Evolution is not the Enemy; Intelligent Design is not the Solution

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Abstract

There is a need to intelligently bridge the gap between religious fundamentalists and the scientific community. The major themes in this effort are: 1) The theories of cosmological and biological evolution are real. 2) The theory of God, the Creator of the universe is real. 3) Neodarwinian evolution assumes some important phenomena of God’s creation without openly acknowledging them. 4) Intelligent design misses these phenomena altogether. 5) These phenomena and their algorithms need to be enumerated. 6) Each phenomenon needs to be elucidated with a few, concrete examples. And 7) there is a compelling need for a concerted effort to add to these examples. The phenomena involve the precision and accuracy required of numerous fundamental constants, forces, and masses for the universe to support evolution. The phenomena are: 1) Many “requisite singularities” are necessary for the evolution of intelligent life. 2) Critical conditions in the universe operate at “precise peaks” and 3) with “compelling detractors” around these peaks to ensure that each requisite singularity will occur. 4) They further operate such that each requisite singularity will occur in an “ample sample.” 5) Each requisite singularity is an “optimal solution” to design considerations. 6) Thus the requisite singularity will be found by natural selection with “statistical certainty.” 7) Once found, each requisite singularity results in “narrowing options” for future evolution. 8) This gives rise to an “essential sequencing” of requisite singularities. Finally, 9) the above often result in an “intricate simplicity” of requisite singularities.

Introduction

This paper presents a cursory look at seven major themes, each with numerous elements of supporting evidence. In the process, temptations to provide exhaustive detail or venture off onto fascinating peripheral jungles of supporting evidence must be resisted to prevent its evolving beyond a long paper into a book. In fact each of these major themes and many of their examples of supporting evidence could be expanded into a book or books, and in most instances, they have been.

None of these themes can be presented thoroughly enough in the limited space provided to be absolutely convincing. However, it is hoped that what is discussed is sufficient to persuade readers with an open mind that truth may be found in them with further thought, exploration and discussion. Although it is written for the scientist and the faithful alike, the latter are the primary audience.

Themes and Phenomena

The major themes are: 1) The theories of cosmological and biological evolution are real. 2) The theory of God, the Creator of the universe is real. 3) Neodarwinian evolution assumes some important phenomena of God’s creation without openly acknowledging them. 4) Intelligent design misses these phenomena altogether, although it is based upon their consequences. 5) These phenomena need to be enumerated. 6) Once enumerated each needs to be elucidated with
a few, selected, concrete examples. And 7) there is a compelling need for a concerted effort to add further to these examples and expand upon their underlying precepts.

It is presumed that many of the readers will be familiar with the corpus of evidence for one or more of the themes, but it will be the uncommon individual who is aware of the body of evidence for all seven; thus to make a case convincing enough to connect with and engross the largest group of readers possible, all seven must be addressed, but addressed simply, using only the essential technical jargon. In the end, some ultimately testable solutions will be presented to three of modern science’s “most compelling questions: Where and how did life originate? Are radically different forms of life possible? And how common is life in the universe?” (Warmflash and Weiss, 2005).

Before going further, it is necessary to clarify what is meant by “law,” “principle,” and “theory” and “idea,” “hypothesis,” “fact” and “thesis” as they are used in science, because their proper understanding and use will bear on what follows in several places.

The first set of three words is applied to concepts that are widely accepted by the scientific community. A law is a way of describing reality or a limited part of reality when it can be captured in a mathematical expression, a principle can be a law, or it can be a collection of laws that are related to one another, a theory is a way of describing reality when math cannot (or the mathematical expression is so involved or complex that it has not yet been worked out in its entirety, or if it has been, most people could not comprehend it). Accepting a proposed law or principle is relatively simple. It must describe reality every time it is applied within its limits, including when that application makes predictions about outcomes. For a theory to be accepted by the scientific community, it also must be found to describe reality every time it is applied, however, a law or principle is generally accepted after a relatively few examples of its application successfully predict reality, in part because it is couched in provable or derivable formulas. A theory cannot be confirmed so easily, thus its acceptance rests upon its being able to describe reality as observed, over and over again. A theory is accepted based upon the weight of the accumulated evidence for it. There is no established number of how many times a theory must be found to describe reality or how much accumulated weight must occur before it is accepted, but it is huge (AHSD, 2005)

The second set of four words is applied to concepts that may be on their way to being widely accepted by the scientific community. An idea is a concept that has yet to be proven by rigorous observation or scientifically-designed tests. Often ideas begin with observations that may be anecdotal in nature and not rigorous. An hypothesis is the way of expressing an idea in a scientifically testable framework. It involves a “null” hypothesis, which states that the idea is false and a way to test that null hypothesis. A fact is an hypothesis that has been tested and its null hypothesis rejected, usually at a 0.05 confidence level (meaning the results could lead to an incorrect rejection of the null hypothesis 5% of the time). The use of “fact” is particularly warranted when that outcome is consistently produced after several replications of the test of the hypothesis. A thesis is above both a hypothesis (as the word “hypothesis” implies) and a fact. It generally encompasses a broader idea or observation than either. This broader idea has been examined numerous times in different ways under varying conditions and has stood up under
these examinations each time. Nevertheless, it is subject to rejection or refinement upon further examination and testing.

In other words, knowledge progresses from ignorance, to idea, to hypothesis, to thesis to law or principle or theory.

Generally, a large number of facts and theses must be accrued before their corpus is elevated to a theory. Finally, once a theory has been widely accepted by the application of the above rigorous processes, it may even come to be referred to by the scientific community without any modifier (AHSD, 2005). For example, instead of the “theory of evolution,” it is simply referred to as “evolution.”

The above represents the ideal, not the real. It is not based on any single published definition, but on years of observation, application and thought. The scientific community intends these terms to be used in this way, but the difference between intent and practice is often wide and these terms frequently are used more carelessly as synonyms of one another, rather than as distinctives. However, in the case of the “theory of evolution,” they are used as described and in what follows, they will be so used.

The Theories of Cosmological and Biological Evolution are Real.

That is, cosmological and biological evolution are real. It should be noted at the onset that much of both cosmological and biological evolution is not conducive to being tested experimentally. Both describe past events that occurred over a grand time scale. Thus their events are not usually testable in the brief lifespan of a human. However, they do yield to observation because both provide mechanisms for looking backward in time: cosmology through the finite limit to the speed of light and evolution through the fossil record. Once an observation is made it can lead to predictions that the same observation will be made by looking elsewhere (in the universe or the fossil record) for conditions that should replicate this same observation. This prediction becomes a testable hypothesis that fails if those conditions do not replicate.

**Cosmological Evolution is Real.**

This is tantamount to saying that the theory of cosmological evolution as understood by scientists today is correct, that is, consistent with all, or almost all of the large body of known facts. Like any theory, it is not an exhaustive elucidation of all the facts that shows that everything that could be understood about it is understood. So, what are the basic tenets of this theory?

Approximately 13.7 billion years ago, the universe began with the Big Bang as an incredibly dense and incredibly hot concentration of short-wave length, high-energy photons containing the potential for all the future components of all the future matter. The universe began expanding and cooling instantly and transformed essentially instantaneously into an incredibly dense and incredibly hot quark-gluon plasma (Johnson, 2004). At $10^{-35}$ seconds (Rees, 1999; Riordan & Zajc, 2006) after it came into existence, it underwent a phase of rapid inflation that laid the foundation for the eventual structure of the universe (Lampton, 1989).
At $10^{-5}$ seconds as a result of this expansion, the temperature of the plasma had cooled to the point where quarks and gluons combined in accord with the strong nuclear force and the electromagnetic force into protons and neutrons, 100 seconds later these had coalesced into simple atomic nuclei. It took 380,000 years for the first atoms, mostly hydrogen, to form. As perturbations in the cosmological background established by inflation created pockets of higher plasma density, hydrogen atoms clumped in these pockets under the attraction of the force of gravity. When their mass and density reached a critical point, a billion years after the Big Bang, the first fusion reactions occurred and the first stars were formed and these clumps of stars were gathered together, again under the force of gravity, into the first galaxies (Lampton, 1989; Rees, 1999; Riordan & Zajc, 2006).

As the hydrogen fuel in these stars was consumed, it was fused under the influence of the weak atomic force into more complex atoms, from helium through beryllium to carbon and beyond. After several million years of fusion, their original fuel was exhausted and they exploded in supernova. These explosions scattered the elements forged in their interior ever outward until shock fronts from different supernovae or the supermassive black hole forming at the center of the galaxy, or those in the spiral arms of two colliding galaxies, encountered one another. Collisions between shock fronts caused condensation of these clouds of matter into second generation stars that contained a more complex mix of elements some 5 billion years or so ago.

As these stars condensed and rotated more rapidly, their huge masses gravitationally attracted this more complex mix of elements into a revolving protoplanetary disk around themselves. Gravitational forces acting on random clumps that formed within these disks favored the attraction of material around these clumps into protoplanets. Over time, as these protoplanets cleared the debris from their orbits (that which occurred there originally or that which was thrown there by collisions or near collisions with and between other protoplanets and disk debris), planets formed. Heavier elements were gravitationally attracted to the middle of the planets, with lighter elements making up the surface. If the planet was large enough, it would have an atmosphere around it containing elements that were light enough to form gaseous molecules. It was about 4.7 billion years ago, that one of these solar disks and its protoplanets, about half way out one of the spiral arms of a common galaxy, in an ordinary part of the universe became the sun and the protoearth. (Ward and Brownlee, 2003)

**Biological Evolution is Real.**

This is tantamount to saying that the theory of biological evolution as understood by scientists today is correct; that is, consistent with all, or almost all of the large body of known facts. Like any theory, it is not an exhaustive elucidation of all the facts that shows that everything that could be understood about it is understood. So what are the basic tenets of this theory?

Once the earth formed 4.6 billion years ago by accretion of rocky debris in the planetary disk, it went through a half billion years of heavy bombardment from other rocky debris in the planetary disk. Many of these debris chunks were of considerable size (100 kilometers in diameter) and their combined size and speed of impact carried so much potential energy that the kinetic energy released by their impact vaporized whatever atmosphere might have existed and caused the
surface of the earth to be heated past the melting temperature of rock (Ward and Brownlee, 2003). Because of the size of the earth and the resulting gravitational hold it had on elements and atoms at its surface and in its atmosphere, the atmosphere that did form was undoubtedly made predominantly of hydrogen (mostly bound to other elements) carbon, oxygen and nitrogen.

Shortly after the bombardment subsided (because most of this debris had been cleared by the earth and other planets or flung to the far recesses of the solar system or beyond by gravitational sling shots), and the surface of the earth cooled below the boiling point of water, life appeared. The first evidence of life comes from isotopes of carbon found in Greenland. The ratio of isotopes found in these rocks is similar to that found in living organisms today (Ward and Brownlee, 2003). This life was incredibly simple at first, consisting of small (prokaryotic) cells with simple membranes that were confined to the outside of the cell. Organelles (subcellular machines) within the cell were equally simple and, yet were sufficient to carry out the two fundamental steps of life: nucleic acid to protein (necessary for cell function) and nucleic acid to nucleic acid (necessary for cell replication).

Proteins are the jacks-of-all-trades of life, providing both the building blocks for the structure of organelles and the enzymes necessary to speed up chemical reactions on, in, and around these organelles to a pace suitable for life. At some point in time, two remarkable events occurred. In the first, a simple, prokaryotic cell captured another, somewhat smaller cell and this smaller cell escaped the normal fate of such encounters: digestion by the larger cell. Instead it provided the larger cell with a boost in its efficiency at utilizing simple molecules to produce adenosine triphosphate (ATP), the energy currency of the cell. Simultaneously it consumed the toxic oxygen molecule (O₂) (Margulis, 1970, and Tribe, et al., 1981). This afforded the smaller cell a safe harbor from all the other cells that would make it dinner and afforded the larger cell such a tremendous advantage by removing a toxin and providing ample ATP, that it quickly came to be a dominant life form. The second remarkable event occurred when one of these new cells engulfed a different, smaller, prokaryote producing a more complex cell that could capture the energy of the sun by a process known as photosynthesis, and using this energy and various, simple carbon compounds, produce the more complex compounds necessary for growth and reproduction. Notice that both the first and the second larger cells now contained membrane-bound organelles—becoming what are called, eukaryotic cells. The former membrane-bound organelle is referred to as the “mitochondrion” and the latter, as the “chloroplast” and this process, first proposed by Margulis (1970) is now referred to as the “endosymbiotic theory” of the evolution of eukaryotes from prokaryotes.

It turned out that these two new forms of eukaryotic cells were a perfect match. The first used complex molecules, which it got mostly from consuming and digesting other cells in specialized, membrane-bound organelles, to produce simpler molecules. Some of these molecules could be used as fuel for the processes going on in the mitochondria to produce most of the energy (ATP) the cell needed for biosynthesis. In these processes the simpler molecules were broken down (“burned”) to the wastes, CO₂ and hydrogen. Hydrogen was removed from the cell by combining with oxygen (O₂) to form water (H₂O). Meanwhile, the second cell used the waste CO₂ produced by the first cell and the energy it derived from the sun through the chloroplast, to produce the organic matter it needed for energy and biosynthesis. In the process, it produced the waste molecules, O₂ and H₂O. Furthermore, in the second cell, the three major cellular inputs
(H₂O, CO₂ and photons) were readily available in the atmosphere, thus natural selection (the process whereby organisms with traits that promote success are more apt to survive to pass on these traits to their offspring than those without these traits) favored ways that would increase their photon-capturing ability and these cells became the ancestors of algae and later, more advanced plants. The more technical term given to such organisms is “phototroph.” In the first cell, the third of the three major cellular inputs (H₂O, O₂ and other organisms) was not so readily available, thus selection favored ways that would increase their organism-capturing ability and these cells became the ancestors of simple, mostly single-celled organisms known as the protista, and by a slightly different path, more complex, multicelled organisms known as animals (Kardong, 2005). The more technical term given to such organisms is “chemotroph.”

Thus began the food chain that has persisted on the earth from that point on. Plants are the producers. By virtue of the superabundance of their required inputs, they too, became superabundant. On the other hand, animals are the primary consumers since they feed on the producers. These early primary consumers were likely only 1/10th as abundant as the producers, for the conversion of biomass to biomass is not an efficient process.

Because they allowed a much more efficient conversion of organic compounds into ATP, mitochondria became a critical organelle, found in both new eukaryotic cells. Many ancestral anaerobic prokaryotes (those that produced energy in the absence of oxygen), if they were like their descendants today, used glucose (or other simple organic molecules) to produce a net of two ATP molecules per glucose molecule. These first mitochondria were able to produce an additional number of ATP molecules per glucose molecule. Today’s mitochondria produce 34 ATP molecules. The advantage was clear and that was why the eukaryotic organisms that contained them quickly came to dominate the earth. However, it paved the way for two other critical evolutionary developments 1) with extra ATP, or at least more ATP per organic molecule burned, these cells could join together into a group of cells (a multicellular organism) because they now had the energy that would meet the extra demands of multicellular existence. 2) The cells that became the ancestors of algae produced slightly more O₂ than was needed by both them (they needed a small amount of O₂ to get them through the night when photons were not available) and the protista cells. This caused a radical change in the composition of earth’s atmosphere about 2.5 billion years ago (Perkins, 2005), so that O₂ became the second most abundant component of the atmosphere. This increase in atmospheric O₂ provided the conditions that enabled selection to favor those cells that became the ancestors of animals.

The evolution of life from molecules to these simple cells took about 2 billion years, but once life was perfected to this stage, evolution seemed to accelerate, so that in the next 2.5 billion years, life evolved from simple cells to mankind. Actually, what happened was the slow selection and development of more and more complex organisms. By the Precambrian, 580 million years ago, the Ediacaran fauna were sufficiently complex, that in five places around the world, fossilized remains of their soft structures can be found. In most instances, it is difficult to know whether they were complex algae or animals, or perhaps even a bizarre side-experiment (Ward and Brownlee, 2003). Then rather suddenly, 500 million years ago, at the start of the Cambrian, many animals evolved hard, protective coverings thus becoming easily fossilized. This is now known as the “Cambrian explosion.” At the same time, other, somewhat more energetic animals had evolved that were clearly capable of preying on the forms that were
coevolving protection. These formed the third and last major trophic level, the secondary consumers. As expected, they were $\frac{1}{10}$th as abundant as the primary consumers.

Evolution of animal life in the oceans continued with some progress and perhaps prior to the Cambrian explosion, a remarkable mutation occurred: the prevalent scheme with a dorsal blood vessel and a ventral nerve cord was reversed, likely by a single mutation, that affected a developmental gradient such that the growth pattern was reversed; the nerve cord was now dorsal and the blood vessel, ventral. This change allowed the development of a notochord and the myotomes of muscles that brought about the first chordate and vertebrates, the ancestors of fish. From this point on, evolution seemed to produce only comparatively minor refinements on body plans in the oceans, but evolution of life on the land was another story.

Evolution of life on land started some time later than that in the oceans and fresh water bodies of Earth. The fossil record is not clear, but apparently, primitive algae were stranded by tides, much like seaweed is today. When this happened, selection favored those with mechanisms that enabled them to ward off desiccation and they eventually evolved more and more effective antidesiccation features and other adaptations to life on land. Their descendants evolved into plants. Somewhat later, between 360 and 350 million years ago, a similar process occurred in the ancestors of land invertebrates.

The evolution of land vertebrates followed a somewhat different track (Clack, 2005). Some of the lobe-finned fishes that lived in shallow bodies of water with low oxygen, were able to use their paired, lobed, pectoral and pelvic fins to lift their heads out of the water so they could gulp air and pass it to their primitive lungs that supplemented their gills where oxygen dissolved in the water was normally absorbed to their blood. However, they still were fully aquatic, including having to breed in water. Life on the land evolved as these primitive, fish-like vertebrates found an unexploited habitat and developed features in response to the novel selective pressures of this new environment. They evolved into amphibians that, among other adaptations, could walk on land, using their four limbs, thus the first quadrupeds came into existence.

Another mutation affecting early development gave rise to the amniotic egg, an egg that could survive outside of water. With this development and others that resulted from selection for a more terrestrial existence, the reptiles arose. As in the water, animal life on land occupied two major niches: the vegetarian and the carnivore. Reptiles quickly divided into two major groups, the reptiles that were to become reptiles with similar teeth, and those that acquired a more predatory nature and huge skulls with teeth that had different functions. They may even have had a mixture of hair and scales. These were to evolve into mammals. Then, at the end of the Permian, about 250 million years ago, over 90% of all living forms of life became extinct, literally overnight. Although the exact duration of this event is not known accurately, it is now clear that the event took place in a time span measured in years rather than 100s of years. Geologically-speaking, this is instantaneous (Ward, 2004).

In many instances, this event wiped clean the slate of available niches. A previously rare group of reptiles, the dinosaurs, exploded into these unoccupied niches. Thus began the age of the dinosaurs. Dinosaurs remained the dominant land animal for almost another 200 million years. Then, 65 million years ago, another mass extinction occurred. Once again the period of
extinction was brief and the slate was nearly wiped clean. The line of reptiles that had evolved initially as more predatory forms referred to above, had several other adaptations that enabled them to survive this extinction: longer periods of gestation made possible by the evolution of the placenta, live births, hair and by now, mammary glands to nurse their young. These survivors were adapted to a strategy of greater investment in their offspring. These were the mammals, which had been small and confined to the background during the age of the dinosaurs. They were now free to occupy all these newly-vacated niches. Thus, a mere 65 million years ago, began the age of mammals.

In the intervening 65 million years, many groups of mammals evolved into blind alleys and became extinct, but always some lines alive at the time survived, leading to the 27 orders of mammals (McKenna and Bell, 1997) extant today. At some earlier point in time, perhaps as the ability of DNA to confer information from one generation to the next became more and more constrained by the sheer mass of DNA required in each cell (each of our cells contains 3 feet of it), selection found an alternate solution to favor the transfer of information from one generation to the next by another route—learning, which selected for a larger brain.

One group of mammals specialized in this solution, a group that was mostly secondary consumers, the primates. One, or perhaps, several subgroups of primates underwent a transition from quadrupedalism to bipedalism. Although the reasons for this are not entirely clear, bipedalism apparently resulted in part from the changing selective pressures that accompanied life in a new environment, the savannah. At about this time a large, north-south rift valley began to divide Africa into jungle to the west and a drier, savannah, to the east. This was not the first time a profound geological event of this scope had occurred. However, this was the first time it had occurred at the same time as the existence of an animal with a brain large enough to form a basis for the next major evolutionary advance: the use of the now-freed hands to use natural objects as tools and eventually, as evolution selected for ever-increasing intelligence, the ability to make tools. This development occurred approximately 4 million years ago in Australopithicus afarensis. As selection favored the ever more crafty use of tools and the use of tools favored an extended time of teaching offspring, more and more emphasis was placed on survival of the intelligent. It was this last development that eventually led to the evolution of Homo sapiens, about 160,000 years ago. The final major evolutionary development occurred approximately 50 to 40,000 years ago, when a rapid expansion of cultural and social development produced what is known as the Upper Paleolithic Revolution that gave rise to the Aurignacian culture (Morris, 2003; Kardong, 2005). This culture progressed slowly until about 6000 years ago, somewhere in the Mideast, writing was invented, and the rest, as they say, is history.

The above could be a fanciful tale, except for the evidence. So, what is the evidence?

First and foremost is the evidence for the cosmic time-line and the time-line for earth. The cosmic time-line from shortly after the Big Bang to the present is conveniently captured by what is known as the red shift. Light travels at a constant, incredibly fast speed. Nevertheless, it takes time to traverse the vast distances of space. While it makes this passage, the universe continues to expand from the Big Bang. Thus as distant objects in the universe move away from each other, their light shifts (is stretched by the expansion of space) further and further into the longer, red wavelengths, just as the sound of a train gets lower as it moves away. This shift is
proportional to the distance between the two objects and the cosmological evolution described above is derived in part from the study of increasingly more distant objects. Another gauge of age in the universe is provided by the “standard candle.” Standard candles burn with a uniform brightness. Since light dims as the inverse square law of the distance it has traveled from its source, the brightness of a standard candle can be used to calculate its distance from us. Further, because light travels at a constant speed, the age of these standard candles can be derived from their relative brightness. Several types of standard candles are used, depending upon the distances involved, but for the greatest distances, a type of supernova is relied upon. These methods for dating can be coupled with increasingly more powerful and sensitive telescopes to peer ever deeper into the universe and thus ever further back into time. Everywhere these telescopes are pointed across the universe, the further back in time they peer, the simpler the structure they reveal.

The time line for earth, from nearly five billion years ago to thousands of years ago is firmly established by three major disciplines, radiometric dating (the known half-life decay rate whereby an isotope of one element is transformed into another), magnetic-field reversals (sudden, 180° reversals of the earth’s magnetic poles that have been captured in crystals of magnetite in rocks that hardened during a given reversal period) that have been accumulated into a record known as the Geomagnetic Polarity Timescale and biostratigraphy (the association of index fossils with certain depositional layers) (Ward, 2004). Each has its strengths and weaknesses, but over and over again, where two or more of these can be used together, they tell the same story.

Using these methods for dating it is clear that there is 1) The gradual appearance of ever more complicated life forms in the fossil record. 2) The so-called “gaps” in the fossil record are being made smaller as new fossils are found that in both form and time are intermediate between their older ancestral relatives and their younger descendent relatives. 3) The similarity of the comparative anatomy of evolutionarily-related organisms. 4) The similarity (conservation) of DNA sequences for the enzymes and structural proteins of essential developmental and metabolic pathways from the most primitive organisms to the most advanced (including us). 5) The similarity of the DNA sequence in Chimpanzees with human DNA sequence (they are almost 99% identical) (CSAC, 2005) and the decreasing similarity in the DNA sequences of humans and more and more primitive organisms. 6) Developmental pathways that follow similar trajectories in the early part of ontogeny and extend that similarity further along the process, the closer the species are to one another taxonomically. 7) The hard evidence for plate tectonics and the understanding this brings to the biogeography of the distribution of both fossil and existing life.

Does the above present all the available evidence for the theory of evolution? Far from it! Do we understand everything there is to know about biological evolution? Definitely not. But, is all the evidence available enough to elevate belief in evolution to the realm of theory? For the scientific community, which includes many with theological convictions, decidedly, yes!

So, why, in light of the tremendous weight of the evidence for it, are fundamental Christians so unwilling to accept the theory of evolution? There are four prime explanations: 1) they are satisfied with their own understanding because they are ignorant of all the evidence that supports evolution as an explanation for the universe and life; 2) they are unwilling to invest the
considerable time necessary to openly examine and understand this evidence; 3) they mistakenly assume that if evolution is real, it challenges two of their most cherished beliefs: that God created the universe with man in mind and that the Bible is inerrant, and 4) they are aware of all the above, but for their own reasons, choose to ignore evolution. All of these explanations can be subsumed under a fifth. Most find it easier to identify and cling to a few arguments that they believe clinch their case and then become comfortable with a closed mind that eliminates further consideration of the opposing point of view. And that closed mind leaves God, who desires to prove to them how truly awesome He is, outside of a door with the only handle on the inside.

The Theory of God, the Creator of the Universe is Real.

That is, God, the Creator of the universe is real. This is tantamount to saying that the theory of God as understood by Christian theologians today is correct, that is, consistent with what is known. Like any theory, it is not an exhaustive elucidation of all the facts that shows that everything that could be understood about it is understood. It is saying that the facts that we do know consistently support it. So what is this theory?

In the beginning God created the heavens and the earth (Gen 1:1). There are two important claims in this critical verse which is the foundation for Judaism, Christianity and Islam. God establishes Himself as the Creator of time and simultaneously, the universe. Perhaps surprisingly, this will be the extent of the discussion of His role as Creator for this topic. More will be said later where it will become the focus of this paper. Instead, other aspects of this theory will be explored next, beginning with a consideration of insights into the Nature of God revealed by His creation.

A cursory consideration of the vastness and underlying orderliness of this universe makes it clear that the Creator must be omnipotent, and omniscient, a more thorough and careful consideration of the beauty and opportunity in this universe also reveals the Creator must be perfect goodness and perfect love. These four criteria are synonymous with Holy. Holiness is not a simple condition to capture, but it embodies a concept of being, so far beyond what mere humans can conceive, that we would feel overwhelmed, beleaguered and besieged in its presence. In spite of knowing this, God yearns for the intelligent beings in His creation to interact with Him and experience a sense of His love. Thus He deals with us in a gentler way on the spiritual plane as the Holy Spirit, which avoids this frightening, face-to-face meeting. Further, His perfect goodness insists that we do not react to Him like puppets on strings. Rather, He wants us to approach Him of our own free will. Free will only occurs where choice exists. If God allowed only Himself, there would be no choice. Thus, God had to allow something other than Himself to enter His creation: evil. But with evil and the choices it provides, comes another barrier to our interacting with God: guilt. Guilt piled on top of the already insurmountable burden of God’s Holiness would seem to be a death knell for any meaningful relationship between us and Him, and an impenetrable barrier to an eternal relationship with Him. But God has the solution.

In an interview, the creationist Henry M. Morris once said something quite profound. It went approximately like this: "God had to have been the creator of Mankind, otherwise God would not have the sovereign right to impose His solution to the conflict created by His Holiness and our
sinfulness.” God waited until the time was right (about 4000 years ago) to select a People, the descendents of Abraham, the Israelites, to be His ambassadors to the rest of Mankind. He established His laws among them, and showed them that every violation would be known as sin and the penalty for sin was death. He provided a ritual for cleansing the sin from the sinner using the blood of a substitutionary animal, sacrificed in the place of the sinner. He gave them the opportunity to TRY to be perfect on their own by following these laws but it soon became clear no human could follow them flawlessly. In the next 2000 years, He gave insights to selected individuals, the prophets, that He would provide a Messiah, who would permanently free them from their sins. Then, in fulfillment of these prophecies, approximately 2000 years ago, in a little, nondescript town known as Bethlehem, in Judea, God proscribed His Holiness and inserted Himself into His creation as the Son of Man, Jesus.

In His brief ministry between the ages of 30 and 33, Jesus made it clear that God’s laws, which were so impossible to follow, were even more Holy than had been imagined, so that even the transgressing thought was a sin. He also did something unthinkable, normally punishable by instant death by stoning: He claimed that He and the Father were One, that he was, in fact, God incarnate, and backed it up with profound teachings and miracles. Then He did the ultimate unthinkable act in obedience to the Father, the source from which He came: He allowed Himself to go through an excruciating passion that ended with His being nailed to a cross under a sign stating his crime, “Jesus, King of the Jews,” on the eve of the most sacred of the six holy days of the Hebrew calendar, Passover. (The day celebrating the deliverance of the Israelites from captivity in Egypt which was marked by the placing of the blood of the sacrificial lamb on the lintels of the doors to their houses so the angel of death would pass over the Israelite households.) Thus He became the ultimate sacrifice prophesied so long ago, taking on the sins of all Mankind and carrying them with Him to the grave. As fully God and fully Human, He is the only sufficient sacrifice that can bridge the gap between God’s Holiness and our unholiness.

Then to prove that He was doing this on God’s (His) authority, He rose alive from the tomb on the third day, presented Himself to his cowering band of followers over a period of 40 days and then returned to His Father. After waiting the length of time prescribed by Jesus and the empowering of the Holy Spirit promised by Jesus, at the start of the second holy day of the Hebrew Calendar, Pentecost, the celebration of the bringing in of the wheat harvest and the commemoration of the giving of the law, His disciples boldly and powerfully made it clear that Jesus was the Messiah (Christ) and that His sacrificial death was so much more than had been previously understood. It is nothing less than the only suitable and sufficient payment for their unholiness. By accepting this condition, people would enable their unholiness to die with Jesus on the Cross, to be entombed with Him, be purified by His sacrificial blood and be replaced with Jesus’ Holiness, which permits them to rise through His resurrection as a new, Holy creation, equipped finally to meet their Maker, face-to-face.

As with evolution, this could be a fanciful tale if it were not for the evidence. So, what is this evidence?

First and foremost is the Bible, the most historically traceable, ancient book available. Every claim described above is laid out in the Bible, again and again. Although many would like the Bible to be less than a reliable account of God’s involvement with Mankind, every time it is challenged,
extrabiblical evidence is available that supports its accuracy. Whether the challenges come from Biblical minimalists, who maintain that its early chapters are nothing more than a fabricated historical account of a people written after they emerged as a separate entity from the local population of Canaan, or some atheists who claim that in its entirety, it is a complete fairy tale written by mere humans, balanced evidence and arguments provide counterpoints.

Many Biblical passages could be quoted to support the theory of God, but one will suffice to encapsulate it: “Surely he took up our infirmities and carried our sorrows, yet we considered him stricken by God, smitten by him, and afflicted. But he was pierced for our transgressions, he was crushed for our iniquities; the punishment that brought us peace was upon him and by his wounds we are healed. We all like sheep, have gone astray, each of us has turned to his own way; and the Lord has laid on him the iniquity of us all.” This sounds remarkably like it should be a sermon given by one of Jesus’ disciples after His resurrection and ascension, but it is not. It is a Messianic prophecy given by Isaiah (53:4-6), some time between 800 and 700 years before the event.

This encapsulating passage is just one of many examples that consistently and often, quite poetically and profoundly support the theory, even though these passages were written by over 40 authors in 66 Books over a period spanning more than 1300 years. This could only be the case if the editor is God, and the theory of God is true.

Some of these authors were witnesses to the events they described and when writing them down, knew that they had to report them correctly, or other witnesses would come forward to refute them. Some of Jesus’ disciples and followers were among the earliest chroniclers of His life, death and resurrection. They clearly had this sense that it needed to be documented and done so soon and accurately. This reflected a dramatic reversal from a cowering band immediately after the crucifixion, to a unified group of bold witnesses, heedless of the wrath of the ruling party of Jews, the Sadducees, and the legalistic party, the Pharisees, gathered together in the supreme council of the land, the Sanhedrin. These witnesses clearly believed in what they were reporting and were willing to die for their beliefs and most of them did.

One of these Pharisees, Saul, who was intent on persecuting the early followers of Christ, underwent a similar reversal upon meeting the resurrected Jesus in a vision on the road to Damascus. Saul changed his name to Paul and became one of the most vocal and articulate followers, writing 13 letters that have survived to become part of the New Testament. Like the original twelve disciples, Paul, too, died for his beliefs rather than recant them.

Extrabiblical evidence for the historicity of Jesus may exist in the writings of Flavius Josephus, who in 93 AD/CE, recorded the History of the Jewish People for the powers in Rome. A passage in Chapter III of book 18 of the “Antiquities of the Jews” reveals the following,

>“Now, there was about this time, Jesus, a wise man, if it be lawful to call him a man, for he was a doer of wonderful works, --a teacher of such men as receive the truth with pleasure. He drew over to him both many of the Jews, and many of the Gentiles. He was [the] Christ; and when Pilate, at the suggestion of the principal men amongst us, had condemned him to the cross, those that loved him at the first did not forsake him, for he appeared to them alive again the third day, as the divine
prophets had foretold these and ten thousand other wonderful things concerning him; and the tribe of Christians, so named from him, are not extinct at this day” (Whiston, 1981).

This passage has been controversial since the 17th century, when it was deemed too Christian to be authentically penned by a Jew. Critics asserted, “it was inserted into Josephus’ book by a later Christian copyist, probably in the Third or Fourth Century” (Goldberg, URL). Then, in 1995, Goldberg performed a statistical comparison of the “Testimonium of Josephus” with another first century Christian narrative, the Gospel of Luke, and showed it matches Josephus’ account quite closely, suggesting strongly that both Josephus and the Gospel of Luke were derived from another, now lost, account. It seems, whether Josephus believed it or not, he did refer to Jesus in his Antiquities. Whether he or some later copyist penned the more Christian components is still being debated.

This theory of God is unique among the world-views of god. It was not conceived by man, but by God. In fact, all other world religions have man striving to reach God, to please Him. Christianity is the only religion in which God makes it plain that He is unreachable, and then establishes the provisions whereby He reaches man and brings him to Himself. It is not the kind of theory man would dream up. As C. S. Lewis (1952) asserted, “Reality, in fact, is usually something you could not have guessed. That is one of the reasons I believe Christianity. It is a religion you could not have guessed.”

That the Christian faith survived and continues to survive persecution to become the dominant world religion (Water, 2002) is another piece of supporting evidence. Michael Gillan (2004) states, “our belief in God is nothing if not incredibly stubborn; it perseveres even in today’s highly cynical, highly intellectual climate.” Then he goes on to suggest that the reason for this is that it touches something basic in our being, what others have called a God-shaped vacuum. People struggle to meet this need; to fill this vacuum with whatever they believe will fit: wealth, fame, success, power, drugs or other forms of addiction, but in the end they realize that their favorite substitute is merely a misfit.

Meanwhile, those who have God in His rightful place, especially those who follow the radical teachings of Jesus given on the sermon on the Mount, enjoy a simpler, more fulfilling life (Johnson, 2004). Guillan (2004) captures this exquisitely in a diagram that can be summarized as follows: Think of our two eyes, people with high confidence in scientific knowledge but low confidence in spiritual knowledge go through life with one eye closed; similarly, those with high confidence in spiritual knowledge, but low confidence in scientific knowledge, do likewise, but with the other eye closed. Both these groups of people see the world as a flat, two-dimensional reality. However, those who have both eyes open see the world with both spiritual and scientific understanding, providing the depth that comes with stereoscopic vision. Not only is the view more spectacular, but it is also much easier to know the true positions of objects relative to one another.

Another piece of evidence is the demonstrable response of the human nervous system when it is in meditation, prayer or otherwise, in communion with God. We have two divisions of the nervous system that control homeostatic (life-centering and maintaining) responses. One, the
sympathetic, works in the emergency mode. It deals with stress. It is incredibly efficient unless it is turned on chronically (as often happens in today’s world). When it is, it can be devastatingly damaging to many body organ systems. The other, the parasympathetic, works in the routine mode. It is also incredibly efficient when it is turned on. But unlike the sympathetic, stimulation of the parasympathetic has numerous, long-term health benefits, especially to the cardiovascular system. The parasympathetic division is usually the division turned on during prayer, even when that prayer is offered up in emergencies. Although stimulation of the parasympathetic response also can occur with secular relaxation techniques, it seems reasonable that a loving God would want communion with Him to be good for our physical as well as spiritual selves.

A consideration of chance leads to another part of the evidence. Stephen Unwin (2003), a risk analysis specialist, set about using the stock of his trade, the Baysian theorem to calculate the probability of God. “In the Baysian world, a probability is an expression of a degree of belief” (Unwin, 2003). In summary, Unwin examined the probability that five evidentiary areas supported the existence of God: “the recognition of goodness,” “the existence of evil,” the existence of “intra-natural miracles” (miracles that occur in compliance with natural laws), the existence of “extra-natural miracles” (miracles that occur outside natural laws), and “religious experiences.” Using well-reasoned arguments and conservative values for each of these, he arrived at a final conclusion that the probability of a caring God who desires to relate to individuals can be estimated at 67%.

Although 67% may not seem very convincing, it accomplishes what the great mathematician Pascal was also trying to achieve when he published his famous wager in his Pensées (1657). Pascal couched belief in, and living to please God in four, simple wagers: 1) God existed and belief in Him would accrue infinite benefit; 2) God did not exist and belief in him would gain nothing; 3) God did not exist and lack of belief in him would gain little or nothing; and 4) God existed and lack of belief in Him would cost everything. Pascal pointed out that acting on the former is the only way to win this wager. Both Unwin and Pascal were not trying to prove God, but rather to make it clear that the probability and consequences of believing in and pleasing God were sufficiently substantial, that the wisest choice is to give God a chance to prove Himself.

Ephesians 2:8-9 provides deep insight into this process. “For it is by grace you have been saved, through faith-and this not from yourselves, it is a gift of God-not by works, so that no one can boast.” Each person has the option of choosing to be open or closed to God’s gift of faith to believe. For those with a more skeptical, but open nature who choose to consider the possibility, the road to belief can be a time-consuming process that can spread out over years. For others, it can be given in a single event. Although this might make it seem that God is favoring one with more effort than He gives another, it is precisely the condition described in Jesus’ parable of the workers as He attempts to describe the Kingdom of God (Mt 20:1-16). Workers are hired at different times of the day, and in the end all receive the same wage. Clearly the Farmer has paid some a more handsome hourly rate than others, but in the end, they all receive the same reward.

This suggests another bit of supporting evidence: adults who struggle to receive the gift of faith over a long period, often show a profound change in behavior once they have finally decided to end the struggle and accept God’s condition. This change in behavior goes far beyond what would be expected. It could be expected in a person who was formally addicted to some
debilitating habit, but it is even obvious in a person who previously tried to lead a morally upright life. In either case, the person is more at peace and more focused on having the attitude of a servant and sees the world through radically different eyes.

Perhaps the clearest example of the struggle and the profound change it finally produces, is that of Clive Staples Lewis. He describes this process in his 1955 book, “Surprised by Joy.” After 236 pages relating his struggle of over 25 years to choose correctly, he gives the following account of his final recognition that the gifts of faith he had been presented over the years were weighty enough to convince him to cross the line. “I was driven to Whipsnade one sunny morning. When we set out I did not believe that Jesus Christ is the Son of God, and when we reached the zoo I did. Yet I had not exactly spent the journey in thought or in great emotion.” Three days later, in a letter to Arthur Greeves, Lewis wrote, “I have just passed from believing in God to definitely believing in Christ-in Christianity.” This single event turned Lewis into the person whom many now consider to have had one of the most critical and creative minds of the twentieth century.

C. S. Lewis is also the author of the last piece of evidence given here. In a book published in 1945, he argues from a firm foundation of logic that Jesus is either who He claims to be (God incarnate) or he is something else.

“A man who was merely a man and said the sort of things Jesus said, would not be a great moral teacher. He would either be a lunatic—on a level with the man who says he is a poached egg—or else he would be the Devil of Hell…. You can shut Him up for a fool, you can spit at Him and kill him as a demon; or you can fall at His feet and call him Lord and God. But let us not come away with any patronizing nonsense about His being a great human teacher. He has not left that open to us. He did not intend to.”

Does the above present all the evidence available for the theory of God? Far from it! Do we understand everything there is to know about God? Assuredly not. But, is all the evidence available enough to elevate belief in God to the realm of theory? For the theological community, which includes many with scientific convictions, decidedly, yes!

So, why, in light of the tremendous weight of the evidence for it, are atheistic or agnostic scientists so unwilling to accept the theory of God? There are four prime explanations 1) they are satisfied with their own understanding because they are ignorant of all the evidence that supports Creator God as an explanation for the universe and life; 2) they are unwilling to invest the considerable time necessary to openly examine and understand the evidence; 3) they mistakenly assume that if God is real, He will forcefully challenge two of their most cherished beliefs: that there is nothing higher than man’s intellect and that they are in control of their lives, and 4) they are aware of all the above, but for their own reasons, choose to ignore God. All of these explanations can be subsumed under a fifth. Most find it easier to identify and cling to a few arguments that they believe clinch their case and then become comfortable with a closed mind that eliminates further consideration of the opposing point of view. And that closed mind leaves God, who desires to prove Himself to them, outside of a door with the only handle on the inside.
Neodarwinian Evolution Assumes Some Important Phenomena of God’s Creation without Openly Acknowledging Them.

Before presenting the arguments, it is prudent to understand the mechanism behind neodarwinian evolution. Survival of the fittest is really survival of the advantaged. Fitness or advantage comes in two ways: 1) the organism is slightly better at doing what other organisms in the breeding population are capable of doing or 2) the organism is capable of doing something slightly different than what other organisms in the breeding population are capable of doing. In both instances, selection works only when the advantaged organism is enabled to utilize one or more available resources more competitively than its peers. Neodarwinian evolution can happen only if three conditions can be met: 1) there is some mechanism for the random appearance of variability. 2) This variability is expressed as a trait on which selection can work. And 3) the surviving organism can pass on this advantageous trait to its offspring.

Until the middle of the last century, science did not have a very clear understanding of the source of these three mechanisms. Then in a single discovery, Watson and Crick (1953) found that source, deoxyribonucleic acid (DNA), and showed that it simultaneously fulfilled all three requirements. DNA is structured such that it codes for 1) the structural proteins that make the bulk of the cellular organelles and 2) the cellular enzymes so necessary for cell function described earlier. These two roles of protein combine to make the traits on which selection can act. The portion of DNA that codes for a protein is called a gene and all the genes in an individual cell make up the genome. Further, DNA is structured such that this genome can be replicated into two identical copies and these two copies can be transferred into two offspring cells. Finally, a gene, although almost always replicated perfectly, is, on very rare occasions, replicated imperfectly. Imperfect replications are known as mutations. Some mutations produce no change in the protein coded for, but of those that do, the simplest ultimately cause a substitution of just one of the hundreds of amino acids found in a structural protein or enzyme. Although the effects of most mutations are either neutral or produce detrimental traits, every now and then one arises that confers a new advantage on the offspring. At this point, it is absolutely essential that it be made clear that mutations are mostly random as they relate to the location on the DNA where they occur, and thus to the suite of traits that they can affect.

The simplest mutation referred to above is now captured in the cell’s DNA. Upon each subsequent division of that cell, either both or one of the two offspring cells (depending upon whether it is a prokaryotic or eukaryotic cell) will also have that same advantage. If this offspring cell represents a new organism (as it would in a single-celled organism) or if it represents one of the reproductive cells of a multicelled organism that eventually forms an offspring, then the advantaged trait can be selected for in the offspring and its frequency in the population of surviving individuals will increase. If it confers a large enough advantage, it will quickly swamp out and replace the parent version of the gene. When enough mutations occur, the population of new individuals will be incapable of breeding with the parent population (if they are still around) and a new species will have been formed, a process known as speciation. It is precisely this understanding of the pivotal role of DNA in evolution that transformed Darwinism into Neodarwinism.
In short, it is the appearance of individuals with advantages over other individuals in their populations and the dissemination of these advantages into the other members of their populations through natural selection that produces new species. And it is the accumulation of these advantages over time in the surviving populations, that results in the increasing biodiversity and biocomplexity known as biological evolution.

The reader may detect a contradiction in this process. It appears to fly square in the face of one of the fundamental laws of the operation of the universe: the second law of thermodynamics. “A closed system will remain the same or become disordered over time, i.e., its entropy will always increase.” (Chalmers, 2002).

Needless to say, biological evolution does not violate the second law because the earth is not a closed system, it is receiving energy from the sun. Nevertheless, biological evolution does produce more variety and complexity in a universe headed in the opposite direction. That the universe has mechanisms that counter increasing entropy is interesting, at the very least.

What about abiogenesis (the evolution of life from non-living precursors)? Abiogenesis lacked reproducing organisms upon which selection could work, so how did it manage to produce the complex reactions of life from less complex reactions of chemistry? Or to put it another way, how did life come to be, life centered on that marvelous macromolecule, DNA?

The explanation for abiogenesis, although it invokes processes that include one analogous to natural selection, also contains others, including a more thorough understanding of the second law of thermodynamics than that given above. However, enough has been said here to establish the fact that life and its evolution is quite extraordinary. Neodarwinian evolution assumes some of this extraordinariness without directly acknowledging it. Discussion of what is assumed will have to be delayed to theme 5) of this paper: the introduction of the phenomena that reflect this extraordinariness.

Intelligent Design Misses These Phenomena Altogether.

Michael Behe (1996) introduced intelligent design (ID), which assumes the concept of “irreducible complexity.” This concept is based upon the accurate observation that metabolic processes in cells and interactions among cells and cellular products outside of cells involve many steps and each of these processes, from one starting point to an obvious end point (e.g., glucose to ATP) is very complex. No biological scientist argues with this. Behe goes on to introduce the next observation: these metabolic pathways are so complex, that removal of one step causes them to completely fail. Again, this is generally true for most if not all metabolic pathways currently used by cells, and most biological scientists would agree with this, although they would hasten to add that there is often redundancy in the system which provides a backup mechanism when they do fail. But the big problem arises when Behe takes one final step and posits that this failure upon removal of one step proves that there is no way the cell could have evolved these steps in piece-meal fashion, as evolution claims—thus the concept of irreducible complexity. To his credit, Behe was trying to find a bridge between the scientifically unsupported claim that God created the universe in six literal days with several independent steps
of creation as presented in the Bible and a strong, personal conviction that God was definitely behind the existence of the universe. In irreducible complexity, the cell, or at least a simplified cell, was created intact by God, and then evolution as science understands it, took over. His position is understandable in light of the genuine and continuing ignorance we have over the details of how abiotic processes led to biotic evolution.

Behe presented several examples of irreducible complexity, including the bacterial flagellum and the blood clotting mechanism in mammals. Looking at the former, Behe correctly points out that the multiple proteins in the bacterial flagellum form a motor, a universal joint, a propeller, and other complex features. This, he claims, forms a structure of irreducible complexity. A recent review (Rennie, 2002) retorts with the following,

“First, there exist flagella with forms simpler than the one Behe cites, so it is not necessary for all those components to be present for a flagellum to work. The sophisticated components of this flagellum all have precedents elsewhere in nature, as described by Kenneth R. Miller of Brown University and others. In fact, the entire flagellum assembly is extremely similar to an organelle that Yersinia pestis, the bubonic plague bacterium, uses to inject toxins into cells. The key is that the flagellum's component structures, which Behe suggests have no value apart from their role in propulsion, can serve multiple functions that would have helped favor their evolution. The final evolution of the flagellum might then have involved only the novel recombination of sophisticated parts that initially evolved for other purposes. Similarly, the blood-clotting system seems to involve the modification and elaboration of proteins that were originally used in digestion, according to studies by Russell F. Doolittle of the University of California at San Diego. So some of the complexity that Behe calls proof of intelligent design is not irreducible at all.”

For further criticisms of Intelligent Design, the reader is referred to Pennock (2001), Shanks (2004) and Young and Edis (2004).

The explanation for what Behe is missing goes beyond the above critiques and is the same as the unacknowledged phenomena in theme 3), “Neodarwinian evolution assumes some important phenomena of God’s creation without openly acknowledging them.” As there, although the explanation will be given in the next theme, enough has been said here to make it clear that the scientific community does not consider intelligent design to be an idea with scientific merit. It is not rejected because it attempts to prove creation, it is rejected because it is not supported by the evidence.

These Phenomena Need to be Enumerated.

“One beauty of Darwinism is the intellectual freedom it allows. As the arch-evolutionist Richard Dawkins has observed, ‘Darwin made it possible to be an intellectually fulfilled atheist.’ But Darwinism permits you to be an intellectually fulfilled theist, too. That is why Pope John Paul II was comfortable declaring that evolution has been ‘proven true’ and that ‘truth cannot contradict truth.’ If God
created the universe wholesale rather than retail—endowing it from the start with an evolutionary algorithm that progressively teased complexity out of chaos—then imperfections in nature would be a necessary part of a beautiful process.” (Holt, 2005).

What follows is an attempt to begin to penetrate the algorithm alluded to.

This penetration begins with the queries, “Is it reasonable to expect evolution to follow the same trajectory elsewhere in the universe as it did on earth?” And its corollary, “If it is reasonable, and if eventually it is shown that it did, what are the implications?”

On the way to answering these queries satisfactorily, it is appropriate to recognize the existence of this algorithm in the way the universe is put together and in the subsequent way the universe and life evolved. More specifically, chance and selection can create complexity and diversity of the kind seen in the cosmic structures in the universe and the complexity and diversity we know to exist in biological entities in at least one instance in the universe, only when they work within the confines of this algorithm. If so, it implies a Creator.

The algorithm can be expressed as a thesis in which conditions that came into existence with the big bang established a pattern of nine phenomena that would prevail during cosmological and biological evolution. The nine phenomena will be listed here, elaborated on below and then provided with examples: Evolution reveals many 1) “requisite singularities.” 2) Conditions in the universe act at “precise peaks” and 3) with “compelling detractors” around these peaks that ensure that the requisite singularities will occur. 4) They further operate such that each requisite singularity will occur in an “ample sample.” 5) Each requisite singularity is an “optimal solution” to design considerations. Thus requisite singularities are found by natural selection with 6) “statistical certainty.” Once found, each requisite singularity results in 7) “narrowing options” for future evolution, thus giving rise to 8) an “essential sequencing” of these requisite singularities. Finally, the above often results in 9) an “intricate simplicity” of the forms these requisite singularities take.

To distinguish this larger view of evolution from neodarwinian evolution—evolution that has no identifiable long-term goal, this will be referred to as Elohimian evolution because 1) the first verse of the first chapter of Genesis is the first place Elohim as a name for God is used. 2) Elohim is the most common word used for God in the Old Testament. 3) The Bible makes it clear the Triune God is the creator (all three Persona of the Godhead are ascribed a role in Creation at various places in the Bible. And 4) Elohim can be used in a singular or pleural sense, but in the first chapter of Genesis, it is used with a singular verb (Zodhiates, 1984) thus leaving open the interpretation in 3). This is not an attempt to usurp the role of neodarwinian evolution. As will be shown, the mechanisms of neodarwinian evolution have their rightful place in Elohimian evolution, but it is used here as a convenient moniker to encompass the various phenomena of this thesis.

To put ligaments on the skeletal framework of Elohimian evolution introduced above, each phenomenon will be briefly described below.

Requisite Singularities
At many places along the evolution Way, God left His calling card in what can be labeled “requisite singularities.” They are requisite because if they did not happen/work the way they did/do, people would not be here to ponder them. (In fact, in many cases, little or nothing would be here.) They are singularities because they could not have happened in any other manner given the way the universe is constructed.

**Precise Peaks**
There is much in this universe that acts at a precise peak—a very narrow condition that allows evolution to proceed. When this condition can be quantified, it often must be precise to a very large number of decimal places. If these properties in the universe were not precisely the way they are, the requisite singularity would not be found.

**Compelling Detractors**
It appears in many instances that certain developments or solutions “had” to occur. The conditions in the universe for these precise peaks to exist are constrained to be very accurate. In a sense, each precise peak can occur only under very limited conditions. Theoretical (or real) conditions near them simply do not work or work considerably less well—they act as “detractors” around this peak. Thus solutions will be found by natural selection or similar processes, whether they are approached from one direction or another. If these properties in the universe were not accurately the way they are, the requisite singularity would not be found.

**Ample Samples**
An optimal solution may not be found immediately when a new demand or opportunity is presented to a system or organism. However the ample number of choices available and the ample number of examples of each choice, coupled with random chance, ample time, and the incalculable number of instances that subatomic particles, atoms and molecules have to react with one another in the expanding universe, ensure that cosmological evolution will eventually find it. And random chance, ample time, and the huge number of offspring produced in each population coupled with the survival of the fittest organism ensure that biological evolution will eventually find it.

**Optimal Solutions**
For life to function in this universe, it must be in compliance with the physical, chemical and biological laws of this universe. This means that there will be optimal design solutions that comply with all or the maximum number of the above laws. Requisite singularities are optimal solutions, but not all optimal solutions are requisite singularities.

**Statistical Certainties**
Requisite singularities will be found with statistical certainty. In other words, the variations in the ample sample around the requisite singularity will occur with enough abundance to make it certain that the mechanisms of the expanding universe or of natural selection will find it. And once found it will rapidly (geologically speaking) increase in numbers so that it becomes the basis for the development of an ample sample for the next requisite singularity.

**Narrowing Options**
Once a requisite singularity occurs, the future options are not as varied as they were before it was found. Natural selection is good at finding the currently optimal solution. Yet, there are only a
limited number of optimal solutions and once a solution has been found, there is almost always no
going back, for going back does not do anything better or different than what is already there.

**Essential Sequencing**
The requisite singularities cannot occur in a random order. They must occur in a logical order, for
each one proceeds to greater complexity. Included in the concept of greater complexity is the
gradually increasing ability to convey greater amounts of information that is critical to survival of
offspring to reproductive age from one generation to the next.

**Intricate Simplicity**
The requisite solutions that can act as candidates for the next requisite solution are often extremely
varied, but they can be subsumed into a reasonable number of simple categories with logical, readily
comprehensible properties.

To summarize the above as briefly as possible, God created the universe in the beginning (Gen 1:1)
with the Big Bang. God endowed His creation with primary laws and properties. As a result of
these, short-wave length, high-energy photons (particles of light) were the simplest and the first of
the fundamental entities in the Big Bang. And God said, "Let there be light." (Gen 1:3). As the
universe inflated, the properties that led to the emergence of the quark-gluon plasma from the
photons, also gave rise to all other fundamental particles and their properties. These fundamental
particles in turn gave rise to the subatomic particles and their properties, which in turn gave rise to
the atoms and their properties and so on, up the levels of complexity. This process continued for
billions of years, eventually producing an intelligent being, man, from the random, evolutionary
process. But this process was not one in which chance and selection operated by themselves, but
one in which chance and selection operated in a universe that was established to find certain
solutions (Schroeder, 2001; Morris, 2003).

This brief synopsis is an example of the ninth phenomenon. It can be called the intricate simplicity
of God's creation because it is simple enough to be embodied in a few sentences, but so intricate it
would require volumes to even begin to explore it thoroughly.

Perhaps a more poetic version of this concept is captured in the following fanciful consideration of
Albert Einstein's famous quote which admittedly takes a great deal of liberty with Einstein’s
concept of God. The quote in mind has been paraphrased as "God does not play dice with the
universe." If he were alive today with the knowledge we now have, he would likely revise it to,
"God does play dice with the universe, but His dice are heavily loaded."

Once Enumerator Each Needs to be Elucidated with a Few Selected, Concrete Examples.

How did these phenomena effect evolution? Cosmological and biological evolution take time.
Some of them are essential to ensure that the evolution of the universe would take the requisite
time. Others are essential to ensure that the evolution of life would take place given the requisite
time.
In 1974, Brandon Carter published some remarkable observations. No less than 12 fundamental physical constants, forces, and masses are finely tuned to a precise value. Were any of them not so tuned, the universe would not exist. This is now known as the anthropic principle. The best discussion of this principle and its implications (some of which go counter to the implications presented here) is provided by Leslie (1989), from which most of what follows is taken.

One constant is the number used in the quantum calculations that lie behind cosmological science, known as the cosmological constant. It had to have been precisely tuned at the Big Bang for the universe to exist now.

A “deity wishing to bring about life-permitting conditions would seemingly need to have made two components of an expansion-driving ‘cosmological constant’ cancel each other with an accuracy of $10^{50}$. (‘Bare lambda’, the cosmological constant as originally proposed by Einstein, has to be in almost but not quite perfect balance with ‘quantum lambda’. With a balance that was perfect, Inflation would probably not occur.” (Leslie, 1989)

If it were off by one unit at this decimal place in one direction, the universe would have expanded and collapsed back on itself by now. If it were off by one unit in the other direction, the universe would have expanded so quickly that there would be little in it besides scattered hydrogen, helium and a few lithium atoms. This is an example of a requisite singularity. Further, this requisite singularity acts like with precise peaks and with compelling detractors; if it were not precisely and accurately just so, the universe would not exist with intelligent beings to ponder its existence.

The four fundamental forces have already been introduced: the weak and strong nuclear forces, electromagnetism and gravity. Looking at just two of these shows:

“Had the nuclear weak force been appreciably stronger then the Big Bang would have burned all hydrogen to helium. There could then be neither water nor long-lived stable stars. Making it appreciably weaker would again have destroyed the hydrogen: the neutrons formed at early times would not have decayed into protons….

With electromagnetism very slightly stronger, stellar luminescence would fall sharply. Main sequence stars would then all of them be red stars: stars probably too cold to encourage Life’s evolution and at any rate unable to explode as the supernovae one needs for creating elements heavier than iron. Were it very slightly weaker then all main sequence stars would be very hot and short-lived blue stars.” (Leslie, 1989)

This is a second and third example of requisite singularities. Further, these requisite singularities both act at precise peaks and with compelling detractors on each side of that peak, if they were not just so, the universe would not exist in a form capable of supporting the evolution of life.

Exactly what is life? Textbooks will attempt to give lists of the qualities of living organisms that define life. However, each quality has its exception in inanimate systems, which means that
living systems must have them all together to be identified as living. In short, life is complex. Then is there an all-encompassing definition of life that does not have its example in inanimate systems? Perhaps so. Life exists when a myriad of self-sustaining and self-perpetuating chemical reactions are isolated from, but have access to, the environment around them. That external environment will be predominantly water, as will be the internal environment. How does this definition relate to Elohimian evolution, the anthropic principle and in turn to the phenomena identified above?

For the above definition of life to occur, three conditions have to be met: 1) there has to be a way to make myriads of chemical reactions possible, 2) water has to have a number of very special properties, and 3) there has to be a way to contain and concentrate these chemical reactions in a water environment, yet isolate them from the water environment surrounding them. To see how these conditions reflect the phenomena, some discussion will be required.

There Has to be a Way to Make Myriads of Chemical Reactions Possible.

Of all the 88 naturally-occurring elements, only one, carbon, has the right size, properties and number of outer orbiting electrons (four), to form four covalent bonds. Because of these four covalent bonds, it can form the plethora of different molecules so essential to life. Taking this further, there are four different chemical bonds that readily form between elements that make up the tens of millions of molecules and compounds possible. The strongest of these bonds is the covalent bond. Covalent bonds occur when atoms share their electrons, which travel back and forth between the two atoms. This is the strongest of the four chemical bonds precisely because a great deal of energy is required to wrest an electron from this arrangement. Carbon, with its four covalent bonds is a requisite singularity.

Furthermore, its formation in large enough quantities and its sequestering in the right environment were necessary before the plethora of compounds needed for life would be possible. This is an example of essential sequencing. Carbon, like all of the naturally occurring elements heavier than lithium is formed in stars by fusion of the lighter elements in a process that occurred in the first generation of stars that formed following the Big Bang. When these stars went supernova, they flung their carbon (and the other elements formed by fusion) into the universe to be incorporated into future solar systems such as that of our sun. Furthermore, because of its mass, it would be concentrated at or near the surface of the forming protoplanets along with the other elements with similar masses in sufficient abundance for life molecules to form there with relative ease.

How does this fusion reaction occur? When two $^4$He (helium) nuclei fuse (the number 4 is the number of protons and neutrons in the nucleus), they form $^8$Be (beryllium). One of three events can now happen to this $^8$Be atom: 1) it can stay $^8$Be, but not for long, because its half life is 0.067 seconds so it has to either 2) undergo fission and return to two $^4$He atoms or 3) fuse with another $^4$He atom which forms an excited (unstable) form of $^{12}$C (carbon). This excited $^{12}$C gives off a photon and decays to the stable form. The resonance of the reaction forming carbon is so precise that if it were any higher, 2), fission, would occur preferentially and there wouldn't be much carbon in the universe. If it were any lower, it would be easy for the unstable form of $^{12}$C to decay back down to $^8$Be and $^4$He and there wouldn't be much carbon in the universe (Leslie, 1989; Heeren, 1995; Hazen, 2005). In either event, people would not be here to ponder it. Instead the activation
energy is JUST RIGHT for ample $^{12}\text{C}$ to form. Carbon formation occurs at a \textit{precise peak} with \textit{compelling detractors} around that peak. The reactions behind its formation work as if carbon \textit{HAD} to occur—the universe \textit{HAS} to find the requisite singularity of carbon; and sooner or later (much more the former than the latter), by chance collisions, carbon \textit{WILL} form and until it does form, the process cannot progress to the next \textit{requisite singularity}. Carbon is the \textit{optimal solution} with properties that ensure \textit{narrowing options} will exist after its formation.

Through this process, carbon was produced with sufficient regularity that it became the sixth most abundant element in the universe (Heiserman, 1992), and the fourteenth most abundant element in the earth (Mason, 1966). Thus carbon has been produced in an “\textit{ample sample}.” Once it is produced in sufficient abundance, it has properties that ensure it will exist as the structural backbone of a large number of compounds, many of which will exist in abundance. Thus carbon as an \textit{ample sample}, becomes the basis for the next requirement for an \textit{ample sample}, and as such it becomes a \textit{requisite singularity} for the next requirement. Further, complex carbon compounds cannot form until carbon is formed, thus revealing an \textit{essential sequencing}.

Exploring this essential sequencing further, the millions of compounds necessary for life will have a skeleton of carbon atoms, each with four, not two, not three, not five, nor six, covalent bonds. Fewer than four covalent bonds will not provide the large variety of compounds needed and more than four covalent bonds limits the variety of compounds that can form because of spacing constraints. Thus carbon, with its four bonds as the basis for the myriad of compounds necessary for the next requirement, acts as the \textit{optimal solution} with \textit{compelling detractors} on each side of that solution.

It should be noted that one other element, silicon, is abundant enough and has an ability to form four bonds like carbon. But its outer four electrons are too far away from the nucleus for them to react with the right binding energy to form the stable (covalent) bonds that are electronically-neutral which are necessary for the highly active molecules of life. Furthermore, many of carbon's covalent bonds are with other carbon atoms, a process called catanation, producing the long and complex and highly active molecules of life. Silicon rarely (if ever) catanates, probably because silicon is larger thus its atoms won't fit together properly or its di-silicon bonds are too readily broken to do so. In any plausible scenario you might think of, carbon and silicon will occur together and carbon will always win the competition to form long, complex and flexible molecules. In fact, here on earth where silicon is the second most abundant element in the crust (Heiserman, 1992) and carbon isn't even among the top ten most abundant, it is carbon that has won this competition. Silicon is relegated to the mostly short, simple and inflexible compounds of rocks such as quartz and emeralds (McMurray and Fay, 1995). Once again, carbon and its competitor occur in an \textit{ample sample} for the \textit{optimal solution} to be found.

Finally, stepping back from carbon and looking at the properties of the elements in the periodic table, they appear to be quite intricate, yet they are periodic (they have repeating patterns), and thus their relationship to one another can be simplified. Because of these simplifications, carbon, and just a few other elements (H, O, N), and to a lesser extent, sulfur (S), and phosphorus (P), are the sole elements used repeatedly in the building blocks of organic molecules. \textit{Intricate simplicity}, indeed!
Finally, all of this would not be possible if the conditions that gave rise to the anthropic principle were not at work.

*Water Has to Have a Number of Very Special Properties*

Of all the compounds, only one, water, has the dozen or so unique properties necessary for it to act as the single most important compound to life.

Water (H₂O) is a remarkable molecule. Not only is it one of the simplest of molecules, but it has no less than a dozen properties that are found in combination in no other molecule conceivable. These all relate to its structure, which is a molecule with an oxygen atom bonded individually to each of two hydrogen atoms. These hydrogen atoms, for reasons not necessary to delve into here, are arranged at 104.5° to one another (Fig 1). This particular combination of atoms and this resulting angle of their arrangement relative to each other are critical to the suite of unique properties found in water.

This suite of properties can be broken into four general and interdependent roles: 1) the polarity of water, 2) water and the hydrogen bond, 3) water and temperature, and 4) water and ionization.

*The Polarity of Water*

The atoms in water are oriented in the manner described above, because the larger oxygen nucleus (containing eight, positive protons and eight neutrons) attracts the single, negative electron from each of the two hydrogen atoms so that they spend more time orbiting the oxygen nucleus. This gives it a slightly negative charge and leaves the hydrogen atoms with a slightly positive charge. Thus the water molecule has an overall polarity to it (Fig 2) and it is said to be polarized.

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![Figure 1. A space-filling model of water](image)

*Figure 1. A space-filling model of water*

*Water and the Hydrogen Bond*

As stated earlier, there are four different chemical bonds between elements that occur in the millions of different molecules and compounds possible. The hydrogen bond is one of the four. It occurs between the negatively-charged electron cloud surrounding the oxygen atom of one water molecule and one of the positively charged protons (nucleus) of the hydrogen atoms of an adjacent water molecule. This bond actually occurs between one of four points on a water molecule and one of the four points on another. This interaction can be seen in Figure 3 which
shows the more accurate, orbital model of a water molecule. Each hydrogen bond that forms is relatively weak and it forms and breaks almost instantaneously only to be formed immediately with another water molecule. In water, each bond lasts only one 100 quadrillionth of a second (Curtis, 1983), yet so many are being formed and broken at any given instant that they cause the

Figure 2. A schematic of the polarity of the water molecule.

water molecules in a drop of water to cling together with considerable strength and yet to resist clinging together further, even when pressure is applied to them. This hydrogen bonding gives water two of its life-important properties: a high liquid surface tension (only mercury has a higher liquid surface tension) and capillary action.

Figure 3. A schematic of water and its resulting formation of hydrogen bonds (dashed lines). The water molecules at the top right and bottom left are rotated on their bond axes away and toward the reader, respectively, to convey a sense of three-dimensionality.

**Water and Temperature**
The amount of heat required to raise the temperature of a given volume of a liquid a given amount is called the “specific heat” of that substance. The specific heat of water is the second highest of all the common substances, due to the strength of its hydrogen bonds, which must be
broken before the system can become more energetic (warmer). The “heat of fusion” (the heat that must be given off by a substance before it can change from a liquid to a solid is also very high because of the hydrogen bonds. Water’s heat of fusion as it changes from 0°C Celsius liquid to 0°C Celsius solid (ice) is 80 times the amount of heat required to increase the temperature of an equivalent volume of water by 1°C Celsius. This, too, is uniquely high. Similarly, the “heat of vaporization” is a critical property of water. This is the energy required to change a given volume of a liquid at its boiling point to a gas. It is 540 times the amount of heat required to increase the temperature of an equivalent volume of water by 1°C Celsius. Again, this is a uniquely high value, determined by the nature of the hydrogen bond. Finally, water exhibits a property that is unlike most other liquids. When it freezes, it becomes less dense than it was just before it froze. Ice floats. This, too, is a function of the hydrogen bond and how it causes water molecules to behave as the kinetic energy of the system decreases.

Water and Ionization
The abundance of water compared to other compounds makes it the major candidate for the solvent of living systems while these other compounds become the solute. The elements bonded together in a salt crystal by ionic bonds form an important class of potential solutes. In general, ionic bonds are the second strongest of the four types of chemical bonds found in the compounds of life on Earth. The hydrogen bond is the third strongest. It would seem intuitive that the third strongest bond could not break the second strongest. Yet that is exactly what happens when water dissolves a salt crystal, a process known as ionization. The abundance of water and its polarity enables the + ends of several water molecules, which are bonded to other nearby water molecules by the hydrogen bond, to combine their weaker pulling power to wrest the negatively charged element (the anion) at the corner of the crystal away from its ionic bond and then completely surround it and keep it in solution. In a likewise manner the – ends of several water molecules gang up on the positively charged element (cation) on the corner of the crystal and pull the cation into solution. As this process is repeated, the entire salt crystal is eventually dissolved and the resulting solution is called an ionic, or more descriptively, an electrolytic solution.

What is the significance of 1) the polarity of water, through 4) water and ionization, for life? Water has the right mass and is so readily formed that it is by far the most abundant liquid on the surface of the earth and will be on many other planets in the universe comparable to the earth. Its polarity makes it an ideal, incompressible liquid. Its liquidity and incompressibility impart it with turgor pressure, the ability to cause rigidity in the fluid state when it is put under pressure. Its high surface tension and adhesive and cohesive forces enable it to work against gravity to travel up tubes with tiny diameters to great heights. Its heat properties act at the freezing end of the thermometer to make it difficult to freeze, in the liquid phase to make it an ideal reservoir for energy storage, and at the vaporizing end to make it difficult to turn into a gas. Thus it serves to stabilize temperature. Furthermore, the consequences of its heat of vaporization on its behavior at liquid temperatures, means its evaporation will carry away a great deal of heat, thus it is an excellent cooling agent. Because as a solid it floats on top of its liquid form, life can exist in the water beneath the ice in spite of subfreezing temperatures above it. Another consequence of its liquidity and polarity is that it is the best all-around solvent, able to dissolve and transport atoms, ions and polarized and nonpolarized molecules. Electrolytic solutions are the cornerstone of many of the processes in the cell and are especially fundamental to the development of the
impulse in excitatory nerve and muscle tissues. All of these properties would not be possible if the conditions captured in the anthropic principle did not exist, because it is precisely these conditions that impart to water the above properties.

So, how does water demonstrate the phenomena of Elohimian evolution? First, its ability to form one of the four common chemical bonds demonstrates intricate simplicity. Its unique properties make it a requisite singularity. The way its two atoms, hydrogen and oxygen, were formed make it an optimal solution. Hydrogen is by far the most abundant element in the universe since it was the first one to emerge from the Big Bang. It made up the bulk of the first stars referred to earlier. It is the tenth most abundant element in the earth’s crust. Oxygen is the third most abundant element in the universe and the most abundant element in the earth’s crust (Heiserman, 1992). Thus hydrogen and oxygen are guaranteed to occur in an ample sample. Oxygen formed under the same conditions and at the same time as carbon discussed earlier. “You make [oxygen] by sticking another helium nucleus onto a carbon one. This must be possible to do, but not too readily, otherwise all your hard-won carbon will turn into oxygen and you’ve lost it.” (Polkinghorne, 1995). And once again, the conditions captured in the anthropic principle make it this way. Thus the formation of hydrogen and oxygen occur at precise peaks with compelling detractors around those peaks. The formation of water must occur and once it does, it is clearly the only simple compound with this suite of characteristics and the form that life assumes must fit with these characteristics (narrowing options). Lastly, water, once it is formed, must be gathered together on a protoplanet before life can evolve—essential sequencing.

There Has to be a Way to Contain and Concentrate These Chemical Reactions, Yet Isolate Them from the Water Environment Surrounding Them.

The two bonds between an oxygen and each of the hydrogen atoms in a water molecule are covalent bonds. However, as stated earlier, the master of the covalent bond is carbon. The four electrons in its outermost shell alluded to in “There Has to be a Way to Make Myriads of Chemical Reactions Possible” above, enable it to form covalent bonds with the five other elements critical to life also mentioned above thus giving rise to the millions of different compounds necessary for life. Place enough of these elements in a given volume of water (note that hydrogen and oxygen are already there), add the right amount and kind of energy under the right conditions and they will form covalent bonds with the carbon as they randomly encounter it, producing complex molecules, which have been dubbed organic compounds—compounds with covalently-bonded carbon.

Organic compounds come in the millions of different variations stated earlier. Despite this huge variety, organic compounds can easily be grouped into four major functional classes, each having a unique set of properties essential for life: carbohydrates, lipids, proteins and nucleic acids. One of these, lipids, has four major subclasses, and one these, the phospholipids, is vital for isolating chemical reactions.

Phospholipids have a unique ability. Because of the phenomenon like that seen in water, some of the electrons in one end of a phospholipid molecule have a tendency to spend more time in one region of this molecule than another. Like water, this causes that end of the molecule to be polarized. This polarization causes this end to behave in water somewhat like it were another
water molecule. It is said to be water-loving (hydrophilic). On the other end of the phospholipid molecule, the situation is just the opposite. It has absolutely no polarity, and therefore it cannot react with water. In fact it avoids water and is said to be water-fearing (hydrophobic). These two responses to water lead to a remarkable result when a sufficient density of phospholipids occurs in water. The phospholipids spontaneously arrange themselves into two layers aligned with their water-loving ends facing outward and their water-fearing ends facing each other, an arrangement known as a lipid bi-layer. Furthermore, atomic and molecular forces at work in this lipid bi-layer and its interaction with the water around it cause it to form a sphere with water on both the outside and inside and the lipid bilayer in between. The water inside is contained in a compartment in which chemical reactions can occur isolated from the water outside. Furthermore, the range in the size of these compartments is perfect for the collection of a large number of complex compounds in the concentrations necessary for their reactions with each other to be enhanced (Deamer and Pashley, 1989; Dworkin et al., 2001).

How do the above demonstrate the phenomena of Elohimian evolution? The gathering of the millions of organic compounds into just four functional classes shows intricate simplicity. The ability of a subset of one of these, phospholipids, to spontaneously form lipid bilayer spheres is a requisite singularity with an optimal solution that provides an ample sample. The formation of these lipid bilayer spheres had to occur before the transition from abiotic processes to biotic processes (abiogenesis) could occur, an example of essential sequencing.

Having arrived at the stage in the evolution of complexity where abiotic phospholipid spheres occur, it is now appropriate to discuss the counterpart to natural selection in abiotic systems hinted at in the discussion of the third theme (Neodarwinian evolution assumes some important phenomena of God’s creation without openly acknowledging them). Three conditions were identified that had to be met for natural selection to occur: 1) there is some mechanism for the random appearance of variability. 2) This variability is expressed as a trait on which selection can work. And 3) the surviving organism can pass on this advantageous trait to its offspring. These three conditions are necessary for natural selection to work at the abiotic stage as well, although at this stage, “organisms” have not evolved. Condition 1) is met by virtue of the random nature in which carbon atoms react with other elements and compounds and the resulting organic compounds react with each other coupled with the opportunity for this to occur in compartments, where the resulting compounds remain to react further with one another. For condition 2), the variable trait upon which selection can act is the unimaginably huge number of such spheres that may form in the early oceans or other, appropriate habitats of an earth-like planet. Some of them will have reactions that make them self-sustaining and even capable of growth. Condition 3) occurs when those that are capable of growth reach the size that they become unstable and break into smaller spheres, sometimes two, sometimes more, a process called fission. But each of these smaller spheres will have the same compounds in them as the parent sphere, thus they will similarly undergo growth and subsequent fission.

That life appeared on earth so quickly after it provided an environment hospitable to life is quite astounding, and has given rise to the hypothesis of panspermia, the arrival of life from some other part of the universe. Although this could be, no experiment has proven that primitive life can survive the rigors and time it would take for a rock containing life buried deep within to travel from some other solar system to ours. The best that has been shown, is that life could have
survived a trip from Mars to Earth (Warflash and Weiss, 2005), but that only begs the issue since the evolution of life on Mars would have started at the same time as that on earth.

The more reasonable explanation is that although the conditions for the evolution of life are quite restrictive (when compared to all the conceivable possibilities), when they do occur, the evolution of life from abiotic conditions is “preprogrammed” into the properties of the elements that make up life and the conditions created by cosmic evolution that it will evolve in a relatively short, geological time.

Moving beyond abiogensis to the early forms of life that resulted and looking at the nature of the sun, the wavelength of light it emits, and photosynthesis, provides another example of Elohimian evolution. As stated earlier, life exists in two major forms: phototrophs and chemotrophs. The former capture the energy of the sun via a process known as photosynthesis and use this energy to produce organic compounds. They are the producers. The latter uses energy captured in organic compounds taken from other organisms (including the phototrophs) to make their own organic compounds. They are the consumers. A major waste product of the producers (oxygen) becomes a major requirement for the consumers (with the exception of anaerobic consumers) and a major waste product of the consumers (carbon dioxide) becomes a major requirement of the producers. In other words, for complex life to evolve, producers and consumers are mutually required. Of all the groups of wavelengths in the electromagnetic spectrum only one, the visible spectrum, has just the right energy to drive photosynthetic reactions. Longer wavelengths don't have enough energy and shorter wavelengths have so much they break chemical bonds rather than energize them. It should come as no surprise, then, that the solar spectrum of the sun peaks at these wavelengths. In other words, other types of stars, from red giants to white dwarfs do not have the right solar spectrum to permit complex life to evolve on any of the planets that formed from their solar disks. It should be noted that stars like the sun, classified as moderately bright, yellow, small stars, occur with some abundance in the main sequence of stars, a graph of the brightness, spectral color and to a lesser extent, size and evolution of hydrogen-burning stars in our galaxy. (Chaisson and McMillan, 2005). Thus the visible spectrum is a requisite singularity that acts at a precise peak and with compelling detractors around that peak and stars with a spectrum that peaks at the visible wavelengths exist in an ample sample.

The chemotrophs also demonstrate intricate simplicity, but in another way. Figure 4 captures the essence of the metabolic pathways in an aerobic chemotroph. The arrows trace metabolic pathways. Arrows contained within the cell terminate in “cell function” and that cell function is determined predominantly by the two classes of proteins discussed earlier: those structural proteins incorporated into organelles and those making enzymes. These proteins are formed by synthesis (using DNA) which requires building blocks provided by anabolism, and energy in the form of ATP provided by cellular respiration. In turn, cellular respiration requires oxygen (the same oxygen provided by phototrophs) and fuel provided by catabolism. Nutrients (arising from phototrophs or other consumers) provide the inputs for both anabolism and catabolism. In the process of functioning, the cell gives off wastes. These are water, which is produced by both anabolism and cellular respiration (note that catabolism requires it and anabolism produces it), heat, carbon dioxide (the same carbon dioxide used by phototrophs) and other, miscellaneous, waste metabolites, mostly containing the element nitrogen.
This figure demonstrates *intricate simplicity* by showing that the tens of thousands of metabolic steps in a cell can be summarized in a simplified diagram. But more importantly, it demonstrates

![Diagram of metabolic processes]

Figure 4. Summary of the Metabolic Processes in a Chemotroph

*requisite singularity* because the evolution of this set of reactions was necessary to produce the amount of ATP needed for the higher energy demands that the evolution of complex structures would produce, thus this step had to evolve before multicellular life with complex structures could evolve—*essential sequencing*. Furthermore, this must have been an *optimal solution* because it is found in almost all eukaryotic cells today. But more importantly, the implications this figure has for the problems that must be solved by the multicellular organisms that would evolve from it are clear. Since most of the cells in a multicellular organism would be far removed from the surface where these molecules and compounds were readily available (especially in the Precambrian oceans, where this process occurred), this development meant that ultimately, the complex organisms that evolved from this primitive chemotroph cell had to have: 1) a “digestive system” to get water and the nutrients into the body and break the latter down to small enough molecules to move them about. 2) A “respiratory system” to get the oxygen into the body (and simultaneously get the carbon dioxide out). 3) a “urinary system” to eliminate the excess water and metabolic wastes. And 4) a “circulatory system” to move the water, small nutrient molecules and oxygen from where they entered the body to where they were needed and to move the carbon dioxide, metabolic wastes and waste heat from where they were produced in the body to where they could be eliminated from the body. Finally, as the process increased in complexity with more advanced multicellular organisms, there would have to be a “nervous system” and an “endocrine system” to orchestrate all the above. Thus, the evolution of the chemotroph cell immediately *narrowed the options* for the future evolution of complexity.

A more advanced step in the evolution of complexity reveals another poignant example of intricate simplicity. Of all the places for the head with its unique senses to be located on the vertebrate body, only one, at the forward end of the body, solves all critical design problems: 1) The information most relevant to survival lies ahead of the organism, where it is going. (Note this automatically means that consistent movement with respect to a given axis in the remainder of the body produces
a “front” end and it also recognizes that all vertebrates descended from an ancestor that swam horizontally through water.) 2) This relevant information is found in the light, chemical and pressure gradients coming (most often) from ahead of the animal. 3) This information must be “captured” by sensory receptors. And 4) once captured, this information must be sent to the center where it is processed (the brain) rapidly to ensure the fastest responses to the life-or-death implications that the information may convey. All this suggests the need for the special senses: sight, smell, taste, and pressure fluctuations. Further it suggests that the receptors for these senses must be concentrated in the front of the organism with short nerve pathways to the brain, thus requiring the brain to be in the same area as the special senses. This arrangement is called the head.

Although rare exceptions are found in parts of this arrangement (e.g., in the squid and the crab, and the larger saurischian dinosaurs with a “second brain” at the base of the tail), these exceptions act to fulfill the same fundamental plan. Thus having the special senses at the front of the body, and the brain positioned close by is an optimal solution. The brain, being the central processing center for environmental information, is then the logical candidate to become the center in which further processing of information can be selected for and thus for the further evolution of intelligence. The evolution of the head is a requisite singularity necessary for essential sequencing. Furthermore, once this plan occurs, it becomes difficult if not impossible for evolution to break free from it to place the brain elsewhere, thus narrowing the options of future vertebrate plans.

Looking further into one of the special senses, sight, provides another example of intricate simplicity. Why are all extant sighted vertebrates (with the exception of the tuatara, a rare, primitive reptile from a few remote islands in New Zealand with an additional, “pineal” eye) equipped with two eyes, why not one, why not three or more? The embryonic development of structures requires energy. Energy is always a valuable commodity, thus evolution favors solutions that maximize the efficient use of energy. If two eyes will suffice to allow the organism to survive the threats to its existence in almost all situations and the existence of a third (e.g., looking backward) would give it a survival advantage in only very rare instances, evolution will not favor a third eye. If this argument is true, why not one eye? Two eyes placed near each other give absolutely essential information about the environment that one eye could not. They provide depth information. The value of depth perception can be grasped quickly by closing one eye and reaching for something on your crowded desk. Thus two eyes become the optimal solution. The evolution of two eyes also acts with compelling detractors around it since a highly complex organism with one eye or three is at a selective disadvantage to an organism with two.

This latter discussion brings up the burgeoning field of evolutionary development, or as it is more popularly known, “evo devo.” In brief this is a concept that has been simmering at a low level of understanding until recently, when the findings of the Human Genome Project and its progeny, made it clear that many evolutionary changes have occurred because mutations in a given developmental pathway affected complex suites of traits. Thus, e.g., it is possible that it only took a single mutation that disturbed the chemical gradient in limb fields to break the correlation that must exist between the lengths of the long bones in the fore and hind limbs of quadrupeds so that evolution of long hind limbs could occur in bipeds without a corresponding elongation of the forelimbs. This phenomenon was suggested by Pinkham (1977) to explain the limb correlation relationships observed in the quadrupedal Mexican spiny pocket mouse (Liomy
irroratus) a form that closely resembles the ancestral, fossil form of all the Heteromyidae, and its bipedal relative, the kangaroo rat (Dipodomys merriami).

The critical role of development in the evolutionary process is why “ontogeny recapitulates phylogeny.” An approximate truism that recognizes that cleavage, embryonic, and fetal developmental stages of an organism contain some traits that are the developmental stages of that organism’s evolutionary ancestors. How does this translate into intricate simplicity? A complex structure cannot appear evolutionarily or developmentally without antecedents (essential sequencing). This logical condition carries with it a critical narrowing of options (evolution does not proceed from an adult Australopithicus afarensis to an adult Homo sapiens) while simultaneously providing for an ample sample. Evolution acts at all stages in an organism’s life (up to the loss of reproductive ability). Early developmental stages occur 10’s to 10’s of millions of times more frequently than the adult form. Selection eliminates most of these developmental forms must, but because there are so many more of them than adults, it should not be surprising that the majority of selection occurs during development.

Returning to the idea of the evolution of intelligence and transitioning into ecological evolution, consider from which trophic group (level in the food chain) advanced intelligence would arise. Producers, as stated earlier, are plants and since their energy source is the light that surrounds them, they can be stationary (sessile). Stationary organisms require only a minimum of information processing. Consumers, moving about for their food, do require a fair amount of information processing (intelligence), but they do not need to be very intelligent. Their food source, plants, the producers, are normally in great abundance and plants are not mobile, thus finding them is little more demanding than scanning the local environment and often lowering or raising the head slightly to eat. The appellation “dumb sheep” although relative, is justified. Secondary consumers have to be able to process information somewhat more extensively. Their prey can move and are not totally without wits. Top carnivores have to be the most intelligent in all these trophic levels. Their prey is a hunter themselves. But perhaps the most demanding niche at this trophic level is the omnivore, because not only does an omnivore need to know how to hunt, how to hunt the hunter, but it also needs to know how to find. It is not surprising, then, that paleontological evidence indicates that the ancestor of modern man was an omnivore. This is an example of an optimal solution and a requisite singularity on the way to advanced intelligence.

Continuing with the ecological focus, life, including single-celled and multicellular organisms, has exploited the niche of the water column, the ice surface, the rock surface, rock interstices, the land surface, the soil column, especially the upper horizons, and the air column, especially the lower altitudes. It, has not exploited the niche of the lava surface or column, the rock column, nor the ice column, with the exception of unique, simple organisms (Archaea) which can exploit interstices in these columns. Why is this? The simplest answer is that the conditions that allow life to occur do not coincide with the conditions found in these “dead zones.” (Ward and Brownlee, 2003)

The final two examples of Elohimian evolution presented relate to speciation: isolation and mass extinctions. Speciation is the process whereby one species gives rise to another. At the heart of speciation is the concept that a species is a population of interbreeding individuals producing
fertile offspring. Thus, speciation occurs when one subpopulation derived from a parent population cannot breed with another subpopulation derived from that same parent population, or if it can, the union does not produce fertile offspring. A subtle condition inherent in this definition is the opportunity to breed. The loss of opportunity is the starting point of speciation. There are many ways this can happen, but they fall into three general categories. Loss of opportunity occurs when physical, reproductive, or chronological barriers arise to isolate two or more subpopulations.

Physical barriers to interbreeding isolate the two, formerly united subpopulations, such as would happen with the orogeny (development) of a mountain range in their midst, or the drifting of a raft of organisms to an oceanic island, where they can no longer interbreed with their relatives left behind on the mainland. Reproductive barriers isolate the two when the behavior or structure of one does not allow it to participate in the mating of the other, so that mating cannot or does not occur. Chronological barriers isolate the two when the older, parent population has no survivors that are capable of interbreeding with the younger, descendent population.

During the period of isolation, natural selection acting on the genome of individuals in the isolated subpopulation (the founder principle), or random drift, if the subpopulation is small enough, produces genetic changes that prevent the two subpopulations from successfully interbreeding should they ever be united. Physical or behavioral isolation produce two (or theoretically in very rare instances, more) species from a parent population. Chronological isolation occurs when one species evolves into another over time (phylectic evolution). Since the test of interbreeding cannot occur with chronological isolation, a secondary test is applied that seeks to find sufficient structural differences between individuals of the parent and descendent population. An excellent example of phylectic evolution is proposed by White, et al. (2006), as they document the evolution of the early hominid, Australopithicus anamensis into A. afarensis in the same area of the Afar rift valley in eastern Africa. These two mechanisms respectively account for the branching and the long, uninterrupted limbs seen in phylogenetic trees. Speciation, then, is a process that requires time, is a continuum (species B does not spontaneously arise from species A, or does so only when a very unique mutation has occurred) and operates such that all forms of life are ultimately related to each other.

For speciation and thus evolution to occur, then, there must be ample opportunities for isolation. Until the 1960s, the mechanism for this isolation was poorly understood. At that time, a group of English geophysicists expanded upon the idea of continental drift proposed by Alfred Wegener in 1912, to provide hard evidence that the lighter continental masses float like ice cubes on a heavier mantle material. Although the suggestion that continents are not fixed in place was radical at the time, the evidence for it now is so compelling that it is known as the theory of plate tectonics, or simply, plate tectonics. Since the Cambrian, these plates have converged into a giant continent (Pangaea), separated into two continents (Laurasia and Gondwanaland), and further separated into the seven continents we now know. During this time smaller pieces would split off of the larger plates and “drift” away from them only to collide with another plate, producing highly folded mountain ranges, similar to what occurs in miniature when two napkins are forced together and one eventually slips below the other. Although the time scale for major merging and splitting of continents is 10s to 100s of millions of years, the time scale for lesser isolating events, such as mountain building, river formation, island birth and growth, and
regional climate change are on a shorter time scale and produce adequate opportunities for isolation around the globe.

But, isolation is only one part of the process of speciation, another can be the eventual merging of the isolated populations with the resulting competition (if the nascent species are still occupying the same niches) and natural selection that acts on these competing populations that either drives them further apart or causes one to thrive and the other to perish. Clearly, plate tectonics provides for this process as well.

There is one other device in evolution’s tool kit, only this time it is more like a sledge hammer: mass extinctions. Five times since the Cambrian (Kardong, 2005) there have been geologically instantaneous extinctions of up to 100 percent of all the organisms living in a given environment or of a particular taxon (group). Often this mass extinction occurs across many environments and taxa simultaneously. The most famous of these is the extinction of the dinosaurs at the Cretaceous-Tertiary boundary, 65 million years ago, now unquestionably caused by the impact of a large asteroid off the peninsula of Yucatan, leaving the huge, Chicxulub crater mostly buried beneath the Caribbean Sea. As in all these mass extinctions, this asteroid did not wipe the slate clean, causing evolution to start all over again, but it did wipe out prominent groups, cleaning out many niches so that they were totally devoid of occupants. Immediately after these extinctions, an episode of explosive evolution occurred as the descendents of the survivors evolved to fill these now-vacant niches. These extinctions have occurred somewhat regularly, with an average periodicity of nearly 100 million years (Anonymous, 2006). This has led to the speculation that they may be linked to the periodicity with which the solar system passes through one of the great spiral arms in our galaxy (Gonzales et al., 2001).

So how do plate tectonics and mass extinctions fit into Elohimian evolution? The first ensures that an “ample sample” of variability will arise for evolution to find the “optimal solution.” And once it is found, even if it arose in isolation, for it eventually to prove itself as it is reunited with larger populations. Mass extinctions also work to find the optimal solution by eliminating the “dead ends” and providing an opportunity for evolution to find the next step in the “essential sequencing” from the group of survivors, which now have an opportunity to evolve new innovations to fill the newly opened niches. The prime example of this is provided by the extinction of the dinosaurs. As the dominant form, with the best “ample sample” available at the time, they had over 200 million years to evolve the capability to reason. Yet they did not. In contrast, the mammals, which were finally freed to fill these vacated niches evolved it a mere 65 million years later, in part, because they included a major group, the placentals, that not only invested more time and resources in protecting the offspring before it was physically separated from its mother (birth), but continued this process that enabled the passage of new information from one generation to the next in a much faster way than waiting for advantageous mutations: teaching. This latter is a “requisite singularity” for the evolution of advanced intelligence.

A large number of additional examples of Elohimian evolution could be cited, but enough have been presented here to make the point that these nine phenomena are encountered repeatedly in cosmological and biological evolution. Before proceeding to the last theme of this paper, it is appropriate to encapsulate these nine phenomena. To do this as succinctly as possible, letters, numbers and symbols will be used. They should be understood to be general representations of
actual conditions that have relationships to one another somewhat in the same fashion that letters of
our alphabet or numbers in a series are related to one another. We all understand “A” comes before
“B”, there is a difference between “B” and “b”, but these two are also more alike than “B” and “1”
are alike, and so on:

**REQUISITE SINGULARITY**
B is a required step if life is to arise or evolve.

**PRECISE PEAK**
B must be precisely B and,

**COMPELLING DETRACTOR**
← B1, B, B2 →; in other words, conditions around B don’t work.

**AMPLE SAMPLE**
Where they are possible, B, B', B'', b', b'' or 1 will occur, and occur abundantly, so that B can
be found.

**OPTIMAL SOLUTION**
But B by far works best; not B', B'', b', b'' or 1; even when B', B'', b', b'' or 1 are possible.
Sometimes the alternatives are not possible or they do not work at all.

**STATISTICAL CERTAINTY**
Thus B, not B', B'', b', b'' or 1 will be found by the mechanisms of evolution.

**NARROWING OF THE OPTIONS**
Once found, B → C, not 1, nor □, because 1 or □ are not possible once B has been found.

**ESSENTIAL SEQUENCING**
Thus A → B → C → D → E, etc., & B cannot occur before A occurs.

**INTRICATE SIMPLICITY**
Although the above may result in 10,11,12,13,14,15…99, different steps or different
categories, this intricate variety of differences can be simply summarized as tens, twenties,
thirties, etc. It must be acknowledged that this phenomenon may be simply a result of
mankind’s desire to simplify and categorize, but one can speculate why that desire is an
aspect of intelligence….

The requisite singularities are "found" by the universe using natural selection working through a
combination of precise peaks that act with compelling detractors that work through the ample
sample to find the optimum solution. Once a requisite singularity occurs, its variations also increase
to an ample sample from which natural selection can find the next optimum solution, and it narrows
the options that evolution has left open to it. Finally, this process ensures that requisite singularities
are "found" in the right order. It seems suspiciously as if the universe were organized to produce
intelligent beings and perhaps even more specifically, intelligent beings similar to man, through evolution.

It is the presence of these repeating phenomena of Elohimian evolution that work unobtrusively through the mechanisms of neodarwinian evolution that gives the appearance of randomly produced intelligence.

Although it is true an infinite number of monkeys typing furiously, would type out the Bible (or any other text) given sufficient time, they would do so most readily by typing a useful word or two here and a year later another word or two. There would have to be some mechanism to put their useful output together and what's more, put it together only when it came out in the right order. In other words there has to be a filterer, an organizer and a GOAL for this to happen. (Of course infinity is so large, that one of these infinite monkeys could type out all the keys in the proper sequence to type out the Bible perfectly. The problem is coming up with the infinity of monkeys.) Neodarwinian evolution provides a filterer only. It can only explain (and does so absolutely correctly and convincingly) how the survival of the fittest will bring about change in a population over time and observe (again, correctly and convincingly) that over longer periods of time that this process, has lead to ever-increasing complexity of the individuals in these populations and that this process culminated (at least up to now) in the evolution of the intelligent species, Homo sapiens. Neodarwinian evolution correctly ascribes this fascinating process to natural selection acting on random mutations, yet it is mostly descriptive in nature, its ability to predict specific outcomes is limited. Elohimian evolution recognizes neodarwinian evolution as the filterer, but the phenomena of intricate simplicity become the organizer and intelligent beings, predictably, the goal.

In truth, evolution cannot have goals beyond those of continuing the species and improving its fitness in either a stable or changing environment. However, the laws and principles of the universe do have a goal and that goal is to use evolution to produce man (for certain) and possibly other, anatomically similar forms of intelligent beings.

Thus neodarwinian evolution that ignores the phenomena identified with Elohimian evolution predicts that life will be rare to unique and intelligent life will definitely be unique. Elohimian evolution predicts that life will be confined to those rare conditions where it is possible, but they will occur frequently enough throughout the universe that simple life is common and may even have evolved independently more than once in our solar system, and complex life may even occur with some regularity in our galaxy and complex, intelligent life may not be not unique.

These Examples Need to be Expanded Further.

Perhaps the first scientist to begin to recognize the possibility put forth in this paper was the scientific humanist, Julian Huxley (1948), who, in less than 22 pages of text, laid out a more detailed version of some of what is presented here, the essence of which is summarized in the following, “Evolution is thus seen as an enormous number of blind alleys, with a very occasional path of progress. It is like a maze in which almost all turnings are wrong turnings. The goal of the evolutionary maze, however, is not a central chamber, but a road which will lead definitely onwards.” In this work, Huxley, on the basis of one or more short-comings (some of which are
identified above), systematically eliminated every major taxonomic group that ever existed from being capable of evolving intelligence except one, the hominids. In doing so, Huxley knowingly violated one of the most sacred tenets of evolutionary discussion, the avoidance of teleological thinking—the idea that evolution has a goal.

This taboo has been a valuable and necessary condition for the studies of the mechanisms of evolution because it freed the investigators to discover what the facts told them without a biasing objective in mind. The time has come as evidenced by the recently burgeoning literature on both sides of the issue, to openly suspend this ban in certain cases to see where that suspension will take us.

“Cosmology and evolution are the closest scientific cousins to theology. We cannot experiment on God, we cannot recreate the big bang or evolution on a grand scale, we have to look at the evidence and deduce the truth” (Polkinghorne, 1995).

Although Polkinghorne is correct, all three can be subjected to less grandiose tests of their truth. As alluded to earlier, the examples presented above are a small sample of those that could have been described. If this thesis is true, then undoubtedly there are many more waiting to be discovered. Their discovery is a monumental task that no one person can tackle. The complex nature of many of the examples will require the cooperation of specialists in different disciplines to discover them and fully flesh them out.

Conclusion

Both cosmological and biological evolution follow an identical pattern and that pattern is strongly suggestive of a Creator. Information contained in properties dependent upon the laws, constants, and forces of the universe make it not only possible, but certain, for intelligence to arise. Natural selection is nothing more nor nothing less than the mechanism that ferrets out that information, producing the cosmological and biological evolution we see.

Thus the evolution of life elsewhere in the universe is possible. However, the conditions for abiogenesis are so numerous and narrow (only a few of the many requisite singularities are mentioned in this paper), that the chance that they will occur together is remote. It is also possible that this life can evolve into complex forms, but once again, the odds are against it. Finally, it is possible that this complex life, once it evolves can evolve intelligent beings. Again, it is not likely, but it is at least equal to once in the universe. However, the evidence favors God’s creating the universe such that random processes, following carefully-designed and tuned laws and principles, would “find” the optimal solutions that lead to the evolution of life, and if all the requisite singularities were met, intelligent life, not at all unlike ourselves.

Thus, we may soon find that life exists or existed elsewhere in our solar system, but we will not find complex life in the solar system anywhere else but on earth. And we will definitely not find intelligent life anywhere else but on earth. In fact the odds against the evolution of life forms capable of intelligence are so high (so many requisite singularities are involved) that it is likely intelligence will evolve no more frequently than once in a galaxy or even more likely, less often.
But that still leaves a lot of opportunities for our distant offspring to assess the thesis put forth here.

In the meantime, do the facts and phenomena presented in this paper prove the existence of a Designer God? No, but they do imply One because they are the kinds of phenomena and facts a Designer could use to bring about a desired outcome. Besides, God cannot and should not be proved. If He could be, where would that leave choice? Even if this thesis is supported by further evidence, there will always be skeptics, who for their own reasons, choose to find the alternative explanations God has placed in His creation to provide choice. But these phenomena and their further study by Christians should have two important outcomes. They should dislodge those fractions of Christianity who ignorantly criticize evolution, and put all Christians in the place they belong as the children of the Supreme Scientist—the center of science rather than its periphery.

If God is real and desirous of our choosing Him, He is both the Supreme Scientist and the Supreme Defender of Choice. We will have to tread very carefully as we attempt to find the best way to address this issue, a way that does not trample God’s plan for us all to have the freedom and the choice to choose. It would be unwise to propose Elohimian evolution as a curriculum in the public, primary, and secondary schools where evolution alone should be taught. There is a great deal of value in the separation of Church and State. But it is a potential subject for higher education and for education in religious settings such as Sunday school, retreats, and special sessions. The evidence for God in cosmological and biological evolution, in the Bible, in the life, death and resurrection of Jesus, in the conviction of the early witnesses, in the changed life of believers, and the other facts presented in this paper are not enough to be convincing by themselves, but taken as a whole, they are circumstances that cry out for understanding, for explanation. They can be understood as being unrelated, with disparate explanations, or they can be understood as being unified with a single, efficient explanation, God.

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Reference List


