

Reconciling the Fall of Adam and Evolution

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One of the serious conflicts between science and religion involves the scientific theory of evolution and the religious belief in the Fall of Adam. According to the doctrine of the Fall of Adam, the world was created as an immortal world, and Adam and Eve were created as complex immortal, physical beings and were placed in the Garden of Eden. The world was changed or fell to a mortal state due to a decision made by Adam and Eve while they were in the Garden. In contrast, the theory of evolution teaches that life was created as simple organisms, and those organisms slowly mutated and evolved into the complex plant and animal life that we have today. This conflict between science and religion is at the heart of both Christianity and science. With no Fall of Adam, there is no need for an atonement. With no atonement, there is no need for Jesus Christ as the Savior and Redeemer. With no Savior, there is no need for Christianity. From the scientific viewpoint, with no evolution, one of the pillars of modern science is missing. In this essay, I am presenting a scheme in which the Fall of Adam and evolution could exist together. My thesis is that evolution might have been one of the tools used by God to create our mortal world. In writing this essay, I am attempting to show that two paradigms that seem to be in conflict might exist together in harmony, and that we don't necessarily have to choose between science and religion.

In order to more easily express my thoughts, I describe events as if they did happen. My words should be interpreted, of course, as speculation that the events might have happened that way.

Characteristics of the Fall of Adam and of Evolution

The attributes of the Fall of Adam that I am attempting to reconcile with evolution are the following.

- The earth was created as an immortal world without death.
- Adam and Eve were the first people.
- The earth was changed or fell to the mortal state of life and death that we have today.

Similarly, I am attempting to reconcile with religion the following attributes of evolution.

- Animal and plant life took millions of years to evolve.
- Death was an inherent condition of life during those years.
- Hominids, ancestors of modern humans, have inhabited the earth for over a million years.¹

A Physical Earth Without Death

The scriptures teach that God created the heavens and the earth in several days. I don't know how long those days were, and I think of them as periods of time. Oceans, mountains, and rivers were created. Plants were established. Animals were created. Finally, human life, in the form of Adam and Eve, was established on the earth.

The scriptures imply that before the Fall of Adam, there was no death. Adam and Eve were not mortal and the earth was not mortal. The earth was a world composed of immortal but physical matter. Of all the trees in the Garden of Eden, two trees are given special attention in the scriptures: the *Tree of Knowledge* and the *Tree of Life*. Adam and Eve were told they could eat of all the trees except the Tree of Knowledge. It is significant that they could eat of the Tree of Life, a tree that would cause them to live forever. Hence, we understand that they were immortal and were already living forever. However, after they had eaten of the Tree of Knowledge, they were prevented from eating of the Tree of Life, else they "live for ever." (Genesis 3:22) Thus, we realize they had changed from a condition of immortality to one of mortality. Through partaking of the fruit, Adam and Eve chose to become mortal and suffer death and decay, and the earth was subsequently changed from a physical, immortal world to a physical, mortal world. This change is referred to as the *Fall of Adam*.

The Fall of Adam May Not Have Been Instantaneous

The scriptures don't say how long it took for the earth to become mortal. Many people assume this change occurred instantaneously. I'm suggesting that perhaps this change took a long time in earth years, and that God used the laws of mortality to cause this change. Science tells us that mortal life evolved from simple forms into complex forms through genetic mutations and natural selection. It seems reasonable that evolution could have been one of the methods used by God for the creation of the mortal world.

Through the decision of Adam and Eve, the mortal laws of nature as we know them came into play, and the higher laws that had governed the immortal world of Adam and Eve were suspended. If we make a reasonable assumption that the change to mortality took a finite time, we can conclude that Adam and Eve had to wait for their mortal world, their new home, to be created. Finally, after millions of evolutionary years, their new earthly home was ready. Not only was their new home ready, but their new mortal bodies were ready to be inhabited by their spirits. In effect, their spirits changed their places of residence, from immortal physical bodies to mortal physical bodies, from an immortal world to a mortal world.

Am I saying that Adam and Eve just sat around for millions of years waiting for their mortal world to evolve? No, not at all. I expect the millions of years it took for the earth to evolve passed quickly for them, since time belongs to mortality and Adam and Eve were not yet mortal. Perhaps this time of waiting was the time between their partaking of the fruit and their leaving the Garden. In other words, they chose to become mortal, and a short time later, from their viewpoint, they inhabited the new mortal world. From our viewpoint, Adam and Eve chose to become mortal, and millions of years later, they inhabited the mortal world. In support of this difference in time, Einstein's Theory

of Special Relativity teaches that time is variable, that a series of events might take a long time or a short time, depending on the viewpoint of the observer.²

This difference in time has a significant effect on the scope of scientific research. Scientists use techniques such as identifying fossils, using various methods of dating, and evaluating geological evidence, to look back in the mortal period. However, they can not look back into the immortal period when Adam and Eve were in the Garden and the earth was without death. They have no instruments that can extract information from the immortal world of the Garden of Eden, and all of the evidence they study pertains to the mortal earth after the Fall.

Prehistoric Hominids

How about the prehistoric hominids who were part of the evolutionary period? Let's discuss them from the religious viewpoint and see if they can be explained in a way that doesn't require that they lived just a few thousand years ago.

As defined in my previous essay, *The Law of Spirit Offspring of God* declares that we are the spirit offspring of God. Through modern revelation, the Lord referred to our being spirit offspring when he revealed to the Prophet Joseph Smith

And the spirit and the body are the soul of man. (The Doctrine and Covenants, Section 88:15)

That is, man and woman are composed of a physical body and a spirit offspring of God, and this combination is our soul. The scriptures teach that Adam and Eve were the first man and woman, i.e. the first to have a combination of a physical body and a spirit offspring of God. The hominids that lived during the evolutionary transition of the earth were not offspring of God but were just creations of God. Although they were intelligent, could build fires, make tools, communicate with each other, and reproduce, they were, from the religious viewpoint, just animals, because God had not placed his spirit offspring inside their bodies. Through evolution they provided the bodies that were later inhabited by the spirits of Adam and Eve.

Some religious people are offended by the thought that their ancestors might have evolved from simple life forms. Knowing the true nature of the human soul helps us realize that our ancestors didn't evolve from simple life forms. Only our bodies evolved that way. Our spirits that inhabit our bodies came directly from God as his offspring.

Digital Organisms

In this essay I have suggested that God might have used evolution during his creation of our physical world. Recent advancements in computer technology have made it possible for scientists to prove basic concepts of evolution. These advancements are exciting to me, because they increase the plausibility of evolution being true. Scientists are using small computer programs, known as "digital organisms," that behave in certain aspects like real organisms. The digital organisms can reproduce or replicate themselves, and they pass to their descendants changes in their nature that result from mutations caused by external stimuli.³ The digital organisms are not simulations of evolution in

which the reactions to stimuli are programmed into the organisms *a priori*. The organisms actually experience mutations and natural selection, and they react to those stimuli in ways that are not programmed into them. The software used by the scientists is called *Avida*.⁴ In discussing *Avida*, we must realize that the software was designed to explore concepts involved in evolution rather than perform accurate simulations of real-life.

A Primer on Digital Organisms

Numerous articles have been written about digital organisms. I am drawing on an article in *Discover* magazine for most of my information about *Avida*.⁵ A single digital organism is created with only one skill, the ability to reproduce or replicate itself. The organism reproduces itself, and its children reproduce themselves. Over time thousands of generations of organisms are produced. During these replications, random changes or mutations to the computer commands that make up the organisms occur, and these mutations change the nature of the computer programs and hence the nature of the organisms. These mutations are passed from generation to generation. As mutations change the computer programs of the organisms, new skills are gained by the organisms.

To understand the changes, we have to understand how the computer commands that make up the organisms are organized. We can, in a simplified way, think of there being two groups of computer commands, namely, commands that allow the organisms to replicate themselves, and no-operation commands that consume computer processing power but don't do anything useful.⁶ Mutations occur in both groups of commands. Mutations that occur in the commands causing reproduction may eventually change the commands such that reproduction can no longer occur, and the organisms in those strains die. Mutations in the no-operation commands create new commands, and it is these new commands that lead to the evolution of desirable skills. To understand how the mutations occur, let us realize that the computer programs that make up the organisms are just groups of binary numbers (1 and 0) that are interpreted in particular ways by the computer hardware. The mutations change a 1 to a 0 and a 0 to a 1.

The organisms are fed input numbers. In the beginning, the organisms don't know how to obtain the numbers or how to do anything with the numbers. As new skills are evolved, the organisms are able to access the numbers and do desirable manipulations of the numbers, such as obtaining a second number, adding the two numbers, etc.

As organisms develop desirable changes in their computer commands, they experience a form of natural selection by being rewarded with increases in the computer processing power that is used by the programs, and this enables those organisms to reproduce at a faster rate. This increases the number of children that have the desirable traits. In the real world, organisms experience natural selection when they evolve traits that enable them to have a higher rate of survival.

Because the digital organisms are experiencing evolution, there are two interesting parallels between them and real-life organisms. The article in *Discover* magazine discusses these parallels.

- Real-life organisms have DNA that contains instructions for passing the genetic nature of the organisms to their descendants. Digital organisms are computer programs that contain commands for passing the computer program to their

descendants; this program defines the nature of the digital organisms.

- Mutations to DNA occur which change the genetic nature of the descendants. Mutations to the computer programs occur which change the nature of the digital organisms.

A Research Platform

Scientists are using the *Avida* software to study evolution. An experiment was conducted to see if digital organisms could evolve into more complex organisms. This experiment was described in the *Discover* article. The goal of the experiment was to see if digital organisms could evolve into organisms that could determine if two consecutive input numbers are the same. For example, the group of numbers 6190443279 has one pair of equal numbers. To provide the conditions for natural selection, *Avida* was adjusted to reward simple mutations that could lead to the desired complex organism and to give even larger rewards for more complex mutations. The organisms were allowed to replicate for 16,000 generations. This experiment was repeated 50 times, and a complex organism evolved in 23 out of the 50 times. The initial digital organism had only the ability to replicate itself. The complex organism had the additional abilities to obtain the input numbers, keep the last number in its memory, obtain a new number, compare the two numbers, and record in some way if a match occurred or not. An interesting aspect of the experiment is that the 23 successful digital organisms were different from each other because they took different evolutionary paths to reach the desired complexity.

The researcher conducting this experiment calculated that the probability of a complex organism being obtained with random mutations but no natural selection was about one in a thousand trillion trillion. This probability was computed from the number of bits (1 and 0) in a computer program written by the researcher to perform the complex function. This extremely low probability for a complex organism illustrates that the success of 23 out of 50 runs of the experiment was due to natural selection via the rewards given for favorable mutations and the higher rewards for complex mutations. The importance of natural selection was confirmed when the researcher took away the rewards for the simpler mutations--the complex organism was never achieved.

Conclusion

My hypothesis about the Fall of Adam and evolution isn't complete and has weaknesses. I believe, though, that my hypothesis is adequate to make the point of the essay, that truth is truth, whether it comes from science or from the scriptures, and truth must be consistent. In giving a correlation between major characteristics of science and religion concerning the creation, perhaps I have given us reason to widen our perspective on truth and to be less judgmental of differing views. Perhaps I may help a few of us realize that it is foolish to argue over concepts about which we know little.

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