

# A New Natural Theology

A Theology Based on Reason

0701

A Return to the 18<sup>th</sup> Century Natural Theology  
May Again Unite Science and Religion



By Chris Peek an Engineer with Faith in God

This scene I saw and photographed in 1999 stimulated my desire to search for the software that could have created such beauty. I found it in God six years later.

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## Preface

This book is my attempt to show how a new philosophy borrowed from the 18<sup>th</sup> century Natural Theology can help integrate science and religion. The preface shows the book's objective and is then followed by a summary of how the Father used his laws of nature to create and then evolve the Universe and life within it. I will then add how the Son's *word*, his laws of human behavior shaped civilization from its beginning in Egypt and Mesopotamia to the present day in America. I will then show how the Holy Spirit helped to relate human consciousness to this concept. A summary of everything that ever happened is my attempt to explain the many miracles God performed toward creating human consciousness with the desire to worship God through the Holy Spirit.

### **My First Signs of Faith**

The picture on the Cover of this booklet is a picture I snapped in 1999. I was driving along route 101 in California thinking of what software changes I needed to make in order to solve a weather station inaccuracy problem. So software was on my mind when I saw the beautiful cloud formation with a capital "S" at the top right. My name is Sandford so the "S" alerted me. Then the beauty became evident. I parked the car, snapped a picture shown and asked my self "What kind of software did nature use to create such beauty?" I had spent my life being taught and practicing engineering. It had taught me that every phenomenon had a cause and one could solve problems by finding that cause. What caused that cloud formation? It was too dynamic and random looking for any reasonable software to do the job and certainly my understanding of the laws of physics up to that time would have difficulty explaining the cause. "Well I hate to admit it," I said to myself, "but maybe God is that software. Sort of intriguing! God IS the software of the Universe. I'll have to look into that concept some day."

After I retired in 2004, I began to consider my 1999 ideas with my wife. We had many hours of happy discussion on religion and philosophy. There was no conflict between her Christianity and my scientific and philosophical thinking. After she passed away I had no one with whom to discuss my understanding of the world and yes, even God. I was lonely and felt lost. Selling my home, renting an apartment and making all kinds of life changes was earth shaking. My life was in a new paradigm and I needed to adopt a new philosophy in order to coup with the new situation. Faith had no place in my life. Faith by definition had no meaning to me. It didn't seem to be a rational concept.

After I moved I had time to reeducate myself in modern science, history, religion, psychology, biology and philosophy. I soon became thrilled with some of the subjects that had been missing in my former life's intellect. I had been an engineer interested in accomplishing things but I had missed many other intellectual aspects of life. The bibliography on page 55 lists some of the books and lectures I studied during the last 3 years. That effort led me to a new personal philosophy; I call it the New Natural Theology. This booklet and my lectures are my attempt to explain how that personal philosophy can integrate scientific and religious thought.

## **What is Natural Theology?** *(subscripts are references to the bibliography)*

The Microsoft Encarta dictionary<sup>25</sup> definition of Natural Theology as practiced in the 17<sup>th</sup> century is; “**theology based on reason**” ----: a theology that holds that knowledge of God can be derived by human reason--- “. Natural Theology employs 17<sup>th</sup> century Natural Philosophy<sup>50</sup> to explain God’s creation of the Universe and life within it. Originally the term Natural Philosophy was not dependent upon experimental evidence but Galileo and others showed how experiment could better explain the world. Then during the Enlightenment age mathematics was added to philosophy. The term science was substituted for the term Natural Philosophy during the 19<sup>th</sup> century. Natural Philosophy in the 17<sup>th</sup> century<sup>39</sup> enlightenment period had brought forth battles between Christian authorities and the natural philosophers of that period. It was the period of witchcraft persecutions and cruel torture chambers. An English Bishop<sup>39</sup>, Joseph Butler preached that Natural Philosophy ideas could be combined with Christianity to form what was to be called Natural Theology. Such a combination would lead to a better understanding of how God created and influenced the world. Also it was an optimistic religion. He believed God wanted us to be happy. It was virtuous to be so. His book, “*Analogy of Religion*” was published in 1736 and was a best seller throughout Europe. The new philosophy of Natural Theology was promoted by 100’s of books. The books were studied and discussed by the intellectuals, called Philosophes. (fil-o-sofs)<sup>39</sup> The general public became interested and personal libraries flourished. After Butler’s Natural Theology had a chance to be absorbed by the public and ruling officials, witchcraft persecutions and torture chambers were abolished. Natural Philosophy, Natural Theology and Christianity<sup>45</sup> were openly discussed in coffee houses throughout Europe with little fear of persecution.

## **The Deterioration of Natural Theology**<sub>4</sub>

Skepticism concerning interpretation of the bible and science began early in the 19<sup>th</sup> century. Conflict between science and religious intellectual thought returned. Atheistic thinkers like Nietzsche and existential philosophers like Kierkegaard cast doubt on the ability of either science or religion to truthfully represent reality. Thus individuals became important. The French and American Revolution emphasized this kind of thinking. Darwin’s theory of evolution was published in 1858 and became and still is a source of conflict between science and religion. Some who accepted the theory of evolution became atheists. Others turned to a more fundamental Christian faith and rejected scientific method of thought completely. The recent best seller “The God Delusion”<sub>4</sub>, by Richard Dawkins demonstrates the trend is still strong today. Dawkins warns that one must not redefine the word God. He made the point by saying, “If you want to say that ‘God is energy’ then you can find God in a lump of coal.” That kind of statement will help sell his book but it is meaningless. I am not redefining the word God by saying “God IS the *laws of nature* and his laws of behavior”. God the father, the creator and the son speaking his *word* have been used as the Christian definition of God for centuries. God used the *laws of nature* to perform his creation of the Universe and Life within it. When I say God is the software of the Universe I am simply using the term software to represent the

combination of his physical laws and moral laws as an analogy to help me explain these terms by analogy.

Dawkins makes the deterministic, egocentric mistake that many scientists and engineering types make. He seems to have no knowledge of the philosophical arguments made by 15<sup>th</sup> century Thomas Aquinas, 17<sup>th</sup> century Kant, Descartes and post modern philosophers such as Kuhn, 1960-80. Dawkins' simplistic arguments that God does not and can not exist are surprisingly naïve for such a respected anthropologist. He used the axioms of a scientific determinist to support his atheism and his approach to find the truth has been shown to be fallacious for centuries. I won't continue to refute his philosophy at this point but it will be refuted one by one as my story unfolds in this book and lectures. After seeing how the miracles of the Universe, life and human consciousness have been accomplished it will be clear that an omniscience and omnipotent being is necessary and worthy of worship. Who or what else performed these miracles? Where is the first cause? Neither science nor religion can answer these questions without the existence of an immaterial, spiritual being that is called God!

### **The New Natural Theology**

My first idea was that God **IS** the software of the Universe. I wrote and lectured that God used his software programs to create and evolve the Universe and life within it. I believed that God also had an indeterminate spiritual nature called God's *word* by Christians<sup>38</sup>. What I now call the New Natural Theology accepts that God's *word* and his *laws of nature* are one. I previously thought the dual concept of God would leave room for science and religion and would avoid conflict. It might have, but I now believe that God **IS** the Trinity, the father, the son and *Holy Spirit* all as one. It is also the foundation for the New Natural Theology. The father is the *laws of nature*, the son is God's *word* or the laws of behavior and the *Holy Spirit* is the human feeling of love for God. These three elements of what God **IS** will be italicized in order to emphasize their being an element of God. Human theories of these terms will not be italicized in order to show their human relationship.

Just as an automobile is not an automobile without an engine, wheels and a transmission, God is not the God as perceived in the New Natural Theology without being the *laws of nature*, the laws of behavior, his *word* and the *Holy Spirit* all integrated into one holistic entity.

Scientists use the term God's *laws of nature* to describe how he created and evolved the Universe and life within it and those of faith emphasize his *word* to define his laws of moral and spiritual behavior. The New Theology will say these are all one. They are God's universal and necessary laws. The New Natural Theology proposes that God's *laws of nature* as well as his *word* are universal and necessary. By universal I mean these laws apply anywhere at any time. By necessary I mean they were God's means for the creation and evolution of the Universe and also the means for the creation and evolution of life within it. I originally added the adjective certain to God's elements but have eliminated certain as a modifier since God used something similar to our quantum theory to perform his creative miracles. Quantum theory by definition is not certain. God does play dice.

Some scientists believe their laws of physics are universal, necessary and certain and therefore are equivalent to and represent completely what God used for his creation of the Universe<sub>4</sub>. Most scientists believe as I do that we are not yet there in our understanding of the *laws of nature*. Some Christians believe that the *word* of God is complete as written in their bible. Most modern Christians believe that they also are not yet there in their complete understanding of God's *word*. They believe the bible and each individual's interpretation of it should be openly discussed with guidance from those educated in Christianity.

### Booklet's Purpose

I prepared these talks and booklet with the goal of showing those of a technical and scientific background how faith in God was not only emotionally rewarding but also based on reason. Also I wished to suggest that those of faith could use the accomplishments of science to enhance their understanding of how God created and evolved the Universe and life within it. I am in hopes that the New Natural Theology concept as represented diagrammatically in the diagram in Fig. 1 will help one to understand the way in which God not only created the physical Universe, but also arranged things so that human and societal consciousness could evolve.

### The Four Worlds of Reality<sub>17</sub>

I created the drawing below as a way for me to picture the whole of "Being" including the physical Universe, our social and individual consciousness and the spiritual. These three components of reality remind me of the Trinity where the father was the laws of nature that created and controlled the physical Universe, the son who taught us God's word that our conscious mind used to understand and respond to and the spiritual world which is equivalent to the Trinity's Holy Spirit.

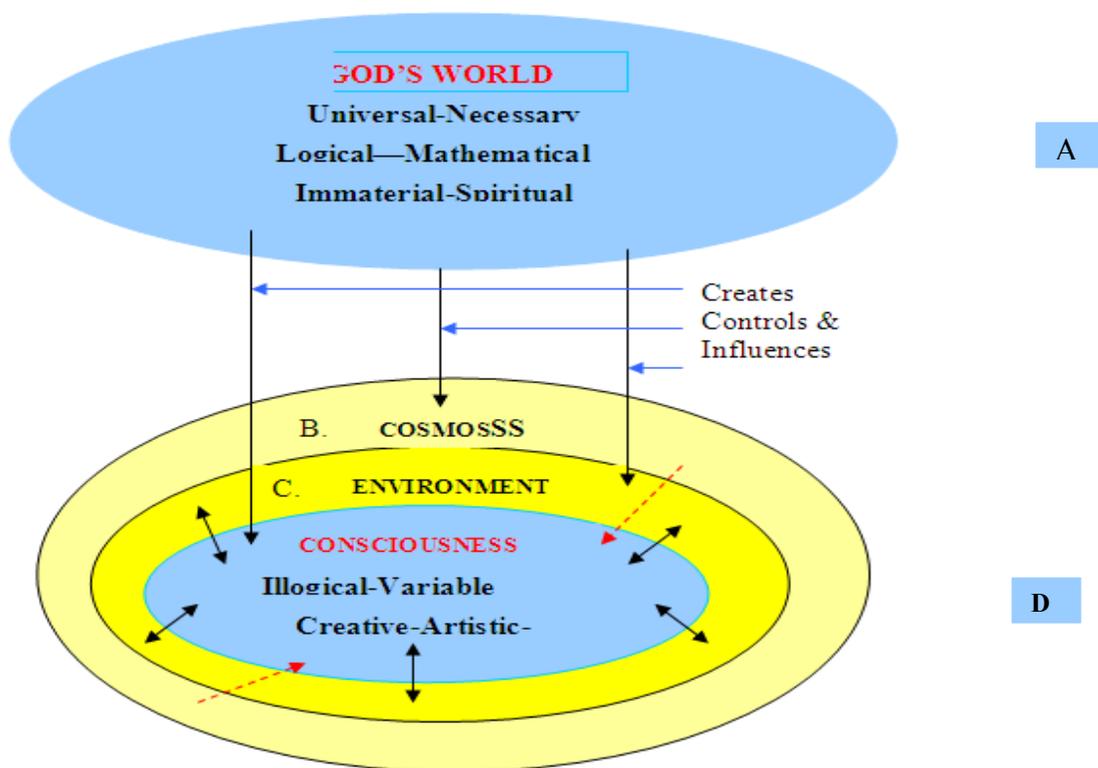


Fig. 1

## Detailed Explanation

- A. God's world is the blue oval and is Universal. This means his theories apply throughout all four worlds and throughout all time. Necessary means, without it human consciousness would not exist. The term certain means that it is true in the broadest sense. Only God has the necessary omniscience to accomplish his miracles and his laws of nature enabled him to do so. One must use mathematics in order to partially understand God's physical laws and the bible to appreciate his *word*. The beauty and spirituality of his physical laws can be appreciated by exploring what mathematicians and theoretical physicists have discovered<sup>17</sup>. The beauty and spirituality of his moral laws can be appreciated by the bible, religious services and the study of history. Note the arrows point only toward the other three worlds meaning God is in control and we have to accept whatever he shows and tells us. We cannot control him and therefore we cannot affect the fundamental universal and necessary laws. All we can do is to try to discover them.
- B. The Cosmos offers us an opportunity to learn God's physical laws<sup>29</sup>. The red arrows represent this. The Cosmos also provided us with the materials needed for life. It also created the earth and sun as an environment suited for our survival.
- C. The Environment forms a holistic system that allows various forms of life to evolve and prosper along with humans. There is a delicate balance that must be maintained according to God's laws. The many arrows showing interactive relationships demonstrate this. We can destroy it or use it to our advantage.
- D. Finally the Consciousness world is the individual human consciousness as well as the societal group consciousness. Our minds tend to be emotional as a result of evolutionary selection and some times not logical but nevertheless they are designed to enhance our survival and happiness.

One important thing to contemplate is that God's world is universal and necessary, but is spiritual and beautiful as well. Human and societal consciousness tends to be illogical, variable, emotional, but nevertheless artistic, creative and inquisitive. Since we are the result of God's world let us be reverent in thanking God for his miracles that resulted in what is represented in the diagram.

## All of God's Miracles Explained

Wow! I can't explain everything that ever happened during the last 13.73 billion years. So this booklet is a very, very short summary of what I consider to be the most important miracles of creation and evolution by summarizing my limited understanding of how God used his universal and necessary laws to do so. This short story may help convince both scientists and those of faith that God IS the universal and necessary laws of the Universe and life within it. Bishop Butler preached that God's Natural Philosophy, the trinity, his moral laws and Christ are all one holistic spiritual being in what he called Natural Theology. Perhaps the following will help us return to his ideas modified by recent philosophical, scientific and religious thinking that may happily integrate science and religion<sup>38</sup>.

# Creation Physical Universe<sub>1</sub>

“In the beginning, when God created the heavens and the earth”, Genesis, 1 from the New American Bible. The word “when”, underlined by me may be important for those who interpret the bible somewhat literally, since it leaves open the time that God accomplished his miraculous miracle of creating the Universe from nothing. The actual time God required for the miracle of all miracles is now estimated by running our equations backward to be  $10^{-45}$  seconds<sub>9</sub>. This is one billion, trillion, trillion, and trillionth of a second. I will use the term “t=0” to denote when God created the Universe. Many Christians have a problem with the basic question what happened before t=0. One answered the question “What was God doing before t=0?” by responding “He was making hell for the likes of you.” Augustine in the 5<sup>th</sup> century had the answer more consistent with modern theories, “the world was made with time and not in time”<sub>9</sub>. Einstein’s general relativity showed how time, space and gravity are one holistic phenomenon, so God created them all simultaneously.

The interval from  $10^{-45}$  to  $10^{-35}$  seconds is called the Planck era. Max Planck who originated quantum theory showed that there is a fundamental minimum dimension that can be used to define space and or time. It is the limits that God has imposed on our concept of reality. There is no dimension that is less than the size of a proton divided by  $10^{20}$ . There is also no time that is less than  $10^{-43}$  seconds<sub>1</sub>. How then did God create the Universe in the shorter time of  $10^{-45}$  seconds?

Recently Stephen Hawking derived a new theory for the creation of the Universe that utilizes quantum mechanics to eliminate the need for what was called the singularity. If Einstein’s equations are run backwards in time starting from the known Universe at t=380,000 years one can predict that at t=0 the universe is compressed into an entity of infinite density and infinitely small size. It was called a singularity. Hawking’s theory states that the Universe began as a very dense entity, 20 times smaller than a proton. That entity is completely indeterminate. Meaning its components are not at any specific location at any specific time. They are only more probably at one place rather than another. Hawking has, therefore shown that the Universe did not need to begin as an impossibly small and dense singularity. Creation is described in more detail in the Appendix page 47. God has made it really difficult for us to get a handle on creation of the Universe and you will find the creation of life, as described later equally difficult to understand.

## Inflation<sub>26</sub>

We have been able to learn that a very important event took place during the period from  $10^{-43}$  to  $10^{-35}$  seconds. An extremely rapid expansion of the entire Universe took place during this 100 billion, trillion, trillionth of a second. It is called inflation. Alan Guth utilized the Higgs field concept to show mathematically that inflation would smooth out most of the irregularities that occurred before  $10^{-43}$  seconds. We hope to prove the existence of the Higgs field

soon since the new Large Hadron Collider (LHC) may detect it. Inflation did, however leave a small amount of irregularity. It allowed .01% variation in the temperature of the Universe. This amount was large enough to allow stars and galaxies to evolve one billion years later. The overall smoothness with the .01% variation is evident when we explore the distribution of galaxies and clusters of galaxies in the Universe on scales exceeding 20 billion light years across. If it weren't for inflation there would be no stars or galaxies and therefore none of us. From  $10^{-35}$  seconds to  $10^{-12}$  seconds, one-trillionth second later quarks formed along with the four forces that hold everything together. It is called the "quark soup" era.

### **Real Matter<sub>8</sub>**

Then at  $10^{-6}$  seconds, one millionth of a second since creation real matter consisting of protons, neutrons and electrons began to form. Quarks that had been forcibly held apart by the extreme high temperature began to join their partners to form a firm bond that resulted in what was later to be nuclei. Nuclei then began to form 10 seconds after creation and would become mostly hydrogen and helium atoms 380 thousand years later. There were both real particles and anti particles with a slight excess of real particles. For every billion pair of real and anti particles there was only one real particle. That one extra would become our visible Universe, as we know it today.

This was creation. It is shown in Fig. 2 on the next page as a much too wide vertical line. Now we know a little bit more about how God accomplished the first miracle that provided the physical Universe but much more had to be accomplished before life would have a chance for existence. It has only been in the last 20 years that we were able to determine the time schedule I related in Fig. 2. I thank God for letting us in on some of his secrets.

## **God's Time Schedule**

The bar graph on the next page is my attempt to schedule everything that ever happened in the last 13.73 billion years. It is drawn to approximate scale and illustrates the beginning of each phase in history. Many important miracles God performed are illustrated. Creation of the Universe and finally the hominid are only narrow black lines. I hope the vast amount of time, 13.73 billion years in between is impressive to those who want to put things into perspective. The booklet has two other graphs showing the time scale for life and another for civilization. The bar graphs on pages 20 & 25 were my creation and were the result of extensive search through most all the books and lectures mentioned in the bibliography. I also used the Microsoft Encarta Reference Library<sub>25</sub>.

## God's Time Schedule Bar Graph (years since creation & years ago)

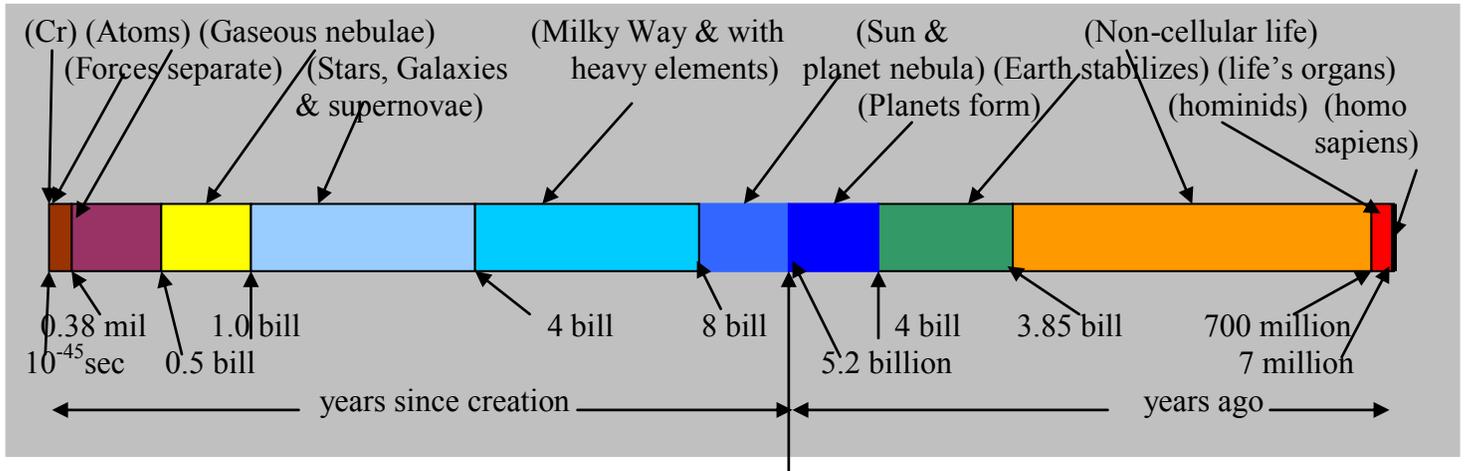


Fig. 2

The arrows point to the beginning of each phase. Cr means creation. It is a black line. Gravity split from other forces, the nuclear forces separated during the black line. Quarks joined their partners to form nuclei. Electrons combined with the nuclei forming atoms of mostly hydrogen and helium, little brown bar. Matter density reduction allowed photons to pass through, purple bar. Gaseous matter gathered into concentrated groups called nebulae, yellow bar. These nebulae compressed into stars and galaxies, light blue bar. Our Milky Way evolved with the heavy elements needed for life that had come from its super novae implosions, blue bar. The sun, a smaller star formed with its surrounding planetary nebula, darker blue bar. The Planets then formed, the earth from the heaviest elements, darkest blue bar. The earth then stabilized, green bar. Life was created and evolved, orange bar. Internal organs evolved, red bar, then the Hominid, black line. We then followed, still represented by the tiny black line. Similar charts for early life and civilization shown later may help put God's creations into more detailed perspective.

### Early Observable Universe

Atoms and Gaseous Nebulae, the little brown bar at the far left of bar graph represents the period from 10 seconds through 380 thousand years after creation. Quarks formed protons and neutrons that were the nuclei of future hydrogen and helium atoms. Electrons were present but the temperature was still too high for them to orbit the nuclei as they did when atoms finally formed. The dense mass and high temperature of nuclei and electrons had not as yet allowed radiation to penetrate beyond that mass. 380 thousand years following creation, the temperature and nuclei density were low enough to allow electrons to orbit whatever nuclei were near by. Hydrogen, helium and a few other light elements were formed. This formation took place rather suddenly at the critical temperature of 3,000 degrees.

### Atoms Formed

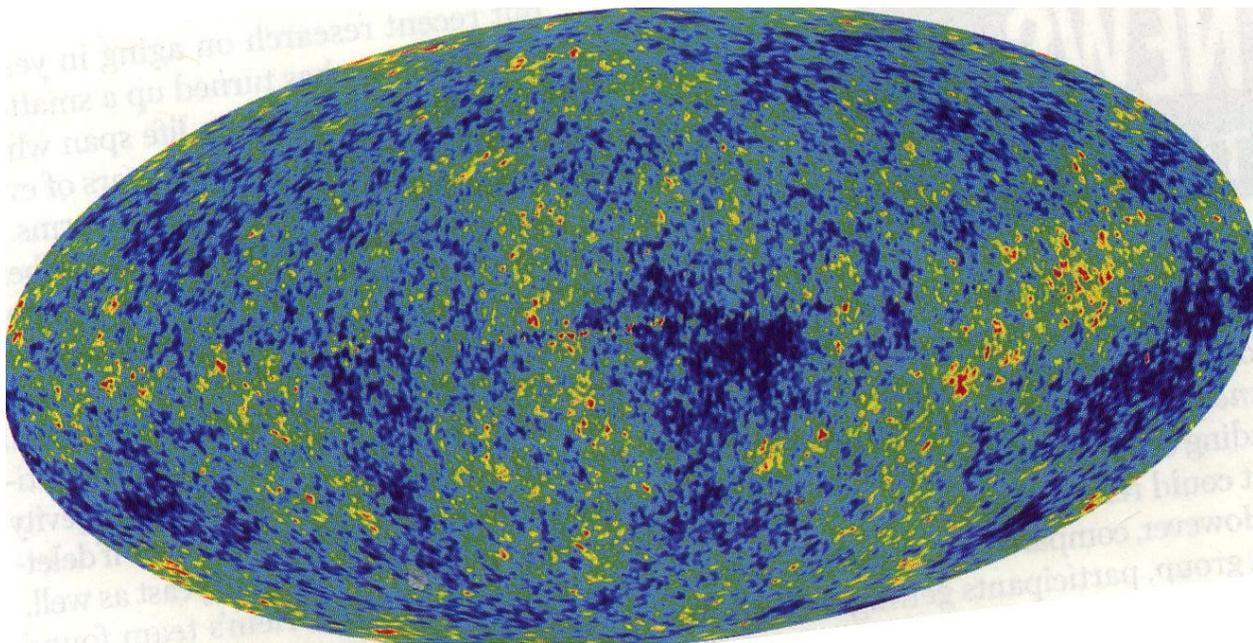
If there had not been the slight temperature variations (1 part in 100,000) in the early Universe, atoms would not have begun to collect in bunches, called nebulae. This is where God's universal and necessary software came into play. His inflation

software caused just the right amount of irregularities that ultimately led to the necessary physical characteristics that allowed life to evolve.

The atoms self organized into groups over the next 1 billion years, purple bar, Fig. 2. After another billion years stars, galaxies and groups of galaxies began to form.

### **Microwave Background Radiation**

After atoms were formed radiation was allowed to pass through the mass of atoms. Refer to Fig. 3 below. It shows a fingerprint of the Universe 380 thousand years after creation. It shows the temperature distribution of the atomic nebulae at that time. We call this the microwave background, (MBR) George Gamow predicted sensitive receivers could find and measure this fingerprint and it would be found to be at an average temperature of about 3 degrees<sub>24</sub>. Two Bell Lab engineers discovered and measured its temperature and found the temperature to be close to that predicted. The temperature variations in the MBR match the variations in galaxy distributions through out the cosmos and support our theories of how gaseous nebulae and then galaxies were formed<sub>44</sub>.



**Fig. 3**

The picture above represents the temperature distribution of the Universe's temperature 380,000 thousand years after creation. The red areas are the hottest and blue the coolest. The difference is only one part in 100,000. These small irregularities were responsible for a Universe that provided a home for us. It graphically presents the final results of the first phase of God's early work and it helps us to confirm or revise our theories. We have revised many because of its pattern. The statistical distribution of hot and cooler areas is repeated throughout the Universe.

The picture is a representation of five years of analysis of data taken by the NASA Wilkinson Microwave Anisotropy Probe (WMAP). It was just completed on March 7, 2008. Not only did it confirm our theories of dark matter and energy, but it confirmed that the age of the Universe was 13.73 +/- 0.12 billion years. Our ability to understand what God did to such a fine degree of accuracy is amazing to me. This

analysis also modified our estimate of when the first stars were formed. This happened 430 million years after creation instead of the one billion years formerly proposed. This new study still has to be confirmed by other scientific peers so I Haven't as yet modified my Universe time schedule graph. The study refined our estimate of how much of the Universe is the stuff we are made of. It turns out that all the real matter in the Universe, the chemicals and the energy we can detect by our usual instruments is only 4.6% of the total stuff including energy that is in the Universe. This will be further discussed three later.

## **Stars & Galaxies**

After the rather quick creation of complete atoms, mostly hydrogen and helium had former gravity forces caused the slightly concentrated regions to draw to gether into so called gaseous nebulae. God's self-organization law caused the nebulae to gather into clusters of nebulae that finally formed stars. That was the beginning of the light blue bar on the graph. As I pointed out above, however that is now believed to have happened only 430 million years after creation. It then follows that I may have to modify both the purple and yellow bar lengths. That shows we are refining our knowledge of God's universal and necessary laws of nature but we aren't there yet.

Very large stars, those with masses significantly more than 10 times the sun formed in those early days up to 1 billion years since creation. They began to collapse into such a dense mass that even atoms and then even their nuclei couldn't stop further collapse into so called black holes after a violent explosion strewing the stars residue into space. After about 4 billion years of this process some stars gathered together into clusters and clusters of clusters with vast open space in between. All theses structures simulated the MBR distribution of temperature. Some between the sun's mass and 8 times the sun's mass converted hydrogen into helium by fusion. When the hydrogen fuel is gone, the star would expand and become a red giant. I'll explain why and how this happens in the next section when I discuss the sun and the solar system and super novae.

### **Galaxies and Galaxy Clusters**

The pictures and description on the next page is complete in itself so I won't comment.

## Spiral Galaxy

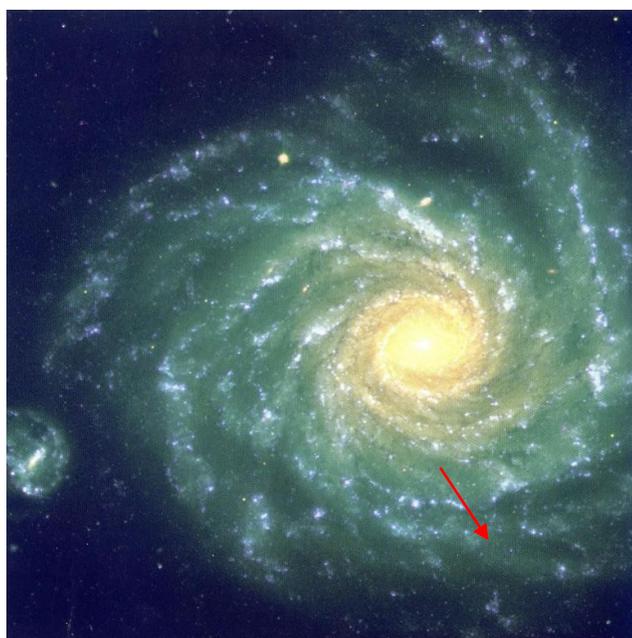


Fig. 4

This is a picture of the spiral galaxy NGC1232 that is similar to our Milky Way. It is about 100 million light years from us. The little red arrow points to the relative position we are in with respect to the center of our galaxy. Notice our sun is represented as being with a small grouping of other stars. Our galaxy was formed early and is massive compared to those being formed today. That's a good thing because our supernovae were able to produce the heavy elements way up to iron. We needed them all. I'll discuss this in the next section

The Milky Way has a large black hole in its center that again was essential in order that the galaxy would form our sun and solar system. There are theories that we had a collision with another large galaxy early in our history. Theory tells us that things would be different if that had not happened. Would we be as we are or would we be like an elephant with fingers on the end of his trunk? Is it just one more necessary result of God's plan or is it just a coincidence?

## Galaxy Clusters



Fig. 5

This was a picture taken by Hubble telescope focused on deep space 2 billion light years away. If you study this picture carefully you can see other galaxies that were deeper in space. Some were 4 billion light years away. The light from many of those galaxies had to pass by the Cluster that is at the center of the photograph. Note their image is elongated. Einstein's relativity that predicted light's bending in response to gravitationally caused curved space is proven again. Astrophysicists calculated how much the light should be bent. The amount calculated confirmed that 95% of the stuff in the Universe must be dark matter and energy. This result caused us to modify our former axioms to accommodate this discovery.

Note how each galaxy cluster is surrounded by a misty looking cloud. That is glowing nebulae of gas surrounding each galaxy and clusters of galaxies. Dark matter is in the same location but we can't see it. Dark energy is evenly distributed throughout the entire Universe and can't be observed as well. We know it exists but we don't know what it is. God may let us in on another one of his secrets if we keep trying.

## **How God Created the Elements Needed for Life**

Stars of a mass from 8 to 10 times that of our sun perform a life saving function. It happens this way. Fusion will take place until all the hydrogen fuel is exhausted. Then the temperature will be higher than that of the smaller stars. The higher temperature will cause the helium to fuse into carbon and the carbon to fuse into oxygen and so on until finally iron is formed. Then look out! A spectacular implosion occurs. For a week or more it out shines the entire galaxy. This is called a supernova. The heavier elements needed for life are spewed throughout the star's galaxy. The next step after carbon was formed requires God's quantum mechanics. It's called tunneling and we wouldn't be here if it had not been employed. Quantum mechanics is one of God's necessary programs and can cause subatomic particles to instantly find their way to another energy level. This is possible since quantum mechanics states that a particle has a certain probability of being at some location other than the one last detected. This seems weird but it is one of God's important miracles. God needed carbon, oxygen and other heavier than hydrogen elements in order to create life. So he found a way to make them by using his miracle law, quantum mechanics.

Most of these elements were strewn about the galaxy, but some were ejected into outer space where they are still streaming around with no place to settle. Once the temperature cooled down the elements that were concentrated within our Milky Way began to join other elements and form molecules some of which would ultimately become the hard cores of our Earth and Mercury planets. The predominant gas within the Milky Way was still the lighter elements hydrogen and helium that would form our sun. As our sun was born it was surrounded by the heavier elements and molecules.

If you want further explanation of God's laws of physics turn to the pages 34 – 39. I attempted there to show scientist's latest attempts to understand them.

## **Dark Matter and Dark Energy**

God needed to create a lot more stuff, more matter and more energy to make things fit his universal, necessary and certain software. Our mathematics has recently predicted that more energy as well as more matter was needed in order to explain the rate of galaxy rotation and accelerating expansion of space. The latter surprising discovery was disclosed at an astrophysics meeting in 1998. The visible matter of which we are made was shown to be only 4.6% of all matter and energy in the Universe. Dark matter was 23.3% and dark energy was the remaining 72.1% of everything in the Universe. Up until then there was a big unsolved problem. We knew space was expanding and was cooling and therefore losing total energy. Our reliable theory of thermodynamics says the total mass and energy in a closed system is conserved. Where did the total mass and energy go? Einstein thought in the early 20<sup>th</sup> century teens that the Universe could not be expanding even though his equations said that it was. He inserted a factor called the cosmological constant. This looked rosy until Hubble showed in the early 20s that it was expanding after all.

Einstein quickly took out his constant and his equations described the universe more accurately. But now the conservation of total energy and matter reared its ugly head.

### **Dark Matter**

In the 90s however more and more evidence appeared that the rate of expansion was accelerating. When Einstein's cosmological constant was reinserted into the new equations this acceleration was exactly explained. As mentioned above, however the total "stuff" in the Universe, matter and energy, dark or ordinary must be conserved. What God created from nothing must not go away. Experiments and calculations showed that dark matter was distributed near galaxy concentrations. It was thought to be composed of some kind of unknown particle that could respond to gravity. We didn't know what these particles really were, but we knew they must be particles with a specific mass. The unknown particles were concentrated around clusters of stars of galaxies and were subject to the pull of gravity. This unknown mass was needed to make our theories match our equations.

### **Dark Energy Also Needed**

Our understanding of dark energy was a different matter. We knew something was there but we had no way of knowing what it was. The idea there may be unobservable dark energy filling in the void predicted by Einstein's cosmological constant was just too bizarre to contemplate except by a few brave scientists. If however it were distributed evenly thorough out the expanding space all things would add up to a theory that would satisfy the second law of thermodynamics. That was, however all we knew about dark energy. This theory states that more and more dark energy must be created as space expands at an accelerating rate. Therefore the total real matter of which we are made must become less and less a percentage of all the stuff in the Universe. The amount needed was exactly the amount needed to make up for that lost by the loss in the temperature of the Universe as a whole. It equaled that predicted by Einstein's cosmological constant. Isn't it amazing how mathematics seems to tell us things about God's laws of nature that we didn't know before?

## **The Solar System**

### **Our Milky Way**

Let us start with our Galaxy illustrated on page 13. The little red arrow points to where our sun and accompanying solar system is in relation to its center. A cluster of other stars surrounds the sun. They appear as pinpoints in the night sky. Most of what some think they see, as stars are actually other galaxies at much greater distances from the earth.

### **Our Sun Forms**

8.5 billion years after creation or 5.2 billion years ago gaseous nebula in a cool portion of our galaxy began to condense due to self-organization and gravity into a denser mass called a gaseous nebula. The portion of that mass containing hydrogen and helium formed a spherical, low-density mass that was to be our sun. As the sun

condensed more and more, it became hotter and hotter until the temperature reached about 10 million degrees. This temperature was high enough for the hydrogen to fuse into helium and to produce the radiation that is now our source of energy.

### **Planets Form**

As the solar mass increased the heavier elements surrounding the sun were drawn in a tighter orbit around the sun. The heaviest elements were closer and finally became spherical. The four spheres closest to the sun were to be named Mercury, Venus, Earth and Mars. All are made of rock like material. The spheres further from the sun were made of more gaseous material. The Earth happened to be at the right distance from the sun and the correct mass to contain the beginnings of an atmosphere that contained CO<sub>2</sub>, water vapor and nitrogen. Very little oxygen, O<sub>2</sub> was in the atmosphere so there was little ozone as well.

### **Our Moon**

The earth acquired its moon in a very violent way. Space around the sun at this time, 4.5 billion years ago was filled with all kinds of rocky structures hurdling around and colliding with each other as well as with other planets. One, estimated to be as large as Mars crashed into the earth. It dug out a huge crater, maybe the Pacific Ocean basin and left behind part of itself. This mass coupled with part of the ejected earth condensed into a sphere and became our moon.

## **Chemistry before Life**

### **Hydrocarbon Molecules Formed**

After another 500 million years the earth stabilized, cooled down so that large oceans of liquid water could form. The earth was still a wasteland, as Genesis states. Conditions were still too brutal for complex hydrocarbon molecules to form larger molecules that God needed for life. Carbon has the ability to link with many other elements such as hydrogen, nitrogen, oxygen and sulfur to form literally millions of other large complicated molecules but appropriate temperatures, concentrations of simpler molecules and time were needed before this could take place. Comets, meteorites and volcanic eruptions decreased about 4 billion years ago to the extent that macromolecules could begin to form. Sugars, amino acids and nucleic acids are examples of macromolecules that evolved. They were the building blocks God ultimately used for all life including plants, microbes and animals.

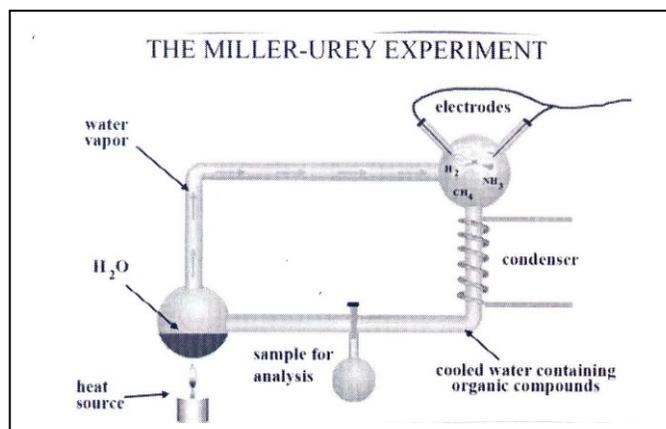
### **Complexity of Life**

I have inserted this paragraph in order to help the reader avoid the mistake I made by coming to the conclusion “Ha, I understand it now. The evolution from simple molecules to more and more complex molecules that are selected by fitness to their environment until life results, explains it all.” In the last two decades the “creation of life science” has become a very important science participated in by hundreds of scientists, but no one theory has obtained peer acceptance. They did, however agree on one thing, the definition of what constitutes life. NASA defines life, as “Life is a self-sustained chemical system capable of undergoing Darwinian evolution. That

means 1. All life forms must be chemical systems. 2. Life grows and sustains itself by gathering energy from its surroundings. 3. All living entities must display inheritable variation.” If you are confused by this definition, so are the scientists. I prefer the definition, “Life consists of sets of chemical organisms that can both reproduce and evolve.”

### What Life is not

The Miller-Urey experiment in fig. 6 below was front-page news in the 1950’s. The media claimed scientists have duplicated life in the laboratory. It is too bad that this elegant chemical experiment was not recognized publicly for what it was, a demonstration of how complex molecules could have been formed from simple ones four billion years ago.



**Fig. 6**

Fig. 6 is a diagram of their experiment. A previously evacuated bulb in the upper right was filled with methane, ammonia and hydrogen gas. They believed these molecules were available in large amounts four billion years ago. Electrodes had been inserted capable of creating discharges that simulated lightning in the primitive atmosphere. Purified water was in the lower left bulb that could be heated by a flame. Finally a collecting bulb is shown in the lower center. After a week of sparking and boiling amazing results were obtained. There appeared in the collection bulb an amazing mixture of potential biomolecules, including life’s essential amino acids.

But this was not life. The amino acids did not have the ability to replicate themselves nor did they have any of the characteristics that would allow their evolution. They would have dissolved in salt water, there were no cellular structure and they would have been destroyed by high temperature or sunlight. Miller-Urey simply proved that simple molecules can be formed into organized complex molecules similar to those used by life if conditions were those of the earth from 4 to 3 billion years ago.

### God’s Next Step

The Miller-Urey experiment showed how God’s self-organization software worked to perform one early step toward rudimentary life. The earliest life form for which we have fossil evidence is an order of magnitude more complex than what Miller-Urey discovered. A biomolecule must be able to replicate, and be enclosed in a water resistant cellular like capsule before life could be created. The

next step required the full compliment of God's universal, necessary and certain laws of nature.

## Creation of Life

The creation phase of life is like the creation of the Universe. The usual methods of scientific theory confirmed by experiment do not work. God left nothing behind to substantiate our theories so we are left with only several unproven hypotheses. The most generally accepted hypothesis by hundreds of researchers of that subject is the following:

1. Complex hydrocarbon macromolecules evolved through God's self-organization software. This was allowed because the earth had cooled down, meteor collisions with the earth were diminished; volcano eruptions and oceans had formed. This all happened by about 3.85 billion years ago.
2. Complex macromolecules were in concentrated networks at many locations at the ocean bottoms, where hot molecules were ejected from the earth's interior. Sulfur, hydrogen, methane, ammonia and many other hydrocarbon molecules were all available in concentrated masses. Carbon's four bonds allowed many complex molecules to form spontaneously just as Miller-Urey had demonstrated.
3. These simple monomer molecules began to form longer chains of molecules called polymers. Some of these were the building blocks needed for life called amino acids, nucleic acid, carbohydrate and lipids.
4. There was little if any oxygen present that would have destroyed these active chemicals. No sunlight or lightning discharges were under the sea.  
Lipids self organized.
5. Lipids are complex hydrocarbon molecules that form a water resistant shell around other bio macromolecules. This prevents them from dissolving in the seawater. If it weren't for lipids in your skin you would dissolve in your shower. Living cells are more complex and are capable of life only in large networks. Organism cells contain DNA and are like our human body cells and require all of God's laws of nature to form.

### Life's Networks

Lipids not only prevented polymers from dissolving in surrounding water but they encapsulated networks of these polymers into discrete identities. Later these entities will be called living cells. Our organism cells are composed of a hierarchal assembly of living networks of organisms that work together to make us a healthy human being. The importance of networks in promoting rapid evolutionary development will be demonstrated in many future pages of this booklet. If it were weren't for networks of smaller, slower developing elements many of God's creations would not have happened. Examples of this are evident through out history. Networks of nuclear particles working with God's self-organization produced inflation of the Universe, networks atom produced stars, networks of ancient living cells produced species with organs and so on up to networks of Homo sapiens tribes produced Egyptian civilization. I could go on,

but that should be enough to prove the point that God used his universal law of self-organization to make our existence possible.

## **Emergence**

The creation of life depends on all of God's *laws of nature*. His *word* was not yet needed since it refers to the human that didn't evolve for another 3.15 billion years. God's self-organization was the key *natural law* that was needed to create life from macromolecules. The main component of self-organization is called emergence. It occurs when energy flows through many interacting particles to form increased, ordered complexity. Mathematicians have had trouble expressing this phenomenon in precise symbolic equations, but computer simulations can simulate this with little trouble. Does this mean computers are smarter than us, no? They are faster and can carry on simultaneous operations for as long as they keep operating. If you change the initial conditions by a minuet amount they come up with another completely different answer. Natural emergence also depends on initial conditions in a sensitive manner. If the evolution of life were to be replayed the results would be different, but the trend toward more and more ordered complexity would be repeated. Maybe the elephant would have fingers at the end of his trunk for instance. If we could solve the equations that computers seem to be able to solve we would be able to model the creation of life. But that equation is another of God's secrets.

We know that emergence can create order in a complex network of elements. There is no doubt that life is complex yet ordered. The human mind and body is an example of probably the most complex yet ordered entity in existence today. The Universe seems simple in comparison.

## **Life's Time Chart**

**Green Bar:** This bar graph represents the 150 million years that complex macromolecules were formed starting 4 billion years ago. At about 3.85 billion years ago God created the first living organisms. The creation probably took place at the bottom of the sea near hydro thermal jets. All the materials needed for life, once created in Super Novae were available in concentrated locations at these jets.

**Blue Bar:** This could be considered Genesis 20, "Let the water teem with abundance of living creatures" --- The macromolecules were capable of reproduction, mutation and were randomly variable and could survive the environment. These were necessary characteristics for life. Although they were not cellular in the sense that blood cells are, they were enclosed in a protection membrane and were not soluble in seawater. This phase lasted 1.85 billion years.

**Yellow Bar:** Most life origin researchers believe RNA and protein formation arrived simultaneously after bacteria single celled creatures combined to form multi-celled organisms. DNA evolved later and produced the means for the Cambrian explosion that took place in the next phase of life's evolution. Larger more complex living cells have left their fossil remains behind and can be dated

as far back as 2 billion years ago. Networks of cells accelerated complexity as per God's self-organization software.

**Orange Bar:** This was the Cambrian explosion that began about 700 million years ago and continued for several million of years. Very few species have survived but a few that did may be our ancestors. The animals had shells or other type of skeletons and internal soft organs. One with a backbone similar to ours will be discussed in the Cambrian section.

**Brown Bar:** Reptiles, birds and small mammals then developed. The large reptiles or dinosaurs roamed the earth about 70 million years ago and were destroyed by a meteor collision about 60 million years ago. The small mammals came out of the burrows and then evolved into numerous small and large animals one of which would evolve into the primate gene family.

**Red Narrow Bar:** the tinny red bar is when the ape and our gene family, the hominid evolved from mammals and the first primate, probably the prosimians. This was a species that had two forward-looking eyes. The hominids evolved from a common ancestor to the ape and us about 7 million years ago. The hominid differed from the apes in that we walked upright.

## Life's Time Chart

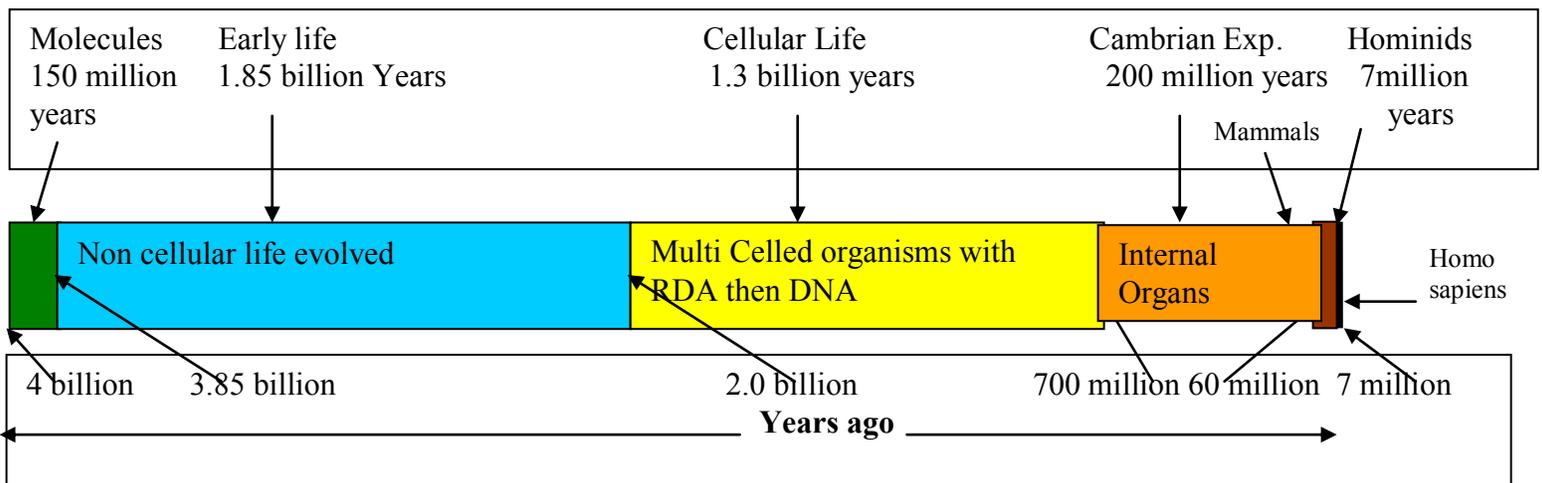


Fig. 7

## Early Life

I consider early life to be life after God evolved molecules into life about 3.85 billion years ago. The blue bar above represents this period. Ancient life was composed of networks of elements that bound together in large masses that resembled fungus or sponge like organisms. But they could divide and thereby duplicate themselves. These cells were under water and used other molecular hydrocarbons as a source of energy. They were similar in structure to our present day bacteria but would have been destroyed had oxygen been available in their environment. They are called prokaryotic cells. They reproduced by dividing but had RNA type of genetic material even before 1.5 billion years ago. Later DNA nucleic material took over their reproduction process. They obtained their energy by absorbing lifeless hydrocarbon molecules. Prokaryotic cells exist today in hot springs or very salty water. God

performed another of his miracles. He solved the classic chicken or egg dilemma and created life forms that had both proteins and RNA and DNA cells.

## **Cellular Life<sub>5</sub>**

The 1.85 billion years was enough time for self-organization accompanied by quantum mechanics to form cells that were more complex but still ordered in the sense that they could begin to form cellular organisms that could get their energy from the sun. These cells grew in shallow water and on land and converted CO<sub>2</sub> into to oxygen, O<sub>2</sub> molecules. This is called photosynthesis. The prokaryotic cells learned how to use O<sub>2</sub> or parish, which many did. Then about 2.1 billion years ago a new kind of cell evolved called the eukaryotic cell. It had a more flexible outer shell that could engulf other living cells; yes the first time life ate life. These cells also used sunlight for energy and used oxygen and even grew larger because of their respiration capability. They not only used other living cells as an energy source by metabolism, but these absorbed cells often formed a cellular nucleus that performed special useful functions.

### **Multi-Cellular Life**

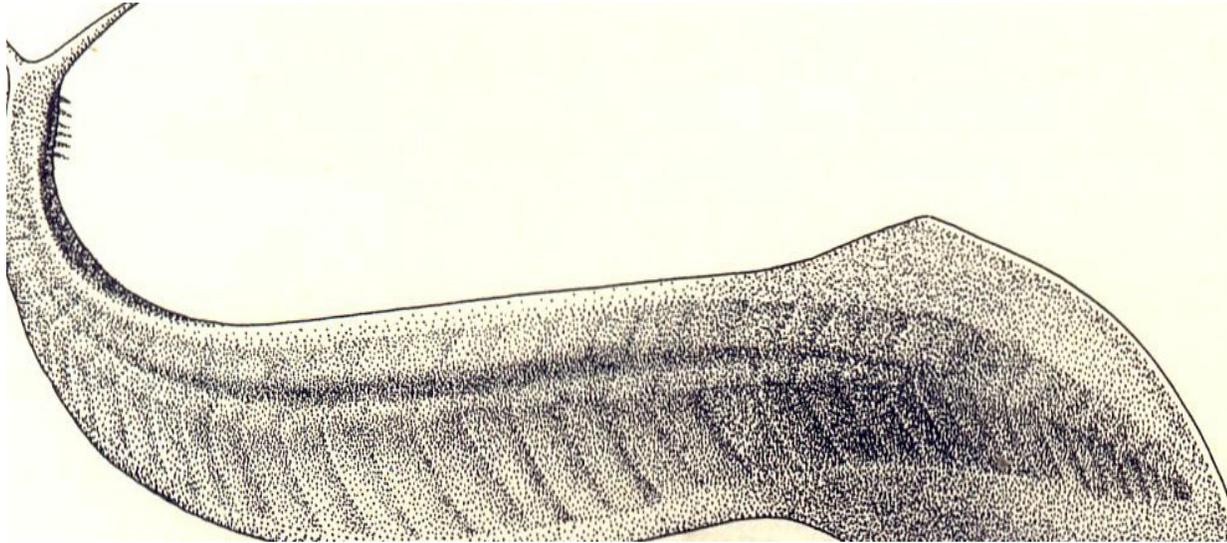
One of these special functions of the cell nucleus was to form and allow the cells to produce copies of inherited genes from their ancestors. The cells then combined with other cells of different genology to form multi-celled organisms. Finally sexual reproduction began sometime prior to the Cambrian era, 700 to 500 million years ago.

## **Cambrian Explosion**

This era the orange bar on the previous page illustrates a new phase of evolution. It is not the gradual change in species characteristics that Darwin believed. It was often an amazingly accelerated change. Over 99.5% of all species evolved during this period were extinct a few million years later. Luckily our ancestor the Pikaia with a backbone similar to ours made it. It is shown in Fig. 8 on the next page. Darwin proposed that species changed gradually over “millenniums”. Millenniums became more like millions of years as anthropologists learned more about God’s time schedule. Some species changed slowly but most of the species evolved rapidly in an explosive change. Competition was important for progress. The Cambrian explosion illustrates this trend. In other words, the less adaptable species became extinct. This promoted increased complexity and order. Many of you may think complexity is generally not order, but would you doubt that the human anatomy and bodily functions are complex but nevertheless ordered? God’s self-organization law was at work. If you believe that God was cruel, so be it. God’s laws of nature are cruel to those species that can’t adapt to their environment. We adapted and it was God’s neuron software that helped us do so.

The fossils of the Cambrian explosion were found in the Burgess Shale sediments of British Columbia. Since the organisms of this period had hard skeletons and shells they produced fossils that were well preserved today. Soft body parts of previous era did not leave fossils with details of animals that existed before 700 million years ago.

Some of the Cambrian era organisms had eyes. One had five of them. They had mixed parental chromosomes and internal organs. This allowed the evolution of land animals and oxygen breathing species. Then reptiles and then mammals arrived.



**Pikaia<sub>5</sub> Fig. 8**

## **Land Animals**

Some very crude vegetation washed up on land and grew larger and plentiful about 1.8 billion years ago. This was the first land-based vegetation. Until about 395 million years ago all animal life forms existed in the oceans, just vegetation no animals. Fossils of small spiders and scorpions that lived on land, dated 395 million years ago have now been found. Mammals didn't evolve until about 220 million years ago. After a long ice age subsided little reptiles appeared. Some were carnivores others were herbivores. (*Vegetation eaters*) Food was scarce after the ice age so competition for food was intense. The larger vegetarians were better then the smaller ones in defending themselves against the carnivores. The larger carnivores were better in attacking the large herbivores than the smaller ones. Thus some grew as tall as 50 feet so they could tackle the largest herbivores that were 70 feet long. Their bones were full of air pockets to keep them light enough to enable them to be practical in their motion. God's evolution, where genes were selected on a basis of adaptation to the environment worked until a large meteor collided with the earth about 70 million years ago. All the large dinosaurs became extinct, as were most other animals. Some small mammals were protected from extinction in their underground burrows. It would seem that all the Cambrian explosion progress toward complex ordered life was for naught. It seems that God had to start over. No, his universal, necessary and certain laws of nature simply continued to evolve organisms adaptable to the new environment. It was easier this time since DNA; parental mixing of chromosomes, proteins and even mental neurons had already been evolved. Evolutionary progress toward ordered complexity continued.

# Primates

Mammals grew in size and their mental capacity improved. The ability to change behavior in order to better adapt to the environment was a radically new event in the evolution of life. Up to 220 million years ago animals and life in general adapted by means of selection and lucky gene changes, now mammals had the ability to adapt through their own mental volition. Up to this point God's *laws of nature* were predominant in determining the evolutionary process. No animal could comprehend God's *word* at this time. That had to wait another 118 million years for another species to evolve that could begin to comprehend God's *word*. This ultimate ability led finally to the dominance of the Homo sapiens across the world.

Mammals and their increased intelligence led to their success over reptiles. I don't mean in numbers but simply their control over the ecosystem environment became greater. Some learned how to hunt and others learned how to protect themselves from predators.

## Prosimians

Then an early primate called our prosimians arrived. They were most probably our ancestors. They had two forward-looking eyes that allowed stereovision. This was to become a great advantage to later anthropoids that used stereovision to hunt and defend themselves. They were tree climbers and nocturnal.

## Anthropoids

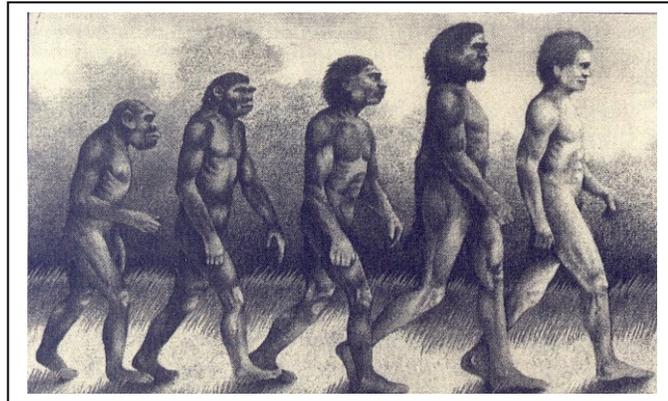
Apes, monkeys and humans are all in the primate subgroup anthropoids. They have more intelligence than their predecessors. This is reflected in their social behavior. They have fewer children than their ancestors and take into account the mental perspective of others. The great apes, the chimpanzee being one of that subgroup have 98.5% of our genes.

# Hominid Evolution

## What Evolution is not

Early hominids are our direct ancestor that evolved from a divergence of the great ape lineage. Modern great apes include chimpanzees, baboons, gorillas and other similar animals with large brain capacity, no tails but all walk with the aid of their arms, hands and knuckles. They and hominids had common ancestors. There is a missing link between the ape's and our ancestor and for good reasons. Evolution does not progress by individuals evolving into another species. Evolution occurs in populations of individuals and not through individuals themselves. It is not the result of simple branching sometimes conceived as a tree trunk branching into branches then twigs. It is more like a bush with several roots all coming from a common soil bed. It is also like a bush that has many dying branches; in fact more dead branches than live ones. Remember 99.5% of all creatures evolved during the Cambrian era were extinct in just a few million years. The same kind of thing happened during the evolution of the great ape and hominid. We have found so many fossils that could be considered the missing link that we can't distinguish which were our ancestors and which were not. Drawings similar to Fig. 9 below are often used to depict hominid

evolution toward *Homo sapiens*; not so. Each stage depicted below should be considered a population with members having their own diversity resulting from many previous populations of ancestors that also could have resulted from gene shifts due to geographical changes or from interbreeding. Specific species are not supposed to interbreed but sometimes they do and it results in rapid genealogical drift.



**Fig. 9**

**No, this is not the way it was.**

### **Hominid Chronology**

Nevertheless, let us try to make some chronological sense of our ancestral sequence. Anthropologists believe the common ancestors to the ape and hominid existed from 8 to 7 million years ago. They expect the first was what they named *Sahelanthropus tehadensis*. Don't try to remember the name; I won't either. The next was very important since the Leaky family found an intact skeleton they called Lucy. She was classified as *australopithecine*. She was small with a large cranium for her body size and could have walked up right. She was thought to have lived 4.2 million years ago. The next classification was *Homo habilis* the first hominid that used tools; crude as they were. Remember that these classifications apply to population species and similar species may be alive simultaneously. Generally the new species classification applies when fossils are found and dated later than the previous one. The definition of what constitutes a new species is a subject for much discussion between anthropologists and biologists. Next came *Homo erectus* who used more sophisticated tools and probably began to control fire for cooking the meat he often hunted. They began to socialize in tribes and had respect for family and tribe members. This is when our altruistic intuitions were evolved and became a survival factor for our species. The *Homo erectus* species evolved 1.9 million years ago.

### **Homo sapiens**

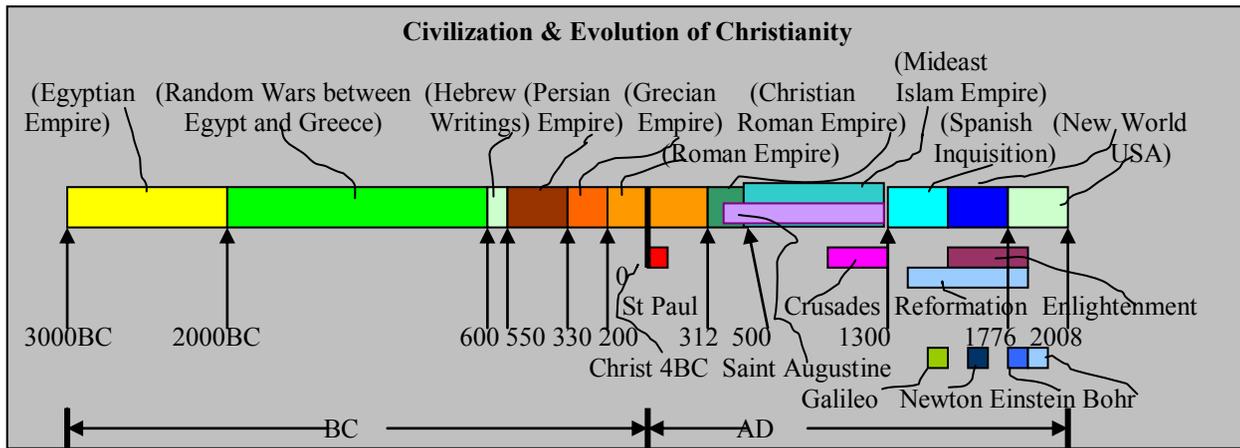
Finally our species evolved, the *Homo sapiens* 125,000 years ago. The *Neanderthals* are believed to have developed 5,000 years earlier, 130,000 years ago. They were extinct 30,000 years ago. They could not interbreed with the *Homo sapiens* and didn't adapt well to the European, African or Asian environment of the time.

The *Homo sapiens* adapted to the ice age of the time and did seem to have an instinctive desire to create new ways for survival. Their cave walls were covered with artistic paintings and they invented more sophisticated tools and weapons. They

also wanted to know how they and their world were created. This showed up in fossil records and in their burial places. Their hunting techniques were creative but risky. They seemed to be willing to risk their lives for the benefit of their family and later their tribes.

This again shows the importance of God’s universal, necessary and certain laws that evolved the *Homo sapiens*’ mental powers.

## Civilization Bar-Chart



**Fig. 10**

The beginning of each bar in the above chart represents a milestone to mark the beginning of a particular phase in history. Most extend beyond their end point and overlap the next phase.

The Egyptian civilization, yellow bar represents the human desire to join others in the quest to survive. The need to understand how and why humans existed led to emphasis on a belief that a God or many Gods must have created and controlled their lives. They left behind the pyramids and other symbols of their religion, Evolution seems to encourage aggressive conflict to defend ones religious beliefs. The next phase of history demonstrates this with 1,400 years of wars between the Greek and Egyptian societies, green bar. Our first complete written record of our religious beliefs was contained in the works leading up to the Old Testament, small white bar. King Nebuchadrezzar II of Persia conquered Jerusalem and made Babylon the capital of his vast empire, dark red bar. Then Alexander the great murdered his way to control a vast army and conquered a vast empire, lighter red bar. The Romans formed the first democracy but in 100 years resorted to rule by an emperor. Another even more vast empire was formed including Europe, first orange bar. Christ created the greatest ever milestone in the history of the world. He was born in 4 BC, black line. St Paul began his trek to preach early Christianity and was cruelly put to death, little red bar beneath the second orange bar. Constantine stopped the persecution of Christians and made Christianity the official roman religion, dark green bar. Islam then became dominant. Their empire reigned throughout the Middle East and western Asia, light green bar. Eight Crusades by the Spanish and English Christians failed in their attempt to obtain any permanent place in the Islamic empire, small pink bar under the Islam empire bar. The Spanish king Ferdinand persecuted any person that didn’t accept his kind of Christianity. It was called the Inquisition, light green bar. Spanish rulers sailed to the new world then forced their kind of Christianity onto South American Indians, dark blue bar. The reformation period,

little lower blue bar was a period of almost continuous wars between Protestants and Catholics. It resulted in a reformed Catholic faith that had been corrupt. The enlightenment era is represented by the small, lower red bar. It is the period of natural theology that enabled science and religion to be tolerant and support each other. The pale green bar shows United States after the revolution with the 20<sup>th</sup> century wars represented by the thin black bar.

## **Pre Christian Civilization<sub>39</sub>**

### **Mesopotamia and Egyptian Civilization**

One might conclude that civilization began 12 thousand years ago. That is when tribes and groups cooperated with one another. The rate of evolution from 12 thousand to 5 thousand years ago amazes anthropologists. It was God's self-organization software that made it possible. What we normally think of as Civilization began in Mesopotamia and Egypt 5,000 years ago. It was a result of people gathering in larger groups than in the previous tribal villages. Typical of evolution large groups ruled by powerful kings were more efficient in providing subsistence and therefore large urban societies were selected for survival. There were initial battles in Egypt before King Menes conquered the Nile territory then there was relative peace in Egypt but not in Mesopotamia for 1000 years. There was no word in the Egyptian language for freedom. People had obeyed the alpha male since tribal days so no other kind of life was known. The Pharaoh was also their God so no problem there. They had many other less important Gods to worry about, but the Pharaoh was more important. Egyptian pyramids, culture, writing and philosophy were a big step toward modern society. It was different in Mesopotamia since their rivers were not nicely behaved as was the Nile. Also foreign warriors attacked from all sides. As a result the Mesopotamia religions were pessimistic while the Egyptians were happy and optimistic under their strict but fair pharaohs.

### **Grecian & Israelite Societies**

The Greeks believed the king should be benevolent to the common man. The people were no longer slaves to the king as in Egypt. The king should be responsible to the people and should grant them a certain amount of limited freedom. The Greek Hittite Empire to the east of the Egyptian empire controlled iron production that was needed by the Egyptian pharaoh Ramses II. In 1274 the first Trojan War began with the Egyptians attacking the Hittites in order to get access to that iron. Iron, of course was used for weapons. Homer in the Iliad recorded the first written recording of war. It was a recording that showed how the emperor's instinctive need for sex, honor and power caused thousands to die uselessly in war. Overlapping this period the Israelites recorded the deeds of their various kings. They believed in only one God and he must be obeyed or the consequences would be severe. The Old Testament and Ten Commandments came from this period, but wars continued until about 600 BC when the Israelites obtained their own emperor and were able to form an empire of their own.

## **Persian & Grecian Wars**

The Persian Empire further east had been developing under the rule of Cyrus. He attacked the Greeks and Egyptians successfully but took pity on the Israelites. He allowed them to return to Jerusalem and even paid to rebuild their temple. One more step toward helping us to understanding the evolution of God's *word* as written in the Old Testament. Also Cyrus's altruistic behavior was really the first step toward granting freedom to individuals. The Persians had conquered vast Middle East territories including what is now Iraq and Iran. Finally the Persian Empire became over ambitious in their desire to show the Greek Athenians who was the superior empire. The Athenians were not aggressive militarily. They were successful in trade and their empire was created through cooperation with their conquered lands. The Persians were not successful in their evasions of the Athens and were finally conquered by Alexander the Great. In the mean time Athens turned to internal civil wars with Sparta and to a massive voyage to Sicily. They believed that the Sicilians would welcome them as liberators, instead the Sicilians fought back and sent the invaders to work in their rock quarries and ultimate death. So the year 413 BC represented an end to significant Athenian influence in the Middle East.

## **Alexander's Grecian Victories**

Alexander was in his twenties when he took over from his assassinated father the ruler of Macedonia. This was in 336 BC. He had been educated by Aristotle and had the desire to learn from history and from current emperors on how to be a successful ruler. He won his initial battles with the Persians by concentrating his forces at strategic times and locations. He batted his way through what is now Lebanon all the way to Egypt where he took the winter to learn what he could about how Egyptian society had developed science, built the pyramids and survived peacefully for 1000 years. He asked an Egyptian priest, Amon-Ra for advice on how he could conquer the world. The priest advised him to rule those conquered with justice and respect. Alexander took this advice and used it to conquer the entire Middle East from the Persians, Israelites, Italians, other Greek countries and the Egyptians.

He tried to understand the culture and customs of each conquered area. He even dressed like the former kings of Iraq and permitted his subjects to crawl in before him for favors, as did the former Iraqi king. He allowed his soldiers to marry their Persian mistresses. He had three Persian wives himself. This interbreeding caused a mingling of civilizations that is in evidence today. He died of illness in 323 BC and left no heirs or seconds in command to carry on his legacy.

No one should get the impression from this that Alexander was kind to all that he conquered. He dealt mercilessly with insurgencies. He would have all males killed. The women and children were sold into slavery. This combination of fairness for those and followed his rule and absolute force against those that didn't was his formula for success.

## **Roman Republic**

Alexander's generals carved up his empire into smaller entities and began fighting for ultimate power for themselves. Before Alexander reined the Greeks in a

small City near Rome at about 600 BC the Romans began an experiment with a republic form of government. They tried various forms of government involving a senate by the wealthy and respected citizens and a consul of one or more elected citizens and a public assembly containing ordinary citizens. The public assembly had to approve that laws recommended by the senate. Every male citizen had a duty to serve as a warrior when called for by the senate and consul. Everyone was patriotic toward their country and was proud to receive the glory of winning in battle. Most everyone thought that the Carthaginians in Egypt were threatening their existence. The Carthaginians had killed one out of every four Roman males of military age during their attacks into Roman territory. So the Romans attacked Carthage with the vigor and determination dictated by their need to survive. By 200 BC the Roman Empire was becoming dominant force in the Middle East. The Roman Republic became a prototype of the American Republic 2,000 years later. But democracies have had a poor survival rate ever since in the Middle East.

### **Middle East Democracy**

It seems people in this region are dedicated to a central authority. The emperor must be strong and must be the religious leader or submit some power to whom ever that might be. By 100 BC the Roman Republic had formed a two party system, one recommending more democracy the other a return to the old traditions. One party was conservative the other liberal. Sound familiar? After the deterioration of their moral fiber with gladiator games etc the public began to favor a strong emperor.

### **The Caesars<sub>39</sub>**

Julius Caesar and his adopted son Augustus solved the problems of the republic organization by bringing political peace and prosperity to the empire. Rule by strong emperors brought success and citizen loyalty for the next 500 years. Roman patriotism did not falter after the public gave up their personal political freedom. Their pride to be a citizen and warrior for the powerful Roman Empire was well worth it. Augustus was an able ruler who ruled the captured territories with fairness and decentralized rule. Nevertheless, there was no doubt that he was in command.

The Roman Empire during the 1<sup>st</sup> and 2<sup>nd</sup> centuries BC stretched from Britain to Iraq. Augustus knew his limits and did not attack the Persian Iran. He also knew his limits in Germany where tribes ruled by what we now call guerilla warfare. Is there another lesson for us in this? He was so successful that the public wouldn't let him retire and he was considered the Messiah. There was a strong incentive for all roman citizens to prevent the emergence of any other Messiah such as Christ or Mohamed.

## **Post Christianity**

### **Jesus Christ**

Christ was born in 4 BC but Christianity did not become significant until after the 1<sup>st</sup> century AD. This was when Christ's teachings, his crucifixion and belief in his resurrection as preached and promoted by Saint Paul finally sunk in. Christ was crucified because he claimed to be the Messiah of Jerusalem. That would have been a threat to the then accepted ruler, Augustus Caesar. Pilate, a typical Roman civil

servant wanted to pardon Jesus but the Jewish crowd demanded crucifixion. Jesus taught his apostles that a messiah called the son of man would be coming to the world from heaven to rule the new Kingdom of God. The poor and oppressed would trade places with those of power and wealth and become the new rulers. This would happen in the apostle's generation. Historians believe Jesus was not only apocalyptic but he believed that the arrival of the Kingdom of God was imminent. The Gospel Mark was written in the 1<sup>st</sup> century AD within thirty years following the crucifixion supports this belief. Mark 1:15 "The time is fulfilled, and the Kingdom of God is at hand, repent ye." Mark 13:30 "verily I say unto you. This generation shall not pass, until all these things are accomplished." Thus in the beginning of Christianity Jesus was part of the Jewish faith and spoke of himself as the king of the Jews. The son of man would come down from heaven and stop the oppression of the poor by leading the way to bringing forth and leading Kingdom of God. The Jewish people naturally resented this since they had been waiting for centuries for their messiah to arrive and Jesus was no messiah in their minds. So naturally their high priest insisted that the roman Pilate crucify him.

### **Beginning of Christianity**

There followed about 100 years of conflict between three religious faiths. They were Jewish faith in a monotheistic God of the Old Testament, the Roman multi-god paganism and the belief in the resurrection of Jesus<sub>32</sub>.

Saint Paul traveled throughout the Middle East proclaiming the divinity of Christ, his resurrection and that the only possible way to become saved was to believe in Christ the Lord. There was no other way for salvation. Christ will return in the near future and Christians must be ready for his return as the Messiah for all humanity. More and more Roman citizens gave up their belief in the Roman pagan Gods and became Christians. It was a crime not to believe in the pagan Gods and the divine emperor. The Roman emperors Augustus, Claudius and Nero thought the Christians were a threat to the vast Roman Empire as well as their own salvation. The empire stretched from Britain, Germany, France and the Middle East including Jerusalem. So the Christian threat was across vast territories. The apostles Saint Paul and Peter were publicly put to death and many Christians were sacrificed in the arena for a show.

### **The Apostolic Fathers**

The Jesus' 12 direct apostles were illiterate and the New Testament was written from the year 70 AD to 400 AD by people who had known the original 12 or knew someone who had known them or had read various letters written in the 1<sup>st</sup> or 2<sup>nd</sup> centuries. Those letters were written by intellectual early Christians called the Apostolic Fathers. Saint Paul is one example as was Polycarp, Barnabas and Diognetus. Their letters are being reread and interpreted by various scholars up to and including the 20<sup>th</sup> century and determine what early Christianity really was. What is called orthodox Christianity and what is not is still being debated but not as seriously as it was in the past.

## **Salvation Importance**

Because Roman citizens were so far spread out God's laws of evolution and of self-organization worked well to advance Christianity as the predominant religion in Europe and major parts of the Middle East. God's grace, meaning salvation was the driving force for the Christian population. Remember populations evolve. Individuals are only pawns in the grand scheme of evolution. It is difficult for us in the 21<sup>st</sup> century to believe that anyone would choose death in the arena over a simple lie such as "I believe in the pagan Gods". But to Christians in the Middle Age it was the choice of a quick and agonizing death or eternal suffering in hell. The same salvation belief was even a more important factor in the evolution of the Islamic religion. As I study Homo sapiens history between 5,000 BC and the early 17<sup>th</sup> century AD, it seems that the desire for salvation was the driving force for religious evolution. It was a more important factor in the evolution of societies and personal behavior than any other physical factor I can think of. It was this survival factor that caused Christian and later Islam populations to evolve into what they are today.

## **Roman Christianity**

At about 300 AD the emperor Diocletian decided to wipe out Christianity once and for all. A decade of attempted genocide followed but Christianity survived mainly for reasons mentioned above. Constantine was a Roman leader who had converted to Christianity but also was power hungry. He believed he not only could obtain salvation but also become the Roman emperor by defeating Diocletian in a bold attack on Rome. During his march toward Rome he claimed to have seen a large cross in the sky with the words, "In this sign, you will conquer"<sup>50</sup>. Constantine small army was victorious and he became supreme emperor of the vast Roman Empire. He then made Christianity the official roman religion and it was a crime to believe in the pagan Gods. He moved the roman capital to Constantinople and built beautiful Christian churches and monuments. Constantinople became the most magnificent and influential city of all time.

## **Rise of Islam**

Constantine ruled the Roman Empire as emperor but also as religious leader. Iran was not however under his control. After Alexander the Greek empire became less dominant Iran, Turkey and Iraq to the east of Constantinople were under Persian control. They attacked various Christian strong holes in the Middle East such as Jerusalem. One victorious ruler in 615 carried back the Relic of the Holy Cross to Baghdad as a symbol of his victory over the Christians. Then in 645 a new force called Islam defeated the Persian Empire. A prophet and general by the name of Muhammad remained the Islam religious prophet and ruler until his death in 622. Islam was monotheistic with full commitment to one God that could be the only God. The Koran was their scripture and was without question the word of God. By 700 AD Islam had control of the Middle East including Jerusalem. Christian power was then shifted to Europe.

## **Christian Islam Conflict**

The Koran gave all worshipers freedom to act, as they wanted. The only problem was that if they didn't follow God's word in the Koran they would be thrown into a deep pit and be burned alive forever in their afterlife. Both Christian and Islam religions of this age were ruled by fear of punishment or the anticipation for future happiness from the rewards granted in heaven as a result of their conformance to their religious doctrines. From 300 AD through 1700 AD this was the driving force for all human behavior in Europe and the Middle East. The Koran differed from the Bible in one important way, however. It promoted what was called Jihad or a battle to death against infidels if they occupied their holy land. The Christians also wanted access to their holy land in Jerusalem and carried out the Crusades from 1096 AD to 1300 AD in order to gain access but their bible's New Testament stressed tolerance to others instead of death by the sword. Somehow human evolution led to this kind of destructive behavior. I have trouble understanding how this could have happened. It certainly didn't lead to survival of the survival kind of a society that adheres to it. Perhaps given time it will lead to the destruction of one or the other of these societies. Since in the beginning in the 18<sup>th</sup> century European and American societies began to move toward a more tolerant and cooperative philosophy. Let's hope that it will be the surviving society.

## **The 14<sup>th</sup> Century Plague**

Catholicism was fully imbedded in Western Europe by 1300 AD. The crusades were over and Islam ruled the Middle East. In 1347 a ship from Crimea docked in Sicily. Many of the sailors were sick for reasons no one knew. Unfortunately rats aboard also landed. The sailors and fleas from the rats spread the most devastating plague the world had ever seen or has since. Expanding population throughout Europe had outgrown its food supply and bad weather resulted in poor crop production. Then when the bubonic plague hit it was devastating. The best estimate is that by the end of the 14<sup>th</sup> century total European population had been cut by at least one third. Many people turned to religion as the only hope for salvation; if not now at least in heaven. Unfortunately the religious doctrines, Islamic and Christian had to be worshipped as the rulers dictated since the rulers were the king and the religious leader as well.

## **The Renaissance**

The Italian city of Florence had been especially hard hit by the plague. 40,000 out of the city's 100,000 population perished. During the 13<sup>th</sup> century there had been constant conflict between the Noble rulers and the Pope. Who was to rule; the Kings or the Pope? The economy of the city of Florence was almost totally dependent upon the wool cloth manufacture and trade. Wealthy men who also controlled the banks ran this business. They were able to oust the Noble rulers and form a profitable guild system. Only members of the top guilds could rule and this worked well until the plague hit. The economy became so bad that there was no place for the wealthy commercial rulers to invest their money so they bought art and Latin literature and turned their attention to ancient roman intellectualism. Their emphasis on education formed the foundation for European and later American government

sponsored education. This was called the Renaissance Humanism era. It affected Christianity in many ways including the use of Latin in religious services.

### **Inquisition**

In 1474 the king of Spain, Ferdinand and queen of Castile, Isabella carried out their reigns with cruel use of power. This was called the era of inquisition since subjects were put on the rack if they didn't adhere to the specific Catholic doctrines the king or queen ordained. In the Roman persecution of Christians the persecuted at least had the option of accepting the pagan belief if they chose that over death. During the inquisition King Ferdinand rewarded neighbors or even family members to disclose whom they knew didn't accept the King's doctrine. There was no trial only a tortuous death. This was the period that Queen Isabella sponsored the Columbus voyage to America. The South American Indian culture was essentially destroyed by their attempt to convert the population to their version of Catholicism.

The Inquisition is pertinent today because a radical portion of the Islamic faith called the Jihad believes that any of their faith that converts to Christianity deserves death. They also believe that Christians are invading their holy land and also deserve death. They are carrying out this threat with suicide bombings.

### **Reformation**

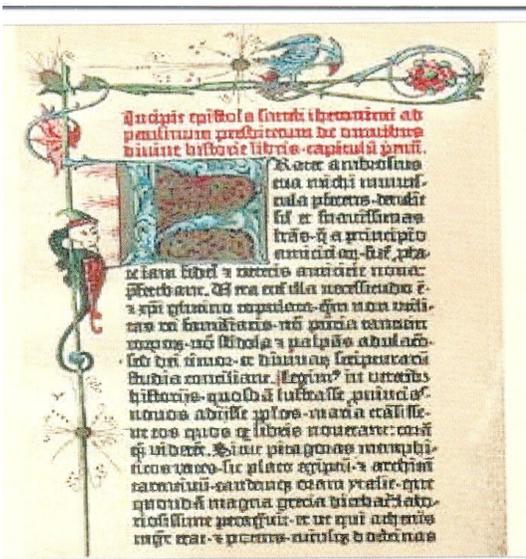
From 400 AD through 14<sup>th</sup> century the Catholic doctrines remained essentially constant. St. Augustine in 400 AD helped to establish many of the Catholic beliefs and traditions. The sacraments, trinity, resurrection and the importance of obtaining God's grace for salvation were practiced throughout Europe during this period. People accepted the importance of attending church in order to learn how they should behave in order to obtain God's grace. If one receives God's grace he or she will be saved otherwise it's off to hell or purgatory at death. Unfortunately, learned priests were replaced by uneducated peasant people. They were illiterate and couldn't preach or conduct mass in Latin. Confession became more like an interrogation than a way to obtain God's forgiveness. The integration of church and state during the middle Ages came to an end. The kings and church leaders now had separate responsibilities. This was the time of the Great Schism where there were up to three Popes who fought among themselves and fought the emperors as well. The nobles were being fired from their government jobs and replaced with cheaper, lower cost businessmen. These commerce savvy men paid the emperors for the right to hold the job. Also Nobles paid for the right to become Bishops of the church. Famine and plague were happening during this period as well. The common person needed religion as a means to cope with life's problems and their faith in the standard church had disappeared. They began to develop their own religious practices. This offered them a feeling of closeness and security with God that the Catholic Church could not provide.

The lower classes were being heavily taxed by the Popes, local clergy and rulers were corrupt. There was a deep financial depression as well as the plague and famine. One example of the corruption was the practice of selling indulgences. It particularly bothered the peasant class. Everyone was assumed to be a sinner and was expected to perform penance after confessing their sins. If they did more good work than the sin required they could save up that as merit. The Apostles and certain Saints had done so

much more penance that their sins required the pope thought that that entitled him to store these extra merits in his *Treasure House of Merit*. He then could sell these merits as indulgencies to people of money who could indulge at their discretion without the fear of losing God's grace. No wonder the peasants were leaving the Catholic Church at the time and worshipping on their own. In about 1450 the printing press was invented and bibles could be purchased and read by the middle class. New personally based faith in the bible could be exercised with more conviction. The teachings of the Apostle Paul were more accepted than that taught by the priests. Paul taught both faith and good behavior were needed for grace but priests preached that who would be saved was predetermined by God. This is called predestination and was a basic doctrine of the Catholic church of the time as preached by Saint Augustine

The printing press was invented in 1452. The middle class could then afford to purchase and then read the bible. No longer could only the clergy be the authority. The lower classes could now see for themselves what God was saying to them. This prepared all of Europe for a radical change in religious life. Martin Luther was the instigator of the protestant movement, but he really didn't intend to abandon Catholicism, only reform it. But his attempt to threaten the authority of the Pope was an act of heresy at the time. He agreed to have a debate with the Pope's representative on questions relating to predestination and the role of faith in Catholic doctrine.

**First Printed Gutenberg Bible**



Instead of a debate he was told that he must absolve his beliefs or face excommunication and be declared an outlaw. Being declared an outlaw means he was out from under the law and anyone could kill him at their will. He was kidnapped by a friendly Noble and hid away in a castle for nearly a year. In the meantime his followers were advancing his ideas by forming a new religion. In fact his ideas were an excuse for what became the beginning of 30 years of physical war between the new religions and Catholics. It was really a revolution that began in 1525. It involved the peasant lower classes taking power from the upper classes including national rulers and clergy. Luther realized after he left his hideout that things had gotten out of hand. He tried to calm things down by preaching to the public. That didn't work so he decided he would try to convince the rulers and Nobles to accept his doctrines. Instead of calming things down the rulers used Protestantism as an excuse to slaughter the peasants who had used the same excuse to attack the rulers. Then more radical religions were evolved.

**The Enlightenment & Natural Philosophy**

Many things happened in the 16<sup>th</sup> and 17<sup>th</sup> centuries that changed the way Europeans and later we Americans think and behave. The acceptance that God used the *laws of nature* to create and control the world was a big factor. It was not heretical to believe in Natural Philosophy. Galileo, Newton and Descartes were religious in compliance with

the accepted 17<sup>th</sup> cultural beliefs so their scientific theories were not rejected. Reformation complicated these Christian beliefs but the fundamental beliefs in salvation and the Trinity were still predominant. Even the general public accepted the concept that science or what they called Natural Philosophy helped explain how the creator accomplished his miracles. There was no intellectual battle between religion and science but there were vicious physical wars between various religious sects. Natural Philosophy caused no physical conflict. The concern for salvation was the culprit. Which detailed belief would obtain God's grace was worth dieing for. Natural Philosophy did not start a trend toward the present day secularization. The French and American revolutions did later in the late 18<sup>th</sup> century.

### **Calvinism & England**

I wish I had the space to go through the details of the British conversion to Protestantism in the 16<sup>th</sup> century. King Henry VIII wanted a son to inherit the throne so he asked the Pope for the right a divorce his wife so he could merry his mistress. The Pope refused but Henry married his mistress anyway. He and all of England were excommunicated and he was finally beheaded by his Catholic parliament and public. All of this resulted in an English revolution that ended with the parliament in control and the adoption of the Calvin religion. The Calvin protestant religion in England prevailed through the 18<sup>th</sup> century and was inherited by the American colonies.

After the southern portion of the new world was discovered and exploited by the Spanish, the French and English began the colonization of the North American regions. The old world cultures were transported along with the colonists. The English Magna Carta, the Calvin religion, the rights of the people are examples of the cultural baggage taken by the colonists to Jamestown, the Pilgrims and the Massachusetts Bay Colony.

### **Spanish Exploitation of South America**

The Spanish Inquisition was not only practiced in Europe it also was transported to South America against Aztecs in Mexico and the Incas in Peru. Cortez imposed Spanish Catholicism on the Aztecs by brutal means and it resulted in massive population depletion. (1520) The Aztecs had no immunity to European diseases that also caused death in large numbers. Pizarro in 1532 acted the same way in Peru against the Incas with similar results. When the Spanish realized that their source of slave labor was reduced they tried to reverse their tactics but it was too late. The shipments of gold, silver and other precious commodities to Portugal and Spain were reduced and the Spanish economy was in ruins. They couldn't support their European armies and the Spanish Empire collapsed.

### **British Colony Jamestown**

Jamestown was the first British colony in America. King James I sent Captain Newport to rule the Jamestown Colony. (1607) Calvinism was at first strictly enforced but attacks by Indians and disease made religious obedience secondary. Jamestown itself was burned down by the colonists who revolted against the British governor William Berkeley. They had developed commercial success in selling the British their improved tobacco so the Colonists moved inland and ultimately made peace with the Indians. Their form of Calvinist religion still flourishes in Virginia.

## **Massachusetts Bay Colony**

Shortly after the Pilgrims landed in Plymouth in 1620 they formed what John Adams later called the first written American constitution. It was called the Mayflower Compact. Elder Brewster the Pilgrim pastor was instrumental in its preparation. The Pilgrim's religion was Puritan; so named since it was a purified version of Calvinism. The Plymouth Colony was successful after a rough start but that success resulted from their Puritan beliefs and their commitment to an agreed upon and written constitution. The English King Charles I had married a Catholic and they feared that the Catholic faith of his wife would contaminate their Calvinist kind of religion. The long term goals of the Puritans were to self-govern and remove themselves from the Church of England.

The central government was then established in Boston and was called the Massachusetts Bay Colony. It was established in 1629 under a charter from the Crown. It was to be governed consistently with English law by John Winthrop who was a strict Calvinist. The British Crown did not pay very much attention to the Colonies. They only wanted the commercial revenue they expected to receive from the American colonies just like India and the African colonies. As a result Winthrop continued with the Puritan religious and governing philosophies. It was possible since there was extra space into which to expand. The British would have difficulty controlling them in the remote regions. Winthrop feared that Catholic influences were corrupting the Church of England and he sought refuge in the New World. He believed only the government can enforce God's laws; democracy could not.

## **American Revolution**

The American colonies expanded to the entire east coast and were separated into 13 separate areas each with their own ideas of government and religion. The French colonized the mid west and what is now Canada. The British Crown was worried that the French would extract some of the British revenue flow from their eastern colonies. The British and French began a war in Europe that then extended to America. The French encouraged the Indians to join with them against the British in America. Thus it was labeled the French Indian War. The British needed to finance their war efforts so they taxed the American Colony. That was where the money was. This led to the Boston Tea party where tea was dumped into Boston Bay and soon after the American Revolution occurred.

## **Declaration of Independence**

The declaration of Independence was a magnificent document written by Jefferson but was evolved through many other papers and letters. Illustrative of these were a series of letters called "Letters from a Farmer in Pennsylvania". The colonist first considered themselves Englishmen who had the rights of all Englishmen under British law. They claimed the taxes imposed on the American colonies were unconstitutional and inconsistent with the principles and spirit of the British constitution. These principles had been respected in other British colonies why not the American one as well. The British however needed the money and America was where the money was so the British turned down every compromise or effort to reach an agreement. Then

Thomas Paine appeared on the scene and promoted what he called the God given rights of man. His kind of promotion would sell today on fifth-avenue advertising agencies. He wrote, "There is something absurd, in supposing a continent, the size of America to be perpetually governed by a tiny island." The people in the 13 colonies didn't all agree but a majority supported the common desire to be free from British religion, taxes and control. Thus the revolution began and finally won by sheer determination.

## **The Constitution**

Most people don't appreciate the importance of the Federalist Papers. They were written by several people who later participated in the final adoption of the Constitution in Philadelphia. These letters formed the general theoretical theme for the final Constitution. John Adams studied history in the preparation for his letters that were of major influence toward Constitution's fabulous features. He prepared very carefully before he proposed his principles that were gleaned from history ancient and more recent. They were the legislator must be composed of two bodies, the executive must be separate from the legislative body but checked by it, Judges were to be separate from each other government bodies and the legislators would be elected often, executives less often and judges with life tenure. He established the principles and then with extensive compromises the 13 colonies approved the final version in 1788. One of the most important features of the constitution was that it did not support democracy. It supported a representative form of government where representatives would be elected by the people who in turn would elect the government. This prevented some passionate group from taking over. It was Adam's greatest worry that even a majority might pass legislation that would not be good in the long run. The Constitution was not the first national document. The Articles of Confederation was passed in Albany but was not approved by all 13 states.

Although people who participated in the Constitutional convention were religious, the constitution was not dependent upon any institutionalized religion. Although the members of the Constitutional Convention were religious the Constitution ended up as a secular document. It considered slaves as property so it was not only allowed but defended. It did however protect the people's right to practice any religion but the government was forbidden to participate in any religion what so ever.

## **Slavery**

Slaves received a lot of attention at the Constitutional Convention but were consigned to a special category of property. Slaves were central to the economy of the south but women were outside political consideration. The framers focused on the people, especially the elite who meant the most. As American society went west it took slavery with it. The north became industrialized as the south and southern west stayed agrarian. The south needed slaves to be efficient and profitable the north didn't need slaves and began to think that blacks might be people after all. The south developed two arguments to defend their rights to own slaves. The first was based on the belief that societies are grounded in class distinctions base on property. Those higher in the hierarchy live off the work of those below them. Those of the lower class are supported by the people above them therefore there is a mutual dependence among the classes. This was similar the Charlemagne's thinking during the 8<sup>th</sup> century feudalism, where

some workers were not literally slaves but still were strictly subservient to the upper class. The other defense of slavery didn't mention slavery as such but rather that the southern minority states should be allowed to live according to their economic requirements. The central government should respect the rights of the minority southern states to determine their own laws.

The Appendix page 49 will explain in some detail how God's self-organization tends to result in the extinction of societies that practice either slavery or feudalism.

## **The Civil War & Lincoln**

The Civil War was to preserve the nation but Lincoln was able to reconstitute the nation. He used the Declaration of Independence not the Constitution to do so. The Constitution was secular in that God's laws of nature or God's word was referenced to form a documented direction for the country. The preamble to the Declaration of Independence as used by Lincoln's in his Gettysburg address was based on biblical concepts. The following quotes are from Professor Kobyika's Teaching Company's lecture<sub>54</sub> # 23. "He focused on the preamble's assertion that 'all men are created equal'. In his Cooper Union Address, Lincoln suggested that, if equality and liberty were in conflict, equality must prevail. In his Gettysburg address his words reflected God's *word*. These are his beginning words" four score and seven years ago, (*this phrase calls to mind the biblical accounting of time.*) our fathers (*reminiscent of the Lord's Prayer*). ---- dedicated to the proposition, that all men are created equal." (*referencing the Declaration of Independence that was in turn a Christian document.*)

Lincoln used his faith in God's *word* to solve what was the most critical time the nation had experienced. I believe that Lincoln's faith in God's *word* enabled him to set the stage for a reconstituted America that believed in the equality of all people including all races and women as well.

## **Religion, Philosophy and Science Conflict**

Hegel in the early 19<sup>th</sup> century developed the theory that community, national and individual spirits change over time as a result of conflict between thesis and antithesis. If the antithesis became more dominant than the thesis then it became the new spirit. The antithesis of the late 20<sup>th</sup> and 21<sup>st</sup> century for both America and Europe has become more secular in nature than during the 19<sup>th</sup> and early 20<sup>th</sup> centuries. I wish to show a way to counteract this trend.

## **The God Delusion**

My fear that faith in religion and God is diminishing is supported by the best selling book, "*The God Delusion*" written by the prominent British ethologist Richard Dawkins. It illustrates the new thesis in modern American and European society. *I'm sorry, but this book makes me angry.* He is a capable and a respected scientist that has much influence on anthropologists and biologists of all sectors. A quote from Matt Ridley a Genome scientist, one of his supporters makes my point. "Oh, it is so refreshing, after being told all your life that it is virtuous to be full of faith, spirit, and

superstition, to read such a resounding trumpet blast for truth instead. It feels like coming up for air”. Dawkins asserts the irrationality of belief in God and religion has inflicted grievous harm on society. Dawkins uses an Einstein quote to support his view, “I have never imputed to Nature --- anything that could be understood as anthropomorphic. What I see in Nature is a magnificent structure that we could comprehend only very imperfectly, and that must fill a thinking person with a feeling of humility. This is a genuinely religious feeling that has nothing to do with mysticism.” In other words, Einstein believed as Bishop Baker preached that God’s laws of nature warrant a religious response. Einstein also used the word “God” consistently in his writings and conversations; such as “God does not play dice” He did accept God the father as being spiritual and not human as most Christians and I believe. He seems to have supported the New Natural theology that I am attempting to describe.

### **The 17<sup>th</sup> & 18<sup>th</sup> Century Scientific Method**

Philosophically speaking science and religion are similar in their search for truth. Believe it or not, they both used the scientific method as defined by Francis Bacon in the 17<sup>th</sup> century. That is, the scientific method uses induction applied to large amounts of observations in order to arrive at what is considered reality. Newton applied his inductive reasoning to Galileo’s observations of planet orbits and arrived at a mathematical hypothesis that stimulated the enlightenment revolution in human thought and life. St. Augustine and St. Thomas Aquinas applied inductive reasoning to the observations of Jesus Christ’s and his apostle’s life and writings that formed the foundation for Christianity. Their revelations were similar to Newton’s intuitive realization that Gravity was a force that could act at a distance. Both were searching for the universal, necessary and certain truths of reality. They each had assumed certain axioms that were then used by inductive reasoning to form their final theories. They each assumed that their theories were not just hypotheses but rather were theories based on absolute truth. The religious axioms were the trinity, resurrection and virgin birth of Christ and that grace could be obtained by obeying God’s word as written in the bible. The scientist’s axioms were that each new phenomenon had a cause and that cause could be determined by mathematical reasoning confirmed by careful experimentation.

### **Late 20<sup>th</sup> & 21<sup>st</sup> Century Method**

Unfortunately there is a trend in our present period that seems to be leaning toward a secular and atheistic antithesis. The New Natural Theology supports the use of Bacon’s scientific method in our attempt to find an understanding of God’s *laws of nature* as well as his *word*. But it recognizes that there still is a gap in that understanding that needs to be filled by faith. The 21<sup>st</sup> century thesis is that there is no need to fill that gap.

Fortunately there is a counter antithesis that seems to be happening in some modern scientific and religious institutions. It seems to support The New Natural Theology thesis. The religious church organizations I have visited in the Woodlands, TX area, for instance seem to preach and teach a view that accepts the view that new scientific hypotheses can be incorporated into one’s faith as being

part of God's plan. Also they believe the bible and Christ's teachings can be personally interpreted as long as they do not violate the Word of God as defined in the sacraments or the Ten Commandments. They seem to abandon the need for a literal interpretation of the bible and to replace that with the knowledge that there is much more to learn about God and Christ. No longer does modern Christianity assume that they know all there is to know about God's *word*.

A few modern scientists admit that they are a long way from determining what God's universal, necessary and certain laws of nature really are. They admit they are a long way from combining gravity and the other three atomic forces<sup>7</sup>. Science has only recently, 1998 discovered the existence of 70% of everything of which the Universe is composed, dark energy and has little or no hint of what it is. Humility reins in some modern institutions of science and religion and in my opinion that is consistent with God's *word*. Somehow God has designed us to humbly drive on for a better understanding of what God's *word* and *laws of nature* really are. We can do it best by integrating God's word with his laws of nature.

## The Trinity Provides for Human Morality

God created life about 3.85 billion years ago. God's self-organization and quantum theories made possible the final evolution of advanced life forms leading finally to human and societal consciousness. When I say that God's *laws of nature* and his laws of human behavior were universal and necessary, I mean necessary in order to obtain the final results we are now experiencing. Unfortunately these laws seem to be too often cruel that results in lethal conflict. The weak and defenseless are usually the victims. Jesus' message was apocalyptic in that he proposed that the poor and weak would run the world as the messiah (*son of man*) would return from heaven and rule the world, compassionately protecting the weak and punishing the strong, rich and powerful. In my view it was fortunate that didn't happen during the following 2000 years, but something else did happen as a result of Jesus' preaching. Altruism and compassion for the poor and weak was promoted by the most predominant religion of western civilization, Christian theology. This led to competition between the thesis of altruism versus the antithesis of physical power. Prior to the 20<sup>th</sup> century power led to many wars that were devastating to the warriors and empire survivals but warriors mostly warriors killed other warriors but with the development of new weapons in the 20<sup>th</sup> century such as aerial bombing of cities and other massively destructive weapons civilians died by the 10's of millions. Power seemed to be a survival factor that could never be trumped by the altruism and passion for the underprivileged that was the Christian philosophy.

### Long Term Hope in the Trinity

I have been having frequent communication with a retired professor; named Chester Hathaway he sent me the hand written note shown in the appendix page 52. He asked if my theories that suggested individuals "good" human behavior resulted from God's laws of population evolution, would provide evidence supporting the existence of a Christian God. According to St. Thomas matters of theology should

be based on faith alone. Reason and evidence should be used for discourse on philosophical matters not theological questions such as God's existence. My theory states that God's software contributes to the survival of certain cultural populations through the self-sacrificing moral behavior made by individuals composing that group. Those on the Union side fighting to free the slaves during the Civil War illustrate this kind of moral behavior. The fact that moral behavior requires what would seem, in many cases to be counter to individual survival chances results in a need for a God to overcome a physical law of nature such as evolution. If one considers miracles as evidence for a God then here is one.

## **Consciousness**

What follows under this heading is a description of God's most amazing accomplishment, human consciousness. Everything I have discussed so far seems to show that his plan was to create a compatible home for us and then through self-organization evolve our individual and then our social consciousness. We know a lot about our brain's hardware but know practically nothing about its software. Psychologists and neurobiologists can describe what it does and what it is composed of but not how it does what it does. Computer programs that we design to try to duplicate its function become so complex we can't understand the function of the software we ourselves designed.

### **Human Brain's Cortex Hardware**

Fig. 7 is my attempt to show schematically an extremely simplified illustration the human cortex. The cortex is not, of course the whole brain, neither is everything that is in the cranium the total brain's hardware. The human body can not be isolated from the entire human system. It is one network of elements all working as one integrated system. I am using this cartoon drawing of the cortex to help me to appreciate the ordered complexity of our mind and the consciousness it produces.

I asked my son David who is an experienced computer architect to think about writing the code to define the function of the simplified system shown in Fig. 7. The number of lines of code would represent the complexity of the system. Then I asked him if his code could be scaled to 30 billion controlling IC's driven by 30 trillion analog input gates. He said, "The special IC controlling the system would be very complex even in the simplified system. Code could be written for it, however with relatively few lines compared to the windows operating system. But if it were scaled to 10,000 inputs and many outputs, we would need hundreds of synchronized parallel microprocessors for each equivalent neuron. This might just as well be called impossible".

The idea of trying to understand such a complex phenomenon is, of course absurd. We don't try to understand the Window's operating system when we use Windows. In fact, we consider ourselves literate in Windows when we learn how to use it well. We understand its function, not its inner details. So let us see if we have a better understanding of the cortex if we observe its structure and leave the code to God.

So, I conclude that God used his universal and necessary software to generate this code. Since software code establishes the structure of physical matter then it supports “monotheistic physicalism” which is in dispute with de Carte’s dualism. Our world is physical not mental. We must, however include the structure of matter as a physical thing; it exists just as matter exists. But only God can describe the complexities of the structure of the Universe and life within it through his universal and necessary software.

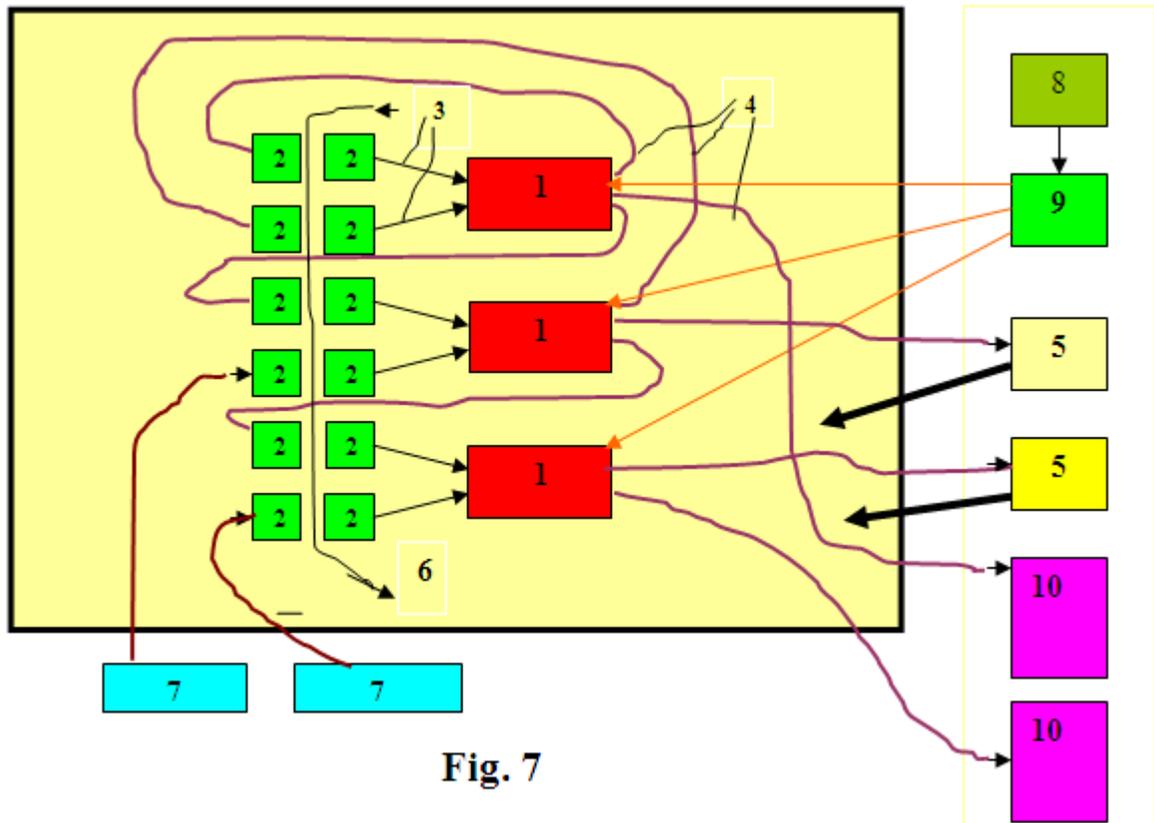


Fig. 7

Number	Computer	Brain	Color
1	Integrated Circuit (IC)	Neuron	Red
2	Analog Gate	Synapse	Green
3	Gate to IC trace	Dendrite	Black arrow
4	IC to Gate trace	Axon	Purple line
5	transducers & fluid generators	Glands	Light, bright yellow
6	Voltage or Charge	Neuron Transmitters, Hormones	Light yellow
7	Sensors, Transducers	vision, hearing, etc	Blue
8	Boot disk	DNA genetic code	Dark green
9	Program disks	RNA Translator, protein generator	Light green
10	motors & transducers	Mussels	Pink

God’s universal, necessary, certain software provided the material as well as the software needed to arrange 30 billion neurons, 1, 30 trillion synapses, 2 and the required interconnections for us to live a healthy life and to contemplate our creator. This diagram shows an absurdly trivial cartoon that may help to show how neurons communicate with each other, or our senses and our intuitive memories. Imagine a computer with 30 billion special complex IC’s, #1 connected together through 30

trillion analog gates, #2 in a network of wiring that changes over time and you may be able to appreciate what God has given us.

Each neuron has 10 thousand inputs called dendrites, #3. They are controlled by the synapses, #2 that are connected to outputs of other neurons called axons, #4 through gaps that are immersed in fluid called neuron transmitters, #6. Hormones and other glandular fluids affect this fluid so the entire body is involved in our mental and emotional activities. Consciousness is the result of this complex process. Our attempts to scientifically explore consciousness have failed to produce significant results.

It is the most complex phenomena of all God's creations. It is also egotistically the most important since it makes me be me! It was also metaphorically God's reason for all his work. Quoting Genesis 1,25 "God made all kinds of wild animals - ---"Genesis 1,26 "Then God said let us make man in our image ---". It is literally correct that God made wild animals before man and then made man in his immaterial, spiritual image. The mind is what I call the brain's software. In computer science software is the structure of magnetic particles in tape or the structure of the reflectivity of particles in a CD disk. In the mind it is the structure of all trillions of physical elements into a network that becomes our consciousness. It is this software that God used to make us what we are. Ferdinand de Saussure called the fundamental basis of all human pursuits' structure. He was a post modern philosopher who developed the philosophy of structuralism. It is an interdisciplinary approach to all branches of human knowledge that posits that all human pursuits are products of deep structures. His deep structures are my software that I call God.

## **God's Software**

The philosophical question that many engineers may raise is why I may not accept the rational unbiased concept, that the software of the Universe is software period, not God. In my opinion, there are two reasons to attach the software of the Universe to God. The first is that God is worthy of worship, software isn't. The second is that there is a long history, about 5,000 years where we have been searching to find a God. Isn't it satisfying that we have finally found one that is compatible with our ability to reason? Again the engineer might say, "I want the truth not just something that makes me feel better." Philosophy from Plato to James tells us that there is no way to find the truth. Truth can only exist within the framework of one's own axioms and there is no way to know that one's own axioms are true.

Emanuel Kant, my favorite philosopher stated (*in my words*) that our mental image formed by a combination of our senses and mental processing of information leads to an image in our mind that is our concept of the real world. That concept may include an image of God. If you can't understand that last sentence don't feel alone. I have tried for years to understand Kant and feel elated that I have finally come to a feeling of some success. His philosophy provides engineers and scientists a means to rationally accept a Christian God.

Consciousness is a concept that any reasonable person must accept. Rene de Carte said, "I think there for I am." We all think this is so obvious it isn't worth saying, but it is really the only thing that is certain. Consciousness produced by 30 trillion

synapses and 30 billion neurons makes us capable of the attempt to understand the outside world and God who created it. Doesn't it make sense for all of us to try to do the best we can at that endeavor?

## Conclusion

Christians believe God performs miracles and such acts are evidence that God exists. A miracle is defined as “*act of God: an event that appears to be contrary to the laws of nature and is regarded as an act of God.*” I have shown in this booklet how many spectacular miracles have been performed during the past 13.73 billion years, for instance, creation of the universe in  $10^{-35}$  seconds from nothing and the creation of dark matter and energy. Although we can not explain these miracles we know they took place. If they had not been performed our inhabitable earth or our consciousness would not have evolved and allowed us to appreciate God's *laws of nature* and his *word*. These miracles seem to make those described in the bible to be rather mundane in comparison.

I believe as do Christians that God IS the father, the son and the Holy Spirit. I believe the father is the *laws of nature*, the son is God's *word* and the Holy Spirit is an unknowable human emotion. I also accept the following axioms: 1 God is this Trinity, 2 God performed the miracles of creation, 3 Christianity accepts these same beliefs and 4 miracles are evidence that God exists, I conclude that I am a Christian and my New Natural Theology is compatible with the Christian faith.

Complete reverence for the Holy Spirit requires a conscious image of God to form in one's mind. Although my image of God includes a divine Jesus that may not be the same as the Christian anthropomorphic image, I hope it does not interfere with my joining with them in reverence and prayer. I intend to follow the advice of Richard Rorty, a post modern philosopher who made the following suggestion. “Use open discourse to create your own philosophy that is practical in your cultural environment.”

## Personal

Now I would like to relate a personal story that may say it all. By that I mean what happened to me is what I would like to use as an example of how I added faith in God to my philosophy. It is not a revelation as experienced by those of more substantial institutional religions, but rather a feeling of experimental evidence that there is something in my consciousness that cannot be explained by science.

Please look at the picture below. It is picture that my daughter took after I asked her to come down from the hospital room where her mother was in the final stages of life. I came from the parking lot and there it was in perfect form, a Christian cross. I pointed it out to others who were passing by. They said WOW, isn't that beautiful. The important thing is that I felt at the moment, it was a signal from God. I didn't even consider how it might have occurred because of the setting sun and the little white sign. My wife, Beverly the day before said to me. “Why doesn't Jesus come for me?” There it was his answer! I was, of course thinking in a worried way about Beverly's pain. But that cross put me in a completely different mood. My daughter took a picture of that scene and I showed it to Beverly the next day. She saw the picture and responded in a way that convinced me she understood. I didn't try to

figure out how God used his software to accomplish that beautiful cross until the next day but somehow that technical analysis didn't matter.

## Beverly's Cross



The picture of a cross on the brick entranceway to the Parkland Hospital demonstrates how God communicated with me. Sometimes stories like these hold deeper truths than scientific beliefs.

# Appendix I

## Relativity<sub>29</sub>

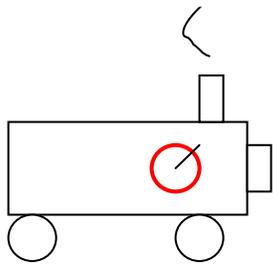
Usually scientific progress is made by the scientific method as defined by Francis Bacon in the early 17<sup>th</sup> century. It was based on the belief that the basic *laws of nature* can be found by using induction to process data obtained by careful experimental observation. Galileo and Newton each used this process. Galileo, Newton and other natural philosophers practiced the scientific method then called natural philosophy. The European culture and intellect was radically modified as a result. This is called the enlightenment era. Occasionally induction is used and later confirmed by experiment. This can result in the development of a new scientific paradigm such as the general theory of relativity. Newton hypothesized that perhaps the force of gravity was inversely proportional to distance. Galileo's data seemed to somehow fit that assumption. Einstein formulated his concept that time; space and the speed of light must be related according to certain algorithms. He then used mathematical equations to more accurately represent his inductive concepts. The equations seemed to tell him more than he knew. Bingo! Out popped  $E = MC^2$  telling him that energy and mass were interchangeable after multiplying mass by the velocity of light squared.

A new scientific paradigm was born as a result of his using inductive reasoning alone. He had accomplished this without reliance on any experimental data. Einstein's theory showed that gravity was not a force but rather a curvature in space. He also showed that all values of motion, length mass and time were relative to the observer's relative velocity. Several experiments were suggested to prove or disprove his hypothesis. He was asked what he would say if the experimental result was negative. He responded by saying, "Then there must be was something wrong with the experiment." His theory of General Relativity has been well substantiated by many experiments. The experiments proved his mathematics were correct but not his personal conclusion that the Universe was static and deterministic.

## Relative Time

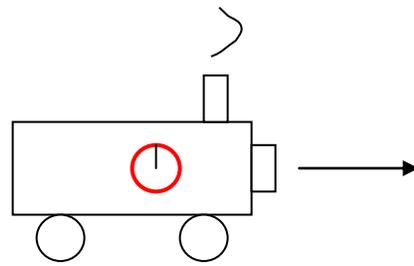
His theory's conclusion the time is not absolute but rather dependent upon one's velocity with respect to the observer of that time can be explained by a rather interesting analogy. Let us assume that two farmers were competing for a contract to deliver grain to a large customer in Arizona. Both agreed to the terms. The customer hired a judge to make sure the first that signed would get the contract. They were traveling by train and were told they could not sign the contract until they saw the signal light flash. As the Kansas farmer was approaching the signal light he saw it flash and recorded the exact time of clock and signed the contract. The California farmer had just passed the signal when he saw it flash. He also recorded the time as he signed. See Fig. 12 below.

Since Kansas farmer's clock was running faster, as far as the judges were concerned he signed later and lost the contract.



The Kansas farmer's train was approaching the judges signal light.

Since this California farmer's clock was running slower he signed the contract first according to the judges.



The California farmer's train had passed the judges signal light.

**Fig. 12**

The little red circles represent the reading of the respective farmers' clocks. Note the clock of the Kansas farmer was running faster than the California farmer's clock. I forgot to mention that the trains were going at a rather high speed, 186,000 miles per second. Since the California farmer's clock was running slower he signed the contract first. You have to remember the clocks were set according to Arizona time. This takes a little thinking to figure it all out but it helps to understand the relative nature of time. Incidentally the California train would have appeared longer than the Kansas train to the judge at the time of the signal.

Einstein's faith<sub>27</sub> in God's purpose to create and control a Universe based on fundamental laws gave him courage to oppose the existing scientific paradigm that accepted gravity to be a mysterious force that violated the laws of physics. His problem was, however to mistakenly believed that God had created a stable Universe. His equations told him otherwise and he had to finally admit that assumption was the worst error he had ever made in his life. He didn't, however ever admit that that atomic particles were really only probability waves. This will be explained below.

**Quantum Mechanics**<sub>16</sub> (*Book reference # 17, page 35 is a more complete mathematical treatment*)

This is God's most secret of the three universal, necessary and certain of his *laws of nature*. The secrecy aspect of this is illustrated by Feynman's famous comment", If you think you understand quantum mechanics, you don't!" Even Feynman, one of the creators of the theory admits he doesn't. No wonder! It maintains that a particle can be in two different locations at the same time. If it is observed, it has a higher probability of being where you think it is, but the next observation may show it is in another location. Therefore it is really only a probability wave not a discrete particle. Is that is what we are made of! Einstein argued this could not be true since God does not play dice. He was wrong. God's *laws of nature* are loaded with probabilities. This characteristic of atomic sized particles allows them to tunnel

through energy barriers that in turn speeds up the process of new species development.

### Einstein-Podolsky-Rosen Experiment

Another weird quantum effect has to do with what is called “nonlocality”. Einstein suggested an experiment that in his mind would disprove the theory. He suggested an experiment designed to confirm or deny that a phenomenon at one location could affect a phenomenon at another location instantly. In other words did it or did it not send a signal traveling at infinite velocity. This means it took no time to act over even cosmic distances. This was called the Einstein-Podolsky-Rosen Experiment. A silver molecule was split into its two atomic partners, one atom had a spin of  $+\frac{1}{2}$  and the other  $-\frac{1}{2}$ . The total spin of the pair must equal the spin the parent molecule that must be zero. During the preparation for the experiment Einstein thought to himself, “Ha, this will show you that my proven theory of general relativity will never be violated.” When the experimenter changed the spin of one particle from  $+\frac{1}{2}$  to  $-\frac{1}{2}$  with a magnetic field, the second particle partner instantly changed its spin from  $-\frac{1}{2}$  to  $+\frac{1}{2}$ . This was proof that his general relativity theory was limited to a partial understanding of God’s universal, necessary and certain *laws of nature*. A disappointed Einstein spent the rest of his life trying to find problems with quantum mechanics even on the night of his death.

Fig. 13 below is a cartoon drawing of the experiment. It shows the two atomic partners of a silver molecule at the left. At first there is no magnetic field applied to the top atom and the two separate atoms are sent to two remote spin-measuring instruments. For explanation purposes let’s say the top atom was rotating counter clockwise and its partner was therefore required to spin clockwise. Measurements made on the lower atom confirmed it was spinning clockwise. But then a magnetic field was applied to the top atom reversing its direction as shown in red. Another of God’s miracles happened! The lower atom at any distance from its partner reversed direction instantly. By instantly I mean just that. It changed direction in no time at all.

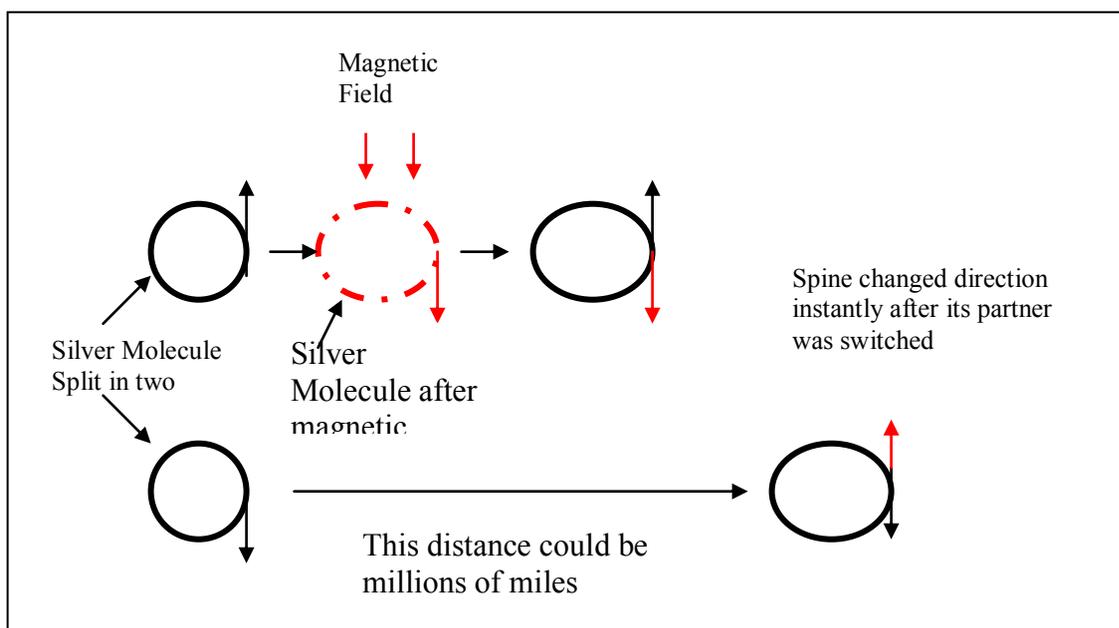
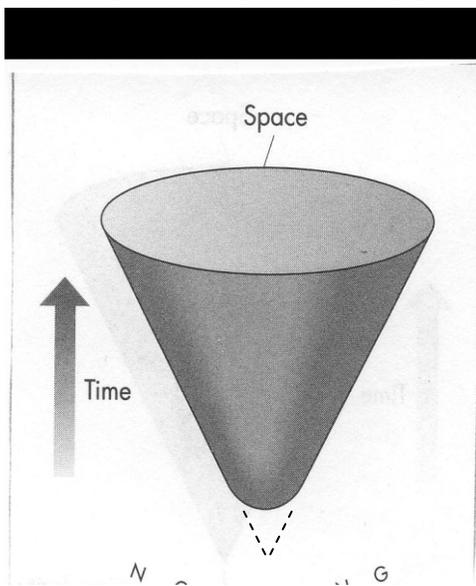


Fig. 13

Quantum theory seems to be so weird that it should be worthless. That is not the case it has been the answer to many unsolved problems in our understanding of such things as the creation of the Universe and life. In 1929 when the British physicist P.A.M. Dirac combine relativity with his quantum equations. They showed an unexpected negative value for a particle. The equations told him that every real particle in the world had a potential antiparticle partner. In 1932 Rutherford found the anti electron called the positron. This was used to explain how the Universe could come from a vacuum that was really filled with virtual energy. Quantum theory may be close to providing us with a closer understanding of God's universal and necessary *laws of nature*.

## Quantum Creation

Now that you understand quantum theory (*tongue in cheek*) let me use this theory to explain in more detail how God used his more certain version of the theory to create a Universe that was suited for human consciousness.



This drawing was copied from *The Cosmic Jackpot*, pg.77 by Paul Davies. It illustrates the Hartle-Hawkins theory that states that the Universe did not begin as a singularity as Einstein equations predicted but rather a fuzzy beginning with dimensions and time all mixed up in a quantum uncertain state. The new theory says that the dotted triangle did not exist. As time advanced, shown vertically on the drawing space expanded, as indicated by the horizontal opening of the cone. The size of the rounded area probably the size of a protein divided by  $10^{20}$  and time is probably about  $10^{-45}$  seconds. Everything below the rounded bottom is God's secret and quantum theory tells us God will never let us know how he created the Universe and human consciousness.

## Evolution & Self-Organization

I explained on pages 21 and 22 under Hominid evolution how evolution is really more like a bush not like a tree with a single trunk, as many people believe. There is another common misconception that species change as a result of selection of individuals by their fitness to their environment. It is networks of individuals or what are called populations that are selected by their adaptability to their environment. If evolution had depended upon of individuals adapting, there would never have been enough time since the creation of life to evolve such complex organs as the eye, for instance.

Maybe you have seen a group of birds flying around in a chaotic swarm with birds flying in mixed directions. Then self-organization takes place and an organized swarm of birds form. The whole swarm begins to swoop and dive as one group. That was caused by self-organization. No leader was involved. Each bird had a desire to follow its neighbor in direction and speed. God's self-organization law of nature did the rest. The original group of birds was nearly chaotic, but since each bird had a desire to follow its neighbor, God's self-organization produced a higher degree of organization.

We now know that God's universal and necessary law of self-organization works at inflationary rates when networks of elements reach a point that is near the threshold of chaos. Self-organization produced inflation during the first  $10^{-35}$  seconds of creation; it was necessary for civilization's progress and it was responsible for the neuron arrangement that resulted in our consciousness.

### **Civilization & Self-Organization**

I now going to try to explain in a few paragraphs what was fully explained in three books. The most complete but still easy reading is "At Home in the Universe", Stuart Kawman<sub>6</sub>, "Chaos", James Gleick<sub>14</sub> and "The Quantum Brain", Jeffrey Satinover. My explanation in limited space will probably be insufficient for many to comprehend, so don't feel badly if you just don't get it. It is my fault not yours.

The review of history in previous chapters shows how over 5,000 years of civilization progressed from a cycle of up and down order toward more order. You may say our economy is in a mess and we are at war with terrorists so I don't see the order today. But certainly we in the 21<sup>st</sup> century don't have to worry about Viking like people invading our home and killing us and our family. We have a constitution that determines law that most feel is fair and we can worship any religion we choose with out constant fear of frying in hell for all of eternity. So there is no question that we are better off today than in the middle ages or even the more recent past.

Will this progress continue and if so how did God accomplish this progress. The answer can be found in his miracle universal and necessary laws of nature. The first and the one we understand the most is quantum mechanics. That was his necessary program for creation of the Universe and life, but once this had been accomplished he needed another to complete his plan. The second and most important toward evolving our home in the Universe and deriving our civilizations was self-organization. Our scientific theories and mathematics allows us to understand in what manner quantum theory may accomplish God's miracles, but we can predict only the probability of certain results. Our predictions are not certain but the results are useful since we have a known probability of being correct. Our understanding of self-organization is no where near as complete. We can predict (*as an example*) that a group of swallows, left to their own devices will form an organized swarm but we don't know where that swarm will go or how long it will exist. We can simulate that swarm of swallows by writing equations representing how one bird reacts to its neighbor but we can go no further in our predictions. We can, however put an algorithm representing one bird's reaction to the other into a computer and then let it run and low and behold out comes a swarm moving together in an orderly manner.

We can do the same for the much more complex network of humans called a civilization. Only God knows the details of what our simulation will produce but we can be sure in the long run that computer simulated civilization will produce a more complex and ordered civilization. That is what has been happening for thousands of years. Our human consciousness is composed of billions of neurons all interacting with each other and then communicating with trillions upon trillions of neurons in other consciousnesses that results in what we now call our societal consciousness. All we know about this unimaginably complex organism is that it is advancing in the long run toward what Teilhard de Chardin<sub>27</sub> called the omega point. It means that

God has produced human consciousness with the ability to advance toward an understanding of God and the ability and desire to worship him.

## God IS the Trinity

I have been searching for what I am for the past three years and I think I found it. But am I a Christian? I saw the benefits of being a Christian in my youth and see it again in my retired from business life. Therefore, if I can use my life's training as an engineer in addition to my recent three years of study to arrive at the conviction, "I am a Christian". I will have accomplished an important objective. Other engineers may find my approach helpful in their attempt to understand the Trinity that is fundamental for Christian belief.

### Holor Trinity ☺

In Christian belief God IS the father, the son and the Holy Spirit as one. Although this is not written in the Christian bibles it became a basic Christian belief after Saint Augustine proposed it in his influential work "Of the Trinity" in 416. He stated, "Father, Son and Spirit coinhere (coexist) in the Godhead as memory, intellect and will coinhere in the human mind." One's belief must include this in order to be considered Christian in modern religious culture.

I will express the trinity concept in symbolic algebraic form called Holors. Holor algebra was standardized and further developed by Professor's Spencer and Moon in their book "*Theory of Holors*". Although this symbolic algebraic form is usually used for manipulation of mathematical entities such as matrices, determinants and tensors, I have found Holors useful for expressing simple philosophical arguments. They allow symbolic manipulation of qualitative concepts by using the standardized notion and operational procedures developed by Spencer and Moon. Modern scientists have used symbolic mathematical techniques to develop most all recent physical scientific theories such as quantum and relativity theories. Often their mathematics has shown results that were completely unexpected. Symbolic mathematics showed Paul Dirac, in 1932 that antiparticles should exist. Within a year the positron was discovered and it had characteristics identical to those his equations predicted. I want to show how I used holor expressions, in a similar fashion to define Christianity's Trinity and then to derive certain unexpected characteristics of Trinity's components.

A little background on the theory of simple holors may be helpful. A univalent holor is  $g^i = (g^1, g^2, \dots, g^n)$  This will be the form used for the Christian representation of God as the father, son and holy spirit as one. Quoting from Spencer, Moon "Thus  $n$  independent quantities (*father, son, holy spirit*) can be considered as a single hypernumber," (*God*) The italics are mine. The word holor comes from a Greek word, meaning whole such as our word holistic. It means all elements in a network form one holistic entity. This seems to be an ideal way to emphasize the Christian belief that the father, son and Holy Spirit are "one with God". Therefore the holor expression #1 below expresses in symbolic form what Christianity has expressed as the Trinity since the 4<sup>th</sup> century.

$$\text{holor \#1. } \mathbf{g^i} = (\mathbf{g^1}, \mathbf{g^2}, \mathbf{g^3})$$

where  $\mathbf{g^i}$  = God,  $\mathbf{g^1}$  = father,  $\mathbf{g^2}$  = son and  $\mathbf{g^3}$  = holy spirit. The super scripts are indexes not exponents.

We could therefore conclude by holor accepted theory that God is the father, the son and the Holy Spirit as integrated into one spiritual entity as required by the categorical imperative of Christianity.

**Father Explained:** The Catholic Catechism includes as part of its definition of the Father as: “---as the creator, the origin of all things” --- so the Father can be considered all the *laws of nature* that were used to create and evolve the Universe and Life within it. I would prefer to say the Father,  $\mathbf{g^1}$  IS the universal and necessary *laws of nature* as discussed several times in my booklet “The New Natural Theology”. Our scientists and mathematicians are attempting at least to partially replace the mystery in our understanding of God’s *laws of nature* with the rationality of symbolic mathematical expressions.

**The Son Explained:** The Catechism includes in its explanation of the phrase Son of God “--- is the principle dramatic development of the story of Jesus of Nazareth.” Jesus preached the *word* of God to the human society and influenced human behavior in a very significant way for the past two thousand years. Christians have been studying the bible and listening to sermons in their attempt to fully understand and follow God’s *word* or what may also be considered his universal and necessary laws of human behavior. I would like to equate the son to the universal and necessary *word* of God that determines “good” human behavior. We could then say  $\mathbf{g^2}$  IS God’s word. Our theologians and lay parishioners are attempting to more fully understand God’s word by interpreting the bible through discussions with the clergy and bible study groups. They admit that they don’t currently completely understand the universal and necessary *word* of God.

**The Holy Spirit Explained:** The Catechism’s major points of explanation are the following: “the holy spirit is at work with the Father and Son from the beginning toward the completion of the divine plan...” This was at first difficult for me to pin down to something meaningful. But then through a lecture by Professor Jones of The Catholic University of America I discovered that the Holy Spirit really represented feelings and not something that could be understood logically without using the axioms of the Christian paradigm.

Now let us attempt to lower some of the mystery involved with the understanding of the Holy Spirit by manipulating the holor expression #1. I will solve Expression #1 for  $\mathbf{g^3}$  the Holy Spirit by taking some liberties in normal algebraic operational procedures.

The best that I can do to define the Holy Spirit for the new Natural Theology is to say it is the feeling of reverence that is especially felt during religious services in places of worship. God’s *laws of nature* and his *word* can be logically explored even though not completely determined. So the Holy Spirit can be determined only by being what is left after the *laws of nature* and human laws of behavior and God’s *word* have been put

aside from what we consider God to be. The Holy Spirit is ontologically unknowable. That is, it can't be expressed in words but it can be represented in Holor notation as:

$$\mathbf{g}^3 = \mathbf{g}^i - (\mathbf{g}^2, \mathbf{g}^3)$$

Saint Thomas Aquinas expressed this idea through his thought process he called “*separatio*”. He believed there were two separate kinds of immaterial things; the first kind was ontologically meaningless. They were unknowable and the second separate kind was those things that could potentially be determined, at least in part by human thought. The laws of nature and laws of human behavior are of the first kind and the Holy Spirit is of the second kind.

But do things of the second kind exist? Both Saint Thomas and Aristotle say they do if they can be shown to “be” through the following negative syllogism. “To be and not to be material are not the same” Negative syllogisms are used to obtain absolute proof of a mathematical theory. If one can obtain proof that there can be no possible refutations of the positive theory then the theory must be true. Saint Thomas Aquinas used this kind of thinking not only to prove that there is an unknowable Holy Spirit but also to prove that God exists. He used 5 syllogisms to prove the latter. But this proof was based on unproven axioms such as God is infinitely omniscience and good.

### **Am I a Christian?**

Emmanuel Kant, 17<sup>th</sup> century states the following:

1. A categorical imperative is unexceptionable.
2. A hypothetical imperative is exceptionable.

Since I believe in the Trinity and the Trinity is a requirement of Christianity, am I a Christian or am I a hypothetical Christian? The answer simply depends on whether the Trinity is a hypothetical or categorical imperative for Christianity. I suspect that it is a categorical imperative. The term hypothetical seems to be a negative term, but I don't think it should be interpreted negatively. Since I would like to be a categorical Christian and accepted into the Christian culture, I would rather state the question, “Am I a categorical Christian but maybe a hypothetical Catholic”? There are many statements in the Catholic Catechism that I believe are a categorical imperative for the Catholic faith. I quote the Catechism: “The bodily rising of Jesus from the dead on the third day after his death on the cross and the burial in the tomb. The resurrection of Christ is the crowning truth faith in Christ.” If this is a categorical imperative for being a Catholic I'm afraid I can't make it. So I can proceed to be a full blown Christian and still be able to make the sign of the cross before my daughter says grace.

I accept the fact that I can not meet all the categorical imperatives of any of the institutional religions of today but I find myself praying with my Catholic family and looking at the clouds in the beautiful blue skies and worshipping God as the image of Christ is forming in my upper cortex. I feel reverent and euphoric in my personal developing Christianity.

# Christian History

Period Name	Summary	Religious Impact	Date
Birth of Christ	In Bethlehem or Nazareth	His birth & Christmas was the 1 <sup>st</sup> foundation for Christianity	4bce
Crucifixion	Jesus traveled to Jerusalem expecting to be executed	His suffering on the cross was the 2 <sup>nd</sup> foundation for Christian belief.	30
Apostolic Fathers' letters	The Apostolic Fathers wrote letters some of which became the 27 books of the New Testament	Early believers were confused as to which version was true	50 – 150
Martyrdom	The Apostles Paul, Peter, Polycarp, Ignatius all willingly submitted to violent execution by beasts or fire.	The glory of emulating Jesus' suffering that allowed them to join the Kingdom of God was worth their immediate suffering.	100-312
Constantine Conversion	Roman Empire becomes officially Christian	Martyrdom ceased but Jews were looked down on.	312-476
Council of Nicaea	A council of 318 bishops declared Christ was human as well as being divine.	The 3 <sup>rd</sup> foundation for Christian belief was settled.	325
Augustine	The Trinity was first preached	The 4 <sup>th</sup> belief foundation	400
Holy Roman Empire	The Italian, Grecian Empire was defeated by the Turks. The Holy Roman Empire in Germany formed.	There was Christian confusion on doctrine and many territory wars were fought during this period.	800-1330
Crusades	European Christians unsuccessfully fought Islam in attempt to conquer Jerusalem.	The West's reputation was hurt, even to this day by such aggressive violent behavior.	1096-1272
Plague & Famine	30% death rate for entire western population during this period	Christians began to worship privately instead of in church	1350-1385
Saint Thomas Aquinas	St. Thomas used Aristotle's philosophy and showed natural philosophy and Christianity were compatible.	He formed a foundation for the Natural Theology later preached by Bishop Baker.	1250
The Great Schism	There were up to 3 popes at one time. There was much corruption. The council of Constance ended the Pope problem.	Many wanted to remain with their present faith but wanted Catholic reformation	1378-1418
Reformation	Luther was excommunicated for his attempt at reformation	Many Protestant faiths were formed. Many years of religious wars followed.	1500
Inquistiion	Spanish Kings tortured and executed those that didn't accept their Catholic doctrine.	This encouraged the formation of many more protestant faiths throughout Europe..	1478-1502
Enlightenment	Galileo produced data showing the Earth revolved around the sun.	Christian bishops prosecuted him for heresy	1642
Enlightenment	Newton used the new calculus to explain God's natural philosophy	This completely explained how God created & ran the Universe	1687
Natural Theology	Bishop Baker preached Natural Theology	God's <i>laws of nature</i> and his <i>word</i> were explained	1710
US Revolution	The US constitution was signed religious freedom emphasized	Christian principles were taught and practiced	1776
Darwin Evolution	Darwin published <i>The Origin of Species</i>	Christians rejected this theory but scientist did not.	1858
Constitution	The Constitution was based on religious ideals and provided for religious & personal freedom.	It made United States open to many kinds of religious faiths that were practiced with passion.	1776
Civil War	It freed the slaves and declared all have equal rights	Blacks could now openly pray instead of doing so in secrecy.	1861-1865
New Science	Relativity, Quantum Mechanics were developed and later DNA Self-Organization and dark energy were added to our understanding of nature.	These theories improved our understanding of how God created life and the Universe and at the same time allowed room for faith.	1910-1998
Post Modernism	Philosophical criticism of science.	Allows for rational religion.	2008

## History's Phase Dates

Time since creation = Tsc    Time ago = Tago    actual date = (bce/ce)

Description	Code	time	Units
Universe created	Tsc	$10^{-45}$	Seconds
Inflation, current physics applies	Tsc	$10^{-35}$	Seconds
Quarks form	Tsc	$10^{-32}$	Seconds
Protons & neutrons form	Tsc	$10^{-6}$	Seconds
Electrons and positrons form	Tsc	.02	Seconds
Atoms form, electrons join nuclei	Tsc	380	Thousand years
Gaseous nebulae form	Tsc	0.5	Billion years
Stars, Galaxies & Super Novae	Tsc	1	Billion years
Milky Way & heavy elements	Tsc	4	Billion years
Sun, nebulae with heavy elements	Tsc	8	Billion years
Earth and planets form	Tsc	8.5	Billion years
Earth stable ( <i>note changed scale</i> )	Tago	4	Billion years
Complex molecules form 1 <sup>st</sup> life	Tago	3.85	Billion years
Cellular life forms	Tago	2	Billion years
Cellular life with DNA, bisexuals	Tago	1	Billion years
Internal organs & bones evolve	Tago	700	Million years
Large reptiles small mammals	Tago	70	Millions years
Larger and smarter mammals	Tago	65	Millions years
Anthropoids forward looking eyes	Tago	20	Million years
Hominids, 1 <sup>st</sup> to walk upright	Tago	7	Million years
Australopithecus hominids, Lucy	Tago	3.2	Million years
Homo erectus, hominid with tools	Tago	1.9	Million years
Homo Sapiens, (we finally arrive)	Tago	125	Thousand years
1 <sup>st</sup> Civilization Egyptian Empire	Bce	3000	Date
1,400 years of wars with Greece	Bce	2000	Date
Old testament 1 <sup>st</sup> writings	Bce	600	Date
Persian Empire rules	Bce	550	Date
Grecian Empire rules	Bce	300	Date
Roman Empire rules (pre Christ)	Bce	200	Date
Jesus Christ Born	Ce	4	Date
Roman Empire (post Christ)	Ce	100	Date
Christian Roman Empire	Ce	312	Date
Islam rules	Ce	500	Date
Crusades	Ce	1200	Date
Spanish Inquisition & new world	Ce	1300	Date
Plague Drought & Famine	Ce	1346	Date
100 Year Wars	Ce	1350	Date
US revolution & constitution	Ce	1776	Date
20 <sup>th</sup> Century Wars	Ce	1916	Date
Terrorist Wars	Ce	2001	Date

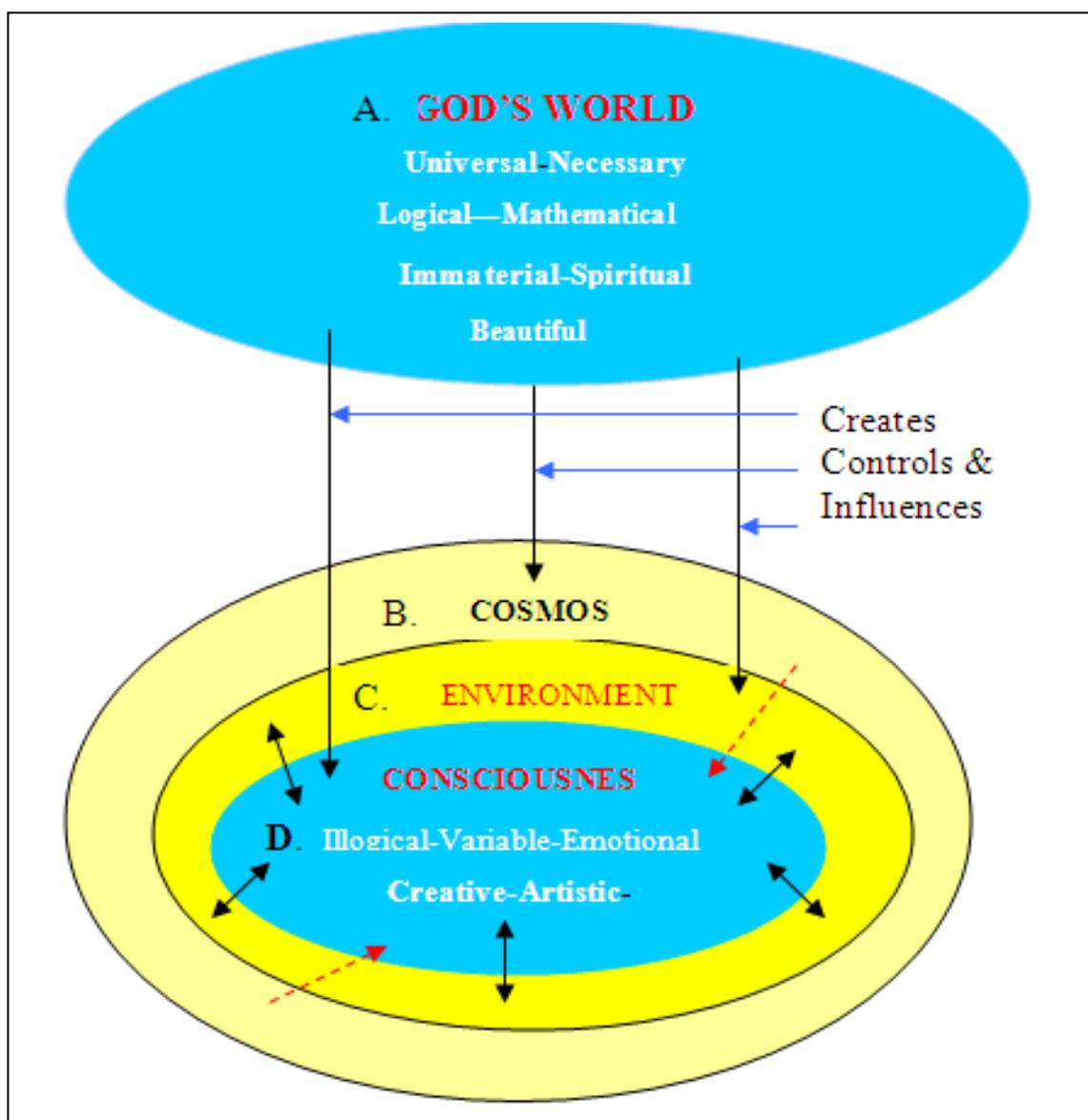
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Telephone for ordering courses from the Teaching Company: 1-800-832-2412

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	Title	Author	Publisher	#	Hrs	Title	Lecturer
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2	The Anthropic Principle	Barrow & Tipler	Oxford 1952 University P	29	36	Philosophy of Science	Prof. Jeffrey Kasser
3	Climbing Mount Improbable	Richard Dawkins	W.W. Norton & Company 1997	30	72	Biology: the Science of Live	Prf Stephen Nowicki
4	The God Delusion	Richard Dawkins	Houghton Mifflin Company 2006	31	24	From Jesus to Constantine	Prof Bart Ehrman
5	Wonderful Life	Stephen Gould	WW Norton & Company 1989	32	12	The Historical Jesus	Prof Bart Ehrman
6	At Home in the Universe	Stuart Kauffman	Oxford 1995 University Press	33	12	The Birth of the Modern Mind	Prof. Alan Kors
7	Dreams of a Final Theory	Steven Weinberg	Pantheon Books 1992	34	12	The United States & the Middle East	Prof Salim Yaqub
8	Origins	Neil Tyson Goldsmith	WW Norton & Company 2004	35	24	Origins of Life	Prof Robert Hazen
9	The Mind of God	Paul Davies	Simon & Schuster 1992	36	24	Science Wars: What Scientists Know	Prof Steven Goldman
10	Scientific Revolutions	Thomas Kuhn	University of Chicago . 1996	37	24	European Thought in the 19 <sup>th</sup> Century	Prof Lloyd Kramer
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12	The Quantum Brain	Jeffrey Satinover	John Wiley & Sons 2001	39	36	The Wisdom of History	Prof Rufus Fears
13	The Language of God	Francis Collins	Simon & Schuster 2006	40	12	My Favorite Universe	Prof Neil Tyson
14	Chaos	James Gleick	Viking Penguin Inc. 1988	41	12	Consciousness & Its Implications	Prof Daniel Robinson
15	The Blind Watchmaker	Richard Dawkins	WW Norton & Company 1986	42	36	Biology & Human Behavior	Prof Robert Sapolsky
16	Quantum Mechanics	Robert Russell	Vatican 2001 Observatory	43	24	Dark Matter, Dark Energy	Prof Sean Carroll
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20	When Science Meets Religion	Ian Barbour	Harper Collins Publishers 2000	47	24	European Thought & Culture in 20 <sup>th</sup> Century	Dean Lloyd Kramer
21	Evidence of Purpose	John Templeton	Templeton 1994 Foundation	48	24	Particle Physics	Prof Steven Pollock
22	The Crisis of Islam	Bernard Lewis	Random House 2002	49	24	Meaning from Data (statistics)	Prof Michael Startbird
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24	The Universe Story	Brian Swimme	Harper Collins Publishers 1992	51	48	Understanding the Human Body	Prf Anthony Goodman
25	Microsoft Encarta	Microsoft	Microsoft 2005 Edition	52	48	The Great Ideas of Psycology	Prof Daniel Robinson
26	The Inflationary Universe	Alan Guth	Perseus Books 1997	53	24	Existentialism the meaning of Life	Prof Robert Solomon
27	Phenomenon of Man	Teilhard de Chardin	Harper Torchbooks	54	18	Cycles of American Political Thought	Prof Joseph Kobyika

# God's Four Worlds

This drawing is my attempt to summarize “The New Natural Theology” It illustrates God’s transcendental world in dark Blue composed of the Father, the Son and the Holy Spirit as one. The Father’s *laws of nature* and the Son’s *word* are universal, necessary and are worthy of worship through the Holy Spirit. His physical miracles of creation are shown in yellow and his miraculous creation of life and consciousness are shown in light blue.



I have been taught and trained for 80 years to be a deterministic engineer and the New Natural Theology has given me the ability to worship God as the Father, the Son and the Holy Spirit that makes me feel part of my family and my community.