). A well known Christian theologian, John F. Haught, further adds that "there is no need to posit a divine designer to explain, for instance, why a particular kind of finch's beak is exquisitely adapted to crushing and eating the specific kind of seed in its habitat" (2001: 85). This is, he says, because the appearance of design has been adequately explained in neo-Darwinian terms as a result of random mutations, recombination and natural selection.

The agreement between these writers and Dawkins, however, goes no further than this. None of them moves from this position regarding no need for a designer to the acceptance of atheism as a logical entailment. Whereas Davies adopts a kind of pseudo-deistic view that admits to the existence of some transcendent intelligence, Haught sees the neo-Darwinian explanation as being in harmony with, and indeed a reinforcement of, the proper theistic worldview.

A New Look at the Argument from Design

The design argument version advanced by Paley, however, does have some major weaknesses as pointed out by Dawkins and others. John Haldane rightly points out that "the issue is not quite so clear" (Smart and Haldane, 1996: 99). On the other hand, the pronouncement of the argument's death and burial may be quite premature. With a sympathetic, subtler rendering and a not so far-fetched leap of the imagination, the argument can be exhumed and salvaged in a more tenable form.

A pivotal logical assumption in both Aquinas' and Paley's design arguments as set forth above is that order entails the existence of a designer and, since human beings are not the designer of the natural world, they deduce that the order in living things logically implies the existence of an intelligent creator, God. As already mentioned above, Hume levelled a serious attack on this premise arguing that there is no logical connection which would warrant the inference to a designer whenever order and complexity were observed. While agreeing with Hume, Dawkins further zeroed in on the specifics. He says that, not only is there no guarantee that order points to a designer regarding the biological complexity and adaptiveness observed in living organisms but, in fact, there exists a satisfactory unconscious, blind and natural explanation that makes an appeal to a divine Creator redundant and obsolete. The full explanation of the order observed in living organisms, he believes, is explained in the theory of natural selection. But has the design argument been dismissed too easily by this theory?

Though the premise that observed order logically entails a designer does not seem to stand up to logical scrutiny, it is still *prima facie* reasonable to infer that the appearance of purposeful biological complexity points to the existence of a Creator. Some confusion seems to have led to the summary dismissal of the design argument by Dawkins and other writers. To bring out this confusion, a quote from Dawkins cited earlier is worth repeating. Beginning with Paley's type of deduction of the need for an artificer to explain an artefact, he asks rhetorically: "Were [organisms] designed on a drawing board too, and were [their] parts assembled by a skilled engineer? The answer is no" (1986: 3). This statement helps in exposing the confusion that results in the dismissal of the design argument.

The key to the understanding of the confusion is that there is not one but two questions involved, namely, 'Were organisms designed?' and 'Were the parts of

organisms assembled by a skilled engineer?' Dawkins seems to treat erroneously the two questions as one and goes on to give a crosscutting and categorical 'no'. The neo-Darwinian mechanism of natural selection that Darwin so firmly embraces and promotes would adequately answer the second question pertaining to biological complexity and the exquisite adaptation of organisms. It falls well within the scope of biological sciences. It is a proper task of biology to explain the natural history of all life forms and this would include how the complexity of organisms came about. There is therefore nothing strange or wrong in admitting that natural selection follows its own intrinsic dynamism because it does not and cannot have any conscious sense of purpose. It is 'blind' to any sense or idea of teleology or goal-directedness. And if the Paley meant nothing more than that a watchmaker is required to assemble the springs, wheels and so on to come up with a watch, then his imagery was seriously flawed and deserves the criticisms levelled at his argument by Dawkins. However, to attempt to answer the first question, that is, whether organisms were designed, is to engage in the discipline of philosophy and not of science. Dawkins either ignores or fails to see this fundamental difference.

Dawkins' rejection of the design argument seems to be based on a mechanistic and anthropomorphic mindset. From our empirical experience, we tend to think, as in Paley's ambiguous watch analogy, that an artificer must be involved in order for the parts to perform a given purpose. Yet even in the case of human artefacts such as watches, houses, cars, and so on, the designer - to borrow from Aristotle - need not be the 'efficient cause' (that which actually brings about the 'final cause' or end-product). The architect may well be dead when the house comes to completion through the work of the bricklayers, plumbers, electricians and carpenters. Robots are not purposeful agents in the assembly line but there are intelligent beings behind them.

What about the need for a transcendent, omniscient and omnipotent designer of the natural world and living organisms? It is not unreasonable to posit such a being as the actual designer, and evolution as merely the means, mechanism or 'efficient cause' for bringing about the end products, that is, the diverse flora and fauna and the biological complexity that they exhibit. To borrow from Aquinas' terminology, God can be seen as the 'primary cause' of order and design (that is, he *wills* these things to be what they are) while he accomplishes this through 'secondary causes', namely, natural selection.

The Anthropic Principle and Fine-tuning

The anthropic principle (from *anthropos* which means 'human') lends more credibility to the design argument. The principle is usually employed in what some writers have dubbed the *new or inductive teleology*, which is meant to differentiate it from Paley's version of the design argument which is known as *old or analogical teleology*. The new teleological argument "is directed, not to the material objects of the universe as such, but to the underlying laws where it is immune from Darwinian attack" (Davies, 1992: 203). It appeals to the 'fine-tuning' in the cosmos without which life on earth in general, and human life in particular, would not have been possible. Fine-tuning means that the initial conditions of the universe were sufficient and necessary for the evolutionary process at both the planetary and the biological levels to take place and culminate in the emergence of intelligent forms of life, that is, human beings. In other words, as Ward puts it, "the universe needs to be just about the vast age and size it is, if human beings are to evolve" (1998: 23). The anthropic principle works not only in the context of planetary evolution which led to planet earth that could sustain life that ultimately resulted in human beings but it can be also legitimately applied to organic evolution without any reference to the initial conditions of universe.

The process of evolution is depicted as beginning from inanimate material to animate, conscious life forms and finally to self-conscious beings that possess intelligence and moral awareness, that is, humans. The details of the process not-withstanding, evolution has moved from lower to higher levels of complexity. Peacocke expresses the anthropic principle on the biological level aptly when he says that the universal or environmental conditions ensured that "once life started, there would be an inbuilt tendency to increase in complexity of organisation in its various manifestations" (1990: 78). It seems such a progress cannot be satisfactorily described as merely a quantitative one. The quantitative-morphological changes (for example, in brain size) have yielded qualitative changes such as moral awareness or the appreciation of value in nature. Dawkins (1995) attempts to explain the evolutionary development wholly in terms of genes as he talks of genes in terms of "a river of abstract information for building bodies." Such imagery is, ironically, helpful to the design argument in that once the information is written, all that is required are suitable conditions in which the *story* can unfold. Evolution can thus be

seen by theists as the unfolding of God's plan or will with humans being the highest level so far attained of the intended *telos*, without in any way taking away the intrinsic value of the antecedent life forms.

What are we to conclude from the above? It seems clear that Dawkins is wrong in saying that "God and natural selection are . . . the only two workable theories we have of why we exist" (1982:181). He depicts them as being in mortal competition for the explanation of biological history and complexity. In so doing, he has committed the *fallacy of false dichotomy*. This is the fallacy of regarding any two issues as mutually exclusive; they cannot both be correct. By this, he means that the theory of natural selection is in itself adequate to explain both why organisms exist and the biological complexity that they exhibit. Belief in God, therefore, according to Dawkins is not required or is, at least, irrational. Since neo-Darwinism does the job satisfactorily, Dawkins argues, the God hypothesis is rendered obsolete and redundant. By so arguing, Dawkins has bought a one-way ticket to atheism. The question is whether the ticket is a valid one!

Does Neo-Darwinism Lead to Atheism?

Does neo-Darwinism lead to atheism (the position that God does not exist)? Dawkins responds in the affirmative and goes against the assurance of Darwin who wrote: "I have no good reason why the views given in this volume [*Origin of Species*] should shock the religious feelings of anyone" (1928: 455). Other non-theistic Darwinians who include Darwin's ardent supporter, Thomas H. Huxley, and Dawkins' contemporary, Stephen Jay Gould, have also rightly repudiated any philosophical pretence from evolutionary theory to the bold metaphysical assertion that God does not exist. McGrath further points out that scientists, like Dawkins, "who believe that [science] proves or disproves the existence of God press that method beyond its legitimate limits, and run the risk of abusing or discrediting it" (2005: 53). Evolutionary theory describes biological phenomena, and it would be overstepping its limits if it were used, as Dawkins uses it, as grounds for making metaphysical claims.

Where precisely, then, does Dawkins draw the conclusion that God does not exist? The answer lies in his metaphysical position. According to Ward, Dawkins embraces "a form of materialism which is entirely hostile to religion, and mocks any idea of objective purpose and value in the universe" (1996: 11). He is a thorough-

going and self confessed materialist reductionist (Dawkins, 1986: 13). It is from this position that he launches his attack on Christian belief. Convinced that atheism is the only reasonable position to hold given the truth of evolution, he is faced with the task of explaining away Christian theism, the belief in the reality of a personal God.

There are, however, writers such as the renowned philosopher of religion, Alvin Plantinga, who inadvertently supports Dawkins' view that accepting the theory of evolution necessarily entails the rejection of theism. Plantinga reasons that neo-Darwinism has naturalism as its metaphysical starting point, seeing "nature as all there is: there is no such a person as God or anyone at all like him" (Stenmark, 2004:185). Coming from a protestant Christian background, Plantinga then proposes a theistic metaphysical starting point in what he calls "Augustinian science". The Augustinian perspective polarises the world into the "city of God" on one hand, and the "city of the world" on the other representing belief and unbelief respectively. Much science, which includes neo-Darwinism, Plantinga says, belongs to the city of the world. In other words, he sees neo-Darwinism as inherently atheistic, that is, in conflict with Christian beliefs. However, this view fails to distinguish between methodological naturalism and ontological or metaphysical naturalism. While the former is seen by many as desirable in the quest for scientific truth, the latter is seen as an atheistic ideological position. It is this position with which Dawkins is identified that is here being called evolutionism.

A logical evaluation of Dawkins' argument will show his premises to be questionable and his argument to be invalid. The argument may be set forth as below:

(1) The appearance of design in the world is explained either by God or by natural selection.

(2) The appearance of design in the world is explained by natural selection.

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(3) Therefore, God does not exist (atheism).

That the above argument is invalid seems to be evident even without the employment of rigorous symbolic logical methods such as propositional logic. The invalidity of the argument is derived from the fact that there is no logical entailment of the conclusion (3) from the premises (1) and (2) for it is possible that even if the premises (1) and (2) were true, the conclusion (3) is not true. What logically follows

from the premises is that 'The appearance of design in the world is *not* explained by God'. As the argument stands, then, Dawkins is not warranted in drawing an atheistic conclusion from those premises.

That Dawkins' argument is invalid, it seems, cannot be contested by any logically literate person. Nevertheless, the argument deserves further consideration. To begin with, as McGrath rightly states, Dawkins' atheistic conclusion rests, "upon proposing an absolute dichotomy – *either* Darwinism *or* God" (2005:52). Typical of the conflict modelists, Dawkins portrays neo-Darwinism and God as two theories or hypotheses competing to explain the phenomenon of biological complexity and the appearance of design. As will be shown by non-confrontational models in the next chapter, Dawkins has here committed the fallacy of false dichotomy which, as mentioned earlier, occurs when someone unnecessarily presents a case as one of *either/or*. Concerning neo-Darwinism and God, this need not be so as *both* can be true, that is, they are not mutually exclusive.

The first premise in the above argument further takes for granted that belief in God is a scientific hypothesis. Dawkins unequivocally states:

> I see God as a competing explanation for facts about the universe and life. This is certainly how God has been seen by most theologians of past centuries and by most ordinary religious people today (Cited in Stenmark, 2004: 73).

This position fits well in Dawkins' *expansionist* agenda of trying to explain all phenomena, scientific and non-scientific alike, using scientific methodology. As his justification has shown, however, Dawkins' position is not entirely unfounded. He may be 'theologically illiterate' but Christian fundamentalists, as discussed in chapter four, have actually supplied the fuel for treating God as an explanation of the observational data in a manner that pits him against neo-Darwinism. As an illustration, Haught refers to the fundamentalist 'creation science' championed by some Christians as an embarrassment to Christianity as it "completely misses the religious point of *Genesis* by placing it alongside *On the Origin of Species* as though the biblical text could provide a superior *scientific* account of the origin of life" (1995: 53). As a popular science writer with an atheistic agenda, Dawkins, therefore, is not wholly misguided in directing his arsenals at what appears to be the popular folk theology. The challenge is on the fundamentalists to reassess their apparently

naïve stance, especially in their interpretation of scriptural texts that seem to be scientific hypotheses if read literally. This challenge notwithstanding, is God a scientific hypothesis?

A scientific hypothesis may be seen as an assumption one holds as a possible explanation of certain phenomena. It is a tentative one because counter-examples may actually show that it does not explain the data it was posited to explain. Dawkins treats God as an hypothesis in this sense as trying to explain biological complexity and design. But, put against neo-Darwinism, the God hypothesis is superfluous and redundant, he says. However, eminent scholars have questioned this. Ward argues that a Christian does not believe in God as a tentative explanation that is put forward to account for some data. Rather, for the Christian, Ward elaborates, "God is personal reality of supreme perfection, to whom persons can be related in knowledge and love (1996: 104). In other words, God is the transcendent being who is directly encountered, who gives meaning to life and involves one's deepest commitment. This is clearly on a different level of explanation from a scientific hypothesis as it is something taken as *given* rather than *disposable*, as is the case with a scientific hypothesis. Despite this, Stenmark does go some way in concurring with Dawkins when he says that Christians can, and do "use their belief in God as a hypothesis explaining a wide range of phenomena, for instance, . . . the order and beauty of the world" (2004: 80). However, this position can be a risky one in terms of rendering God superfluous in the event of a better scientific hypothesis. The position of the philosopher Richard Swinburne cited by Stenmark is more tenable. He says that theism does not compete with science but that "it competes with materialism or naturalism" (2004: 74). This means that *theism* and *evolutionism*, which Dawkins masquerades as science, are both metaphysical worldviews rather than scientific hypotheses. Evolutionism is metaphysical because, unlike neo-Darwinism, it is not confined to the study of natural phenomena. It tries to answer questions that are well beyond the reach of scientific methodology such as that of existence, meaning and purpose.

It follows then that, when Dawkins concludes that "God does not exist", he is no longer doing science. Science cannot say whether God exist or not; it is neutral. Indeed, both Huxley and Gould, evolutionary biologists like Dawkins, are clear on the limitations of science in the inquiry into natural phenomena. Huxley said:

> Agnosticism is of the essence of science . . . . It simply means that a man shall not say he knows or believes that which he has no scientific grounds for professing to know or believe . . . . (Cited in McGrath, 2005: 53).

This means that if a scientist is asked *as a scientist* as to whether there is God, he should simply say, 'I do not know'. Dawkins, however, tries to illicitly offer scientific reasons to show that God does not exist. Strictly speaking, science can only properly yield scientific conclusions. Scientific method applies reason to what is observed in order to arrive at a conclusion that is still empirically testable. Its subject matter is natural and not supernatural phenomena. However, Dawkins reaches a conclusion that can neither be verified nor falsified by the methodology of science. Failing to recognise this gap makes one guilty of *scientism*. This, indeed, reveals an important danger in the practice of science. As a human activity, it cannot be entirely unbiased. Scientists knowingly or unwillingly, intentionally or unintentionally, may bring with them non-scientific assumptions about the world.

Naturalism and Theism

Naturalism and *theism* are both metaphysical worldviews in that they are both purporting to answer ultimate questions of existence such as questions of purpose, the meaning of life and the existence or non-existence of a transcendent reality. Swinburne's observation that theism competes with naturalism (and not with science) is therefore a valid one. The two are on the same level in what Haught (2001) refers to as a "hierarchy of explanations" while science/neo-Darwinian theory is on another lower level of explanation. As has been stated earlier, Dawkins' worldview is essentially a naturalistic one. As Ward points out, while taking every opportunity to deride theism, Dawkins takes the "principle of natural selection, and strengthens and extends it to explain all phenomena of organic and sentient life" (1996: 96). He thus transforms the scientific theory of evolution into a metaphysical theory of evolutionism.

Evolutionism is an interpretation of Darwinian evolution that has strayed into questions that philosophy and religions such as Christianity try to answer. These questions have come to be referred to as *why* questions. Examples of such questions include the following: Why is there something rather than nothing? Why do we exist? Why does the evolutionary process tend to move from the simple and

inanimate to the complex and self-aware level of being? The answer to all these questions, says Dawkins, is to be found in the theory of evolution. Natural selection alone, he argues, explains the from-simple-to-complex tendency of evolution; it shows that God does not exist; it shows that the world and human life is devoid of any purpose. Clearly, Dawkins has here attempted to answer *why* questions. However, what he says about such questions reveals a serious inconsistence in his thinking. He sees the *how/why* distinction as misguided in that there are no questions to be answered by Christian belief. He asks:

> What are 'why' questions', and why should we feel entitled to think they deserve an answer? There may be some deep questions about the cosmos that are forever beyond science. The mistake is to think that they are therefore not beyond religion too. (Dawkins, 2003: 176-177).

Dawkins would rather declare such questions unanswerable than concede that they fall into a more metaphysically oriented field of inquiry such as philosophy or theology. Questions of ultimacy do demand answers as much as scientific ones do, and some intellectually satisfying answers have been found. Hence, *why* questions and efforts to answer them can neither simply be brushed aside nor can they be simply given a naturalistic answer, as Dawkins tries to do. The question that arises then is: Which of the two metaphysical positions, evolutionism and theism, provides the more reasonable and comprehensive explanation of reality?

As shown above, naturalism is an offshoot, though not a necessary one, of science. It is partly because Dawkins tries to arrive at atheism from scientific premises that his argument is unsound. McGrath rightly notes that "Dawkins uses an essentially inductive approach to defend a Darwinian worldview – yet then extracts from this worldview a set of premises from which secure conclusions may be deduced" (2005: 96). There is a contradiction in the manner in which Dawkins' premises are arrived at and how he reaches his atheistic conclusion. Scientific inquiry begins by induction and can therefore not yield certain knowledge, as Dawkins thinks. Furthermore, the scientific theory on which evolutionism is grounded is just that, a theory. While it is the best available scientific explanation at present for the various life forms on earth, it may, nevertheless, be superseded in the future by a theory that explains the data more comprehensively and elegantly.

Theism posits God, a transcendent personal reality, as the source of everything that exists and as the Being that provides meaning to life. God is perceived as the ultimate source of value in the world and the ultimate explanation of the evolutionary process, that is, of the propensity in nature to move towards complexity and self-awareness. Ward expresses this explanatory superiority of theism over naturalism as follows:

> [Theism] is also the simplest possible hypothesis that is comprehensive enough to account for all the complexity of this universe, including the facts of consciousness, value, purpose and personal existence, as well as the facts of physical order and complexity (1998:68).

Whereas evolutionism tries to *explain away* certain realities about this world and about our existence, theism *explains* them. Evolution is better explained within the theistic worldview rather than the naturalistic one. The fruitfulness of the process of evolution is more comprehensible seen through theistic, and not atheistic, lenses. It makes more sense that such a process is directed than that it is undirected, working merely through the physical laws of nature. Ultimately, the theistic metaphysical explanation is more plausible than the naturalistic one.

Conclusion

This chapter has attempted to discuss the confrontational model of relating evolution and Christian belief with a specific focus on Dawkins' arguments. Having shown the confrontational model to be inadequate, it is now necessary to conclude this work by considering models other than the confrontational one.

CHAPTER 6

CONCLUSION: CHOOSING AN EXPLANATORY MODEL

A survey of the literature on science and religion shows that writers have presented the two as being related in different ways. According to McGrath (1999), these may broadly be categorised into confrontational and non-confrontational models. Within these two broad models of interaction between science and religion, many writers have come up with other taxonomies for relating the two fields. Some of these writers, to mention only three, are the theologians Ian Barbour and John Haught, and the philosopher Mikael Stenmark. The foregoing chapter has depicted the confrontational model. In this concluding chapter, three other models adapted from Barbour's four-fold typology will be briefly discussed with the aim of showing which one is the most plausible. The three models, besides the conflict model already discussed above, are the *independence, dialogue,* and *integration* models (cf. Barbour, 2000).

The Independence Model

Many writers do not agree with the bleak view of science and religion presented by the conflict model. The independence model is one way out of this either/or scenario. It is the second way of relating science with religion in Barbour's typology and corresponds with Haught's contrast model. In essence, this view is saying, "science and religion are so clearly different that conflict between them is logically impossible" (Haught, 1995: 3). The two are distinct because they address themselves to different subject matters in different ways. Hence, science and religion belong to different compartments of human life. Since there is no point at which their paths meet, there cannot be any genuine conflict between them.

The independence model for relating evolution and Christian belief emphasises that each addresses itself to different types of questions. This distinction arises from the view that the two cover totally different subject matters. According to the evolutionary biologist Stephen Jay Gould, the theory of evolution tries to answer questions that fall into the empirical realm, that is, questions relating to what the universe is made of (fact) and the cause-effect account of how it works (theory). Christian belief on the other hand covers questions of ultimate reality, ultimate

meaning and moral value (cf. Barbour, 2001: 100). More traditionally, Christian belief (religion) and the theory of evolution (science) are said to be answering *why* and *how* questions respectively. For example, speaking of the Priestly author of the first *Genesis* account, Ellis says the following: "He has nothing to say about the 'how' of creation . . . he knows no scientific explanation of creation and God gives him no revelation on the 'how' of creation. . . . his purpose is to teach religious truths, not scientific truths" (1976: 86). Christian belief, on the other hand, seeks answers to metaphysical (beyond the physical reality) questions. These are questions about meaning, purpose, and the fact that there is something at all rather than nothing. Consequently, the two need to be kept independent of one another.

The Dialogue Model

The dialogue model is based on the belief that both science and religion are quests for truth, and that they share the same presuppositions about the world. One presupposition of Christianity is that God is omniscient, that is, unlimited in intelligence and knowledge. If such is the nature of the Creator of the natural world, it is no surprise then that it is a world that can be investigated by science. In the 6th century B.C., Pythagoras, the first person to call himself a philosopher, said that the world was made up of numbers. He understood the world to be orderly and intelligible so that it was possible to express it in mathematical formulas. More recently, Albert Einstein said: "The only incomprehensible thing about the universe is that it is comprehensible" (Cited in Davies, 1992: 148). He was amazed at how intelligible the natural world was to scientific investigation. The intelligible nature of the physical world is a presupposition that scientists acknowledge before embarking upon their work, and one that they share with Christian believers. This, therefore, provides a point for dialogue between evolution and Christian belief. Scientists are able to describe the phenomena pertaining to evolution because they are orderly and intelligible. Neo-Darwinism as a theory works only because the universe is intelligible, and this is also a presupposition of theism. Hence, theism may be seen as giving legitimacy to evolutionary inquiry.

Furthermore, in the practice of science, questions are raised that cannot be answered by science itself because they are not part of the subject matter of science and, therefore, fall outside its methodology. As an example, an astronomer or an evolutionary biologist, having satisfactorily described how planets or organisms

have come about, is astounded by the general movement from chaos to order, from simplicity to complexity. Science thus raises the metaphysical question whether there is some intelligence that has willed such a tendency in nature. This is where Christian belief comes in to complement science in the quest for truth by attributing the tendency to God's rationality and wisdom.

The Integration Model

Integration is the last of Barbour's four-fold typology for relating science and religion. As the name indicates, this model attempts to integrate the theory of evolution and Christian belief. This means that traditional Christian beliefs need to be revisited for possible modification in the light of new scientific findings or theories. The argument from design offers the best illustration of the attempt to integrate neo-Darwinism and Christian belief. Paley's analogical design argument, which flourished on the comparison between the natural world and clockwork, has been relegated to antiquity. The argument has been reformulated to make it come to terms with neo-Darwinism. This means that the Christian understanding of how God works in nature has had to be modified in recognition of the new knowledge coming through from evolutionary biology.

Paley's argument presented design as a fixed plan in God's mind that has since been completely executed; a perfect being, in his view, could not leave his work unfinished or leave anything to chance. This is, of course, in line with a literal reading of the creation accounts of the early chapters of *Genesis.* This view of design, however, as has been shown in chapter five, has suffered a fatal blow from neo-Darwinism. Proponents of the integration model posit the belief that God did not create things by fiat as is depicted in Paley's argument and in the creation myths in the Bible but that God designed the process of evolution through which all living things have come into existence. The natural world, by divine will, possesses an intrinsic dynamism. George Coyne puts it as follows: "God in his infinite freedom continuously creates a world that reflects freedom at all levels of the evolutionary process to greater and greater complexity" (2005: 7). Presented as such, the design argument does not conflict with neo-Darwinism. The two are integrated into one coherent explanation not only of the empirical world but also of all of reality.

It must be noted that there is little to separate the dialogue and integration models. It is no wonder that other religion-science taxonomists like Haught have collapsed them into one, namely, the contact approach. Both seem to be demonstrated by Aquinas' efforts to combine "insights from faith, reason and observation [to] describe created reality as a consistent, integrated whole. The world revealed by sense and faith is one" (Byers, 1996: 9). Above all, the dialogue and the integration models imply that neo-Darwinism and Christian belief should both be taken seriously as they both try to paint reality accurately and coherently.

Both Christians and scientists believe in the quest for truth. If the Christian God is a God of Truth, then there cannot be genuine conflict between the truth of God as revealed in the Bible and the truth that scientists discover in the natural world as God's creation unless, of course, either one of them or both of them, is being misinterpreted.

Concluding Summary

To sum up, this work has aimed at assessing whether the theory of evolution or neo-Darwinism undermines the central Christian belief in God and some other corollary beliefs. In order to accomplish this task, it was found important to present the argument from design as advanced especially by William Paley. Since Darwin's *On the Origin of Species,* the argument has been brought into question by evolutionary biologists and philosophers who are sympathetic to the theory of evolution. To understand clearly this questioning of the argument, it was important that both the scientific theory of evolution and the biblical understanding of creation were critiqued. In the evaluation of Dawkins' rejection of Paley's argument from design, it has been acknowledged that Dawkins has successfully shown that the argument in its original form seems to be unsound as it is based on a weak and misguided analogy between a watch and the natural world. He rightly points out that the theory of evolution has provided a naturalistic explanation for the complexity and adaptation that is found in nature for which Paley had posited God. The theory of evolution, if true, seems to have dealt a deathblow to the literalist interpretation of the creation accounts found in *Genesis* which is typical of, and defended by, Christian fundamentalists both in Zambia as well as elsewhere. On the other hand, Dawkins' reasoning that neo-Darwinism logically leads to atheism has been criticised and shown to be invalid.

The theory of evolution is not necessarily incompatible with the Christian belief in God or with the inductive argument from design which is an improvement on Paley's analogical argument. Rather it is evolution-*ism* and Christian fundamental-*ism* which, as metaphysical worldviews, are responsible for any apparent conflict between the two. Polkinghorne has rightly observed that contrary to the "blindness of natural selection" being championed by Dawkins, "modern science is not in fact inhospitable to a metaphysical discernment of meaning and purpose lying behind cosmic history" (1996: 79). As has been shown above, the independence, dialogue, and integration models provide possible alternative ways for relating neo-Darwinism and Christian belief.

The apparent conflict between neo-Darwinism and Christian belief is one that is quite prevalent here in Zambia, possibly due to the large number of fundamentalist Christians that has grown over the years. However, of the four ways in which science and Christian belief relate to one another, the conflict and the independence models seem to be philosophically inadequate. The conflict model is perpetuated by the questionable positions of materialism on the one hand, and biblical literalism on the other. The independence model dichotomises neo-Darwinism and Christian belief as if they belong to different compartments that leave no room for any relationship between them. The dialogue model goes some way in decompartmentalising them by showing how neo-Darwinism, in trying to answer *how* questions, inevitably raises *why* questions that Christianity provides answers to, thus creating an interface between them. The dialogue model also shows that the two share common presuppositions and values about the world. It is the integration model, however, that through use of the reformulated design argument presents the most coherent, comprehensive and intellectually satisfying explanation between science and Christian belief. This model shows how neo-Darwinism harmoniously fuses into theism to produce the most plausible and reasonable understanding of the cosmos, and the purpose, value and meaning found in it.

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