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In this talk on *Unification Thought and Modern Science* we will be dealing with the Great Debate between science and religion about the fundamentals of existence.

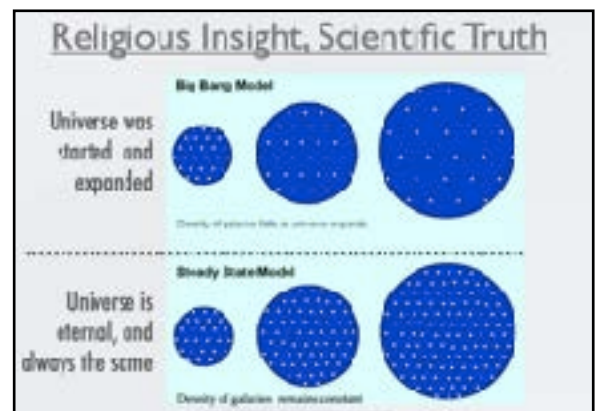
In the past, science seemed to dominate and religion seemed antiquated. In this discussion we examine and how the modern balance is shifting with the advent of both a new religious revelation and a revolution in the scientific understanding of reality.



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Classical Science was hostile to the religious concept of a creator God, but classical theology did promote one scientifically-proven concept—that the Universe had a beginning. This is now considered scientifically mainstream—the Big Bang origin—as there are so many supporting facts for it. In Newton’s time, however—the start of modern science—this origin concept was widely disparaged by the Steady State proponents.

This is a spiritual revelation confirmed by empirical science—a healthy and productive give-and-take of ideas. The revolutionary theology taught by Rev. Moon is not hostile to science, and in a similar way, suggests concepts that are amenable to scientific testing.



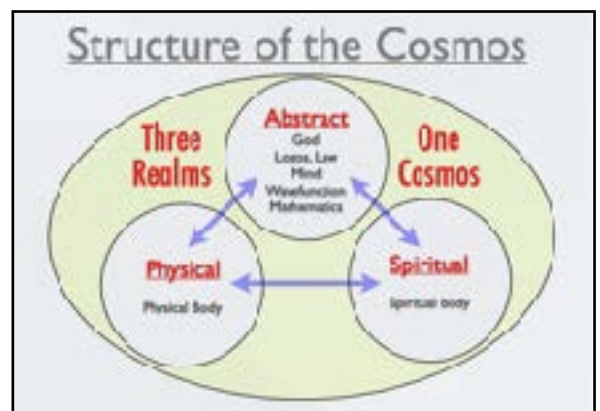
In my book, *Modern Science and Unification Thought*, to be published by the Hyojeong Academic Foundation this Spring, I discuss areas where current science—with its new insights of quantum physics, cosmology, genetics, etc.—has a constructive dialog with *Unification Thought*, the philosophic aspect of Rev. Moon’s theology.

In this talk, I will give a brief discussion of the dozen or so areas where I see a constructive convergence of religious revelation and scientific thinking.

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In overview, we see that while the materialistic foundations of classical science viewed the cosmos as consisting of a single physical realm, *Unification Thought* views the cosmos as having three distinct realms:

1. The incorporeal abstract realm—where God, natural law, the mind, the wavefunction and mathematics reside;
2. The corporeal physical realm of classical science—where stars, planets, and our physical bodies reside;
3. The corporeal spiritual realm intuited by religion—where our eternal spirit bodies reside.



It is interesting to note that all the really important stuff is in the incorporeal abstract realm. In my book we document evidence that modern science is slowly coming to accept this tripartite view of reality.

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One point of divergence is that the scientific hierarchy is somewhat inconsistent and bipolar. For, while physics, cosmology, chemistry and biochemistry are ‘hard’ sciences based on mathematical laws, the life sciences are ‘soft’, using debatable terms and relying on contingent and accidental developments. Biochemistry being where the transition occurs.

Steven. J. Gould, an avid Darwinist, metaphorically spoke of life’s evolution as a ‘tape’ and that: “Each replay of the tape will yield a different set of survivors and a radically different history.” Thus Gould predicts that when life is found on other extrasolar planets it will be radically different to earthly life.

Contradicting these assumptions, *Unification Thought* states that there is law acting on every level of sophistication, a hierarchy of laws called the Logos, and this is the source of the emergent properties that arise at every level. While the Logos is responsible for the origin of human babies, however, their maturing into a perfect adult is the portion of human responsibility that God does not interfere with. If the tape of life were run again, as it is expected to do on other planets, we expect to see a similar outcome to that on Earth, if only at the bacterial level..

In *Unification Thought*, God designed the Logos—the totality of natural law—then triggered the Big Bang and let the Logos guide its development for billions of years until the advent of human beings.

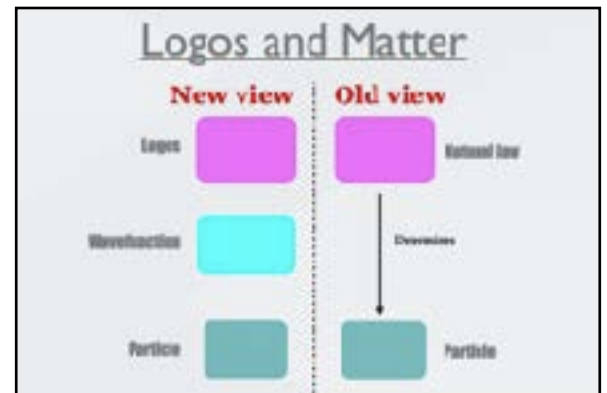
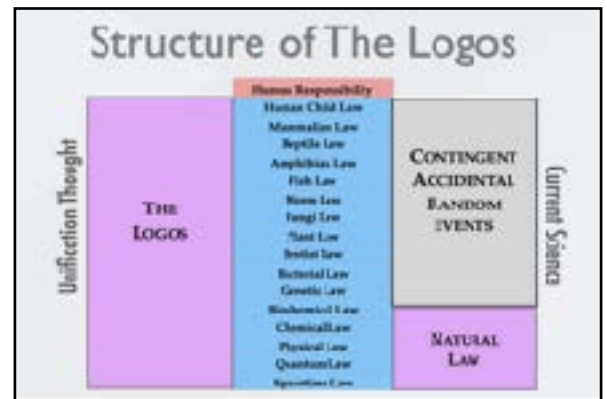
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While science embraces the concept of natural law, it has some problems with it. In the famous words of Eugene Wigner, a mystery is, “The unreasonable effectiveness of mathematics in the natural sciences.” How do matter and mathematics interact? How can there be free will in a deterministic world?

Unification Thought has no difficulty with what is often called “quantum weirdness” which befuddled even such brilliant minds as Einstein’s. The transformation from classical to quantum physics involved the introduction of the Wavefunction into our understanding of the workings of the world. This intangible aspect to matter—called orbital in atoms, instinct in animals and mind in humans—is called sung sang in *Unification Thought*.

It is the wavefunction that is responsible for all of ‘quantum weirdness’ —as the classically trained would call it—such as teleportation, mixed states, entanglement. This view even explains the familiar phenomenon of partial reflection in a window—a puzzle that quite stumped Newton. While many consider the wavefunction to be just a mathematical description, it is a fundamental aspect of reality in *Unification Thought*.

Unification Thought asserts that every entity—from simple electrons to sophisticated humans—has an internal intangible aspect as well as the external tangible aspect, both of which are equally real—the wavefunction of the electron being just as real as the mind of a human being.

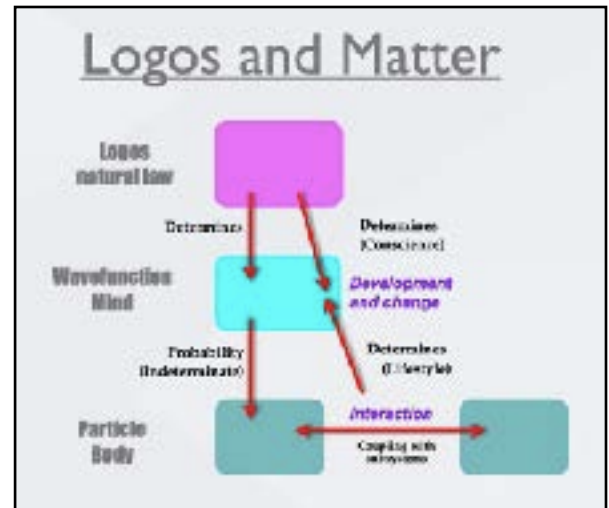


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In this new view, the Logos determines the wavefunction, so there is no mystery with an intangible law determining an intangible wavefunction. The internal wavefunction determines the probability of what the external form will do and interact. This introduces a factor of indeterminism into science—unless the probability is 100% and it will always happen, or 0% and it will never happen. This indirect action of law on the tangible removes the problem of Determinism and Free Will.

The wavefunction is not static, it can radically alter. The wavefunction changes and develops governed by a combination of the Logos and the systems's interactions with others, its coupling with subsystems. The combined influence of these directly effect the changes in the wavefunction.

A familiar example being the conscience which influences us to do good, but does not force us to do so. The lifestyle and interactions we choose develops our character as we age.

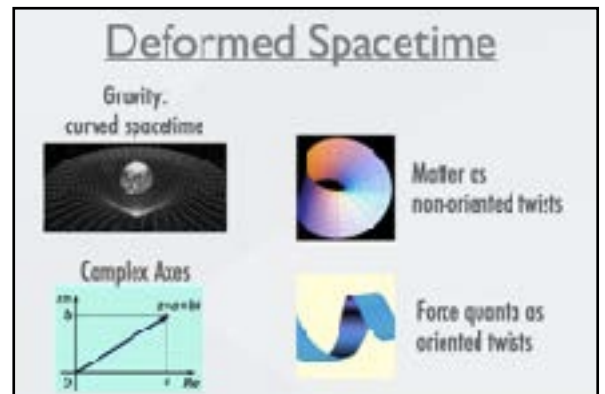


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Unification Thought, of course, sees the incorporeal God as the creator of the corporeal physical world. This raises the question of how an intangible entity can create tangible entities—magic excluded.

While in my book I have avoided math as much as possible, it was a necessity to introduce complex numbers—those combining lineal size and circular rotation—as they are the only way to quantify and successfully describe both spacetime and the wavefunction.

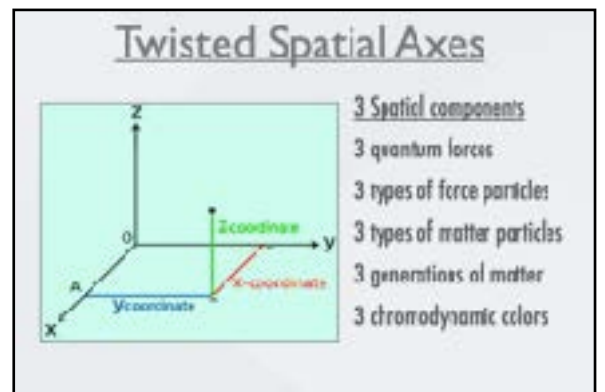
Modern science is quite comfortable with Einstein's concept of an intangible spacetime being curved as an explanation for gravity. If it can curve, it could also be twisted, or deformed. We explore the idea of both matter quanta and force quanta being mathematical twists of intangible spacetime—twists in one, two, or three of the spatial components along the time component. Matter particles being non-oriented twists, and force particles being oriented twists in the space components along the time component of spacetime.



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This view would explain the otherwise inexplicable numerology of fundamental physics and its obsession with the number three: Three quantum forces, three types of matter particles, three generations of matter particles, three chromodynamic colors.

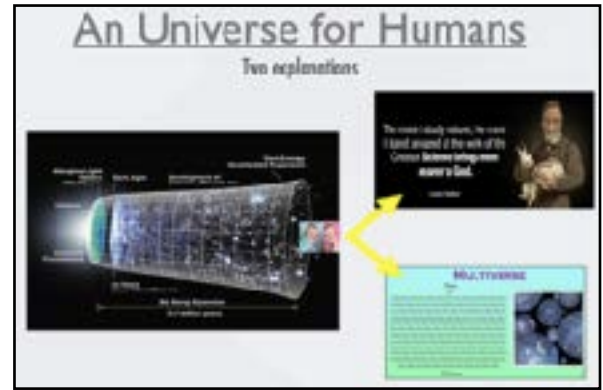
In this view, both God and the fundamentals of the corporeal world are similarly incorporeal, with solidity bring an emergent property expressed from the Logos, not a fundamental aspect of reality.



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In *Unification Thought*, the universe is expressly designed for mankind—an anthropic universe. While it is possible to dispute this at sophisticated levels, at the fundamental level of physics and chemistry, the basic constants have been found to be finely tuned to allow for us to exist. Even a single change would not allow for our existence.

In the book we compare the two basic extant explanations for these anthropic constraints: an intelligent Creator or the multiverse, of which ours is just one of zillions.



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While many people have had spiritual experiences, myself included, classical science excludes the possibility of another realm alongside the physical realm. On examining various aspects of modern science, however, in the book we conclude that, on a theoretical level, modern science is actually quite comfortable with the existence of another realm, that modern science is theoretically comfortable with another realm for six reasons:

1. If it is 72% of the Cosmos
2. If it has an antigravity effect
3. If is composed of negative energy tachyons
4. If it structured with supersymmetric entities
5. If it inhabits the complementary metric

	Physical	Spiritual
Cosmos	25% positive energy gravity	75% dark energy anti-gravity
Speed limit	Tachyons lightspeed upper limit	Tachyons lightspeed lower limit
Particles	Known particles e.g. electron	Supersymmetric particles e.g. selectron
Metric	ix, iy, iz, t	x, y, z, it

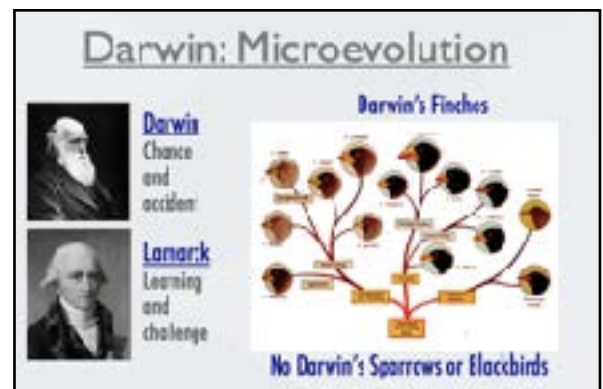
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Moving on to the life sciences, the study of evolution—which is a fact—and the debate about Darwinism as an explanation of it.

Back in the 1800's, Darwin actually had a competitor in explaining evolution. While Darwin saw accidental, random change as driving evolution, Lamarck proposed that learning and challenge was the driver of development.

Darwinism won the debate, but he actually did not explain the origin of species; he only explained microevolution, the origin of races and varieties.

His paradigm was based on observations such as Darwin's finches on the Galapagos Islands. While microevolution of varieties was abundant there, the striking lack of Darwin's sparrows, eagles, or blackbirds refutes his extrapolation to the Origin of Species.

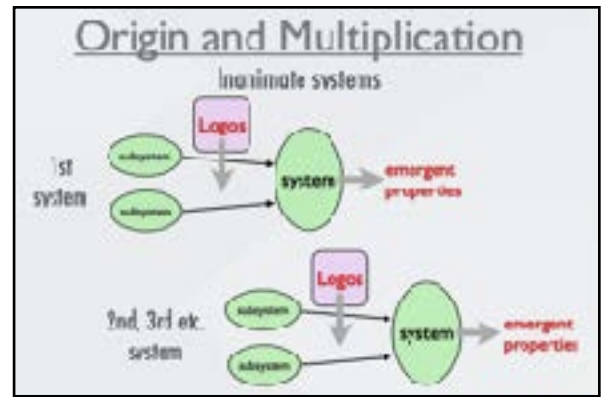


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There is a somewhat overlooked difference between non-life and living systems involving the origin and multiplication of systems.

The origin and multiplication of a new inanimate system are basically the same. For example, it is quite logical to say that there was the very first helium atom in the universe as it cooled from hot plasma to cool atoms. The appearance of the second, third and so on helium atoms was basically the same.

In both cases the Logos united nuclei and electrons with the emergent properties of helium.



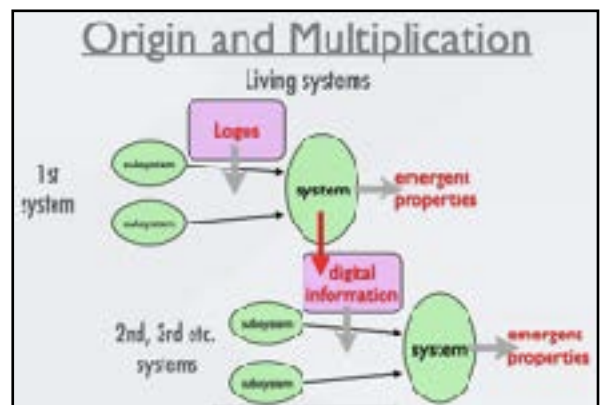
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For living systems, this simple repetition is not the case.

The origin of the first of a living system is similar to that of inanimate systems, the Logos brings subsystems together into a new system with a new set of emergent properties.

The difference is that this process of analog assembly is recorded as digital information in the DNA this is passed on down a lineage. It is this information—not the Logos—that directs the assembly of the second, third and so members of the new system.

This difference involves the reading and writing of digital information and its expression as analog form.

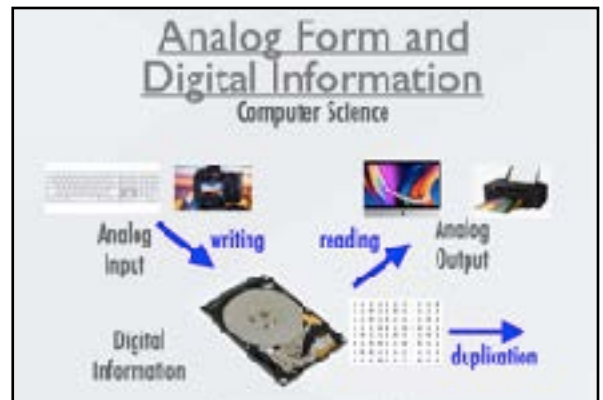


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We look to computer science for its experience in recording analog form as digital information for storage—the writing step—and recalling it to regenerate analog forms.

For example, this document of text and diagrams was recorded on my computer as digital information—arrays of ones and zeros—where it was manipulated, and recalled to drive a printer to create the document—the reading step.

It was duplicated and emailed to Korea for further use.

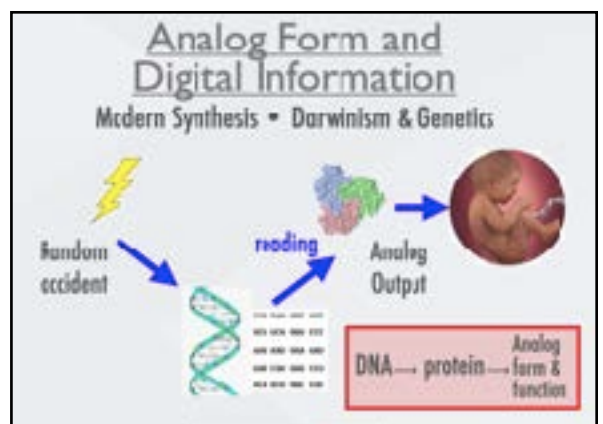


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Darwin's explanation of evolution was combined with genetics to create the Modern Synthesis. This, however, makes the error of considering only the reading, not the writing, of digital information.

The fundamental dogma of genetics is the one-way flow of information from nuclei acids to to protein to form and function.

In this view, the only change in the digital information arises by random alterations and mutations.



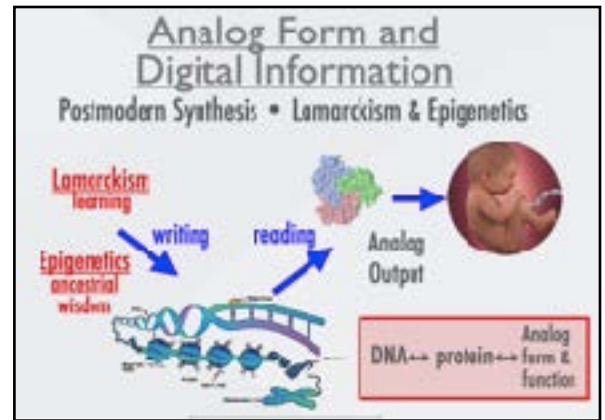
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In Lamarckism, ancestral wisdom accumulated along a lineage in microevolution. What is being learnt, of course, is information in how to thrive in the Logos-created environment of the organism.

Relatively recent, is the emergence of the new science of Epigenetics which introduces and studies the writing of digital information in living systems, all governed by proteins.

While science has yet to establish the mechanism of speciation, it is established that epigenetic information influences the changes in DNA in the formation of the sexual gametes.

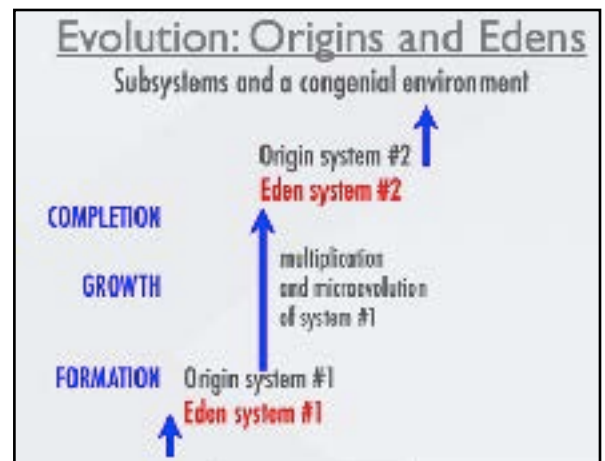
In the book, we discuss the similarities between the human-directed evolution of computer systems and the Logos-directed evolution of living systems.



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We examine the basic requirements of systematic development over time. In order for the Logos to unite subsystems together as a higher system there needs to be the subsystems pre-existing in a congenial environment. We call such an environment an eden for the origin of of the system. In *Unification Thought* there is a simple principle of the three stages of development over time: formation, growth and completion. Given the origin of a system, multiplication and development follows, and their completion and maturation creates an eden for a more sophisticated system to occur.

All under the influence of the Logos. In our helium example, while the Logos, nuclei and electrons and been around for thousands of years, the environment had been too hot, not congenial for atoms to form. Only 380,000 years after the Big Bang was the universe cool enough, and atoms first appeared.

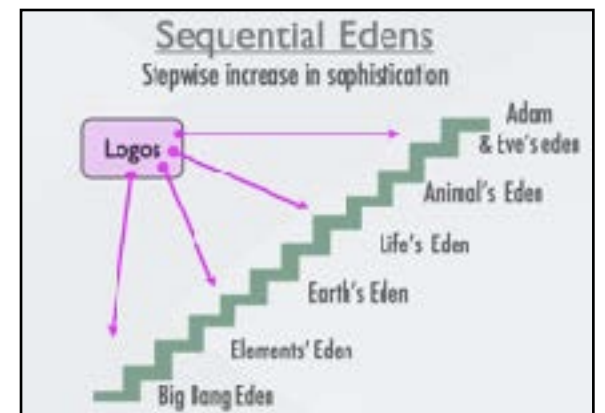


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In the book, we describe in broad detail, the evolution of life on Earth as a sequence of origin in an eden followed by multiplication and eventual development of an eden for a more sophisticated system. The origin of this system is followed by multiplication and eventual development of an eden for an even more sophisticated system—sophistication being measured by the qualities and properties derived from the Logos.

Starting with the electron/proton eden, then the element's eden, life's eden, etc., with the end of this sequence being the eden for human origins, the subject of its own chapter.

While Darwinism views the driving force of evolution to be random alteration, the book explores concepts more in tune with modern physics and the Logos.

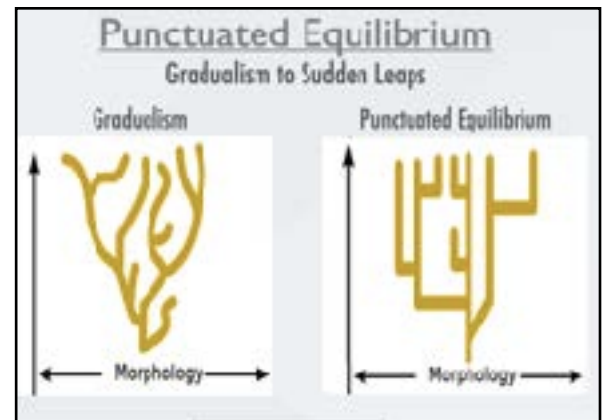


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One consequence of Darwin's theory of accidental random change is that evolution is expected to be gradualistic, as one species gradually changes until it is so different that it can be considered a new species.

Unfortunately for this theory, the pattern we actually see in the fossil record of life's history is periods of microevolution followed by the rapid emergence of new species.

This evolutionary fact is called punctuated equilibrium—long periods of stasis punctuated by a short period speciation.

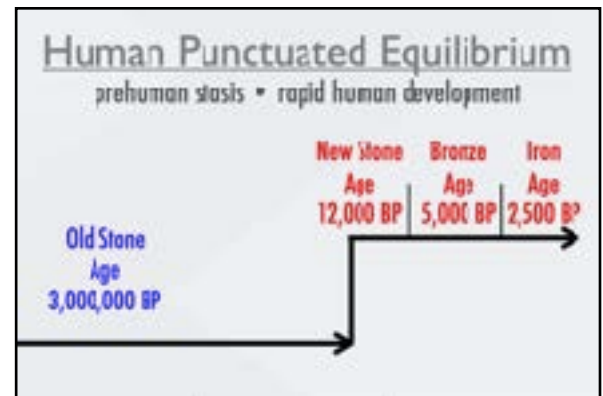


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For human origin, the stasis period was the 3 million years before present (BP) of the Old Stone Age.

It is inconceivable that a human society did not change for thousands of thousands of years, so we can assume that they were prehuman hominins whose microevolution paved the way for the human origin event.

This long period of stasis development was followed by the sudden transition to the Neolithic, Bronze, Iron Ages, etc. In just thousands of years, not millions. This abrupt change was brought about by the emergence of humans.



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It is noteworthy that modern genetic science has agreed with two concepts in the Bible and *Unification Thought*:

1. That the origin event occurred in a single place: In the Bible it is called the Garden of Eden, in genetics it is called the Out of Africa consensus.
2. That an ancestral couple was involved, called in the Bible, Adam and Eve. In genetics, they are called Mitochondrial Eve and Y-chromosome Adam.

This couple are now experimentally considered to have been roughly contemporary, and “members of a small breeding community”—the minimum size of which is just two.

This scientific consensus was featured on *Newsweek*, a respected magazine, as far back as 1988, suggesting that all those paintings of Adam & Eve as white folk were wrong.



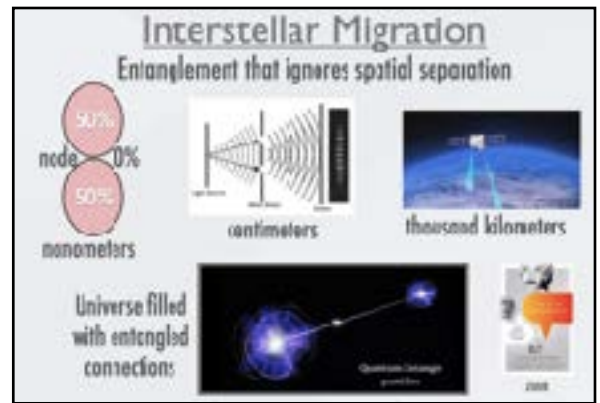
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While it is quite clear from history that humans have yet to arrive at the completion stage—more a religious than a scientific concern—we look to the future and what is available in current science that would allow humanity to spread from the Earth into the wider universe.

The phenomenon of teleportation is integral to the ‘quantum weirdness’ of entanglement that Einstein rejected as “spooky”. If the wavefunction gives a particle a 50% of being in one place, and 50% in another place, and 0% being in-between, then the particle will jump from one to the other, spending half its time in both irregardless of the spatial separation. This has been experimentally verified over a wide range from the nanometer separations in orbitals, to thousands of kilometers using satellites. Theoretically the separation is unbounded, it can be the separation of stars or galaxies. Presciently, a 2008 book discusses such nonconforming ideas as the initiation of the *Age of Entanglement*.

We note that many natural phenomenon send entangled particle pairs shooting off in opposite directions through the vacuum of space, moving apart near lightspeed. While the Earth’s atmosphere destroys such entanglement, the airless Moon is constantly being bombarded with entangled particles whose partner can be anywhere in the Universe.

We conclude that the Creator has already embodied pathways to the stars and galaxies in the design of the universe, a suitable high note on which to end this presentation.



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Thank you for participating in this seminar.

Any questions or comments can be emailed to me at the address on the screen.

