February 2005

God, Mankind, and the Universe

Eight years ago last August, I wrote a paper to the family entitled “Closed Minds and Martian Rocks.” The underlying concept dealt with the vastness of space and the incredible discoveries science had made regarding the solar system, our galaxy, the cosmos, and the avalanche of new information that had come forth regarding the earth and our place in it. The purpose of that paper was to contrast God, man and the universe and address the concepts of spiritual insight, and testimony. What follows is an update and abridgement.

Over the past eight years leading scientists dealing with the submicroscopic universe, (quantum mechanics) and the large-scale universe (general relativity) have openly begun to discuss God as the mastermind behind all of creation. This is a significant shift and particularly surprising in light of the pressure on scientists and university professors to be politically correct. The belief that all of reality is mere matter and that random processes produce complexity has been battered by advances in mathematics, physics, chemistry, and genetics. Randomness doesn't produce order without the prior existence of information and a directed process.[1]

Some of the leading scientists of our time have recently stated in public interviews that there appears to be some form of super intelligence organizing and directing the evolution of things. In a television biography on the life of Stephen Hawkins (the world-renowned astro-physicist, mathematician, and the man commonly referred to as the most brilliant scientist since Einstein), comments by scientists in the program questioned why people were so reluctant to refer to the organizing mind of the universe as God. In addition to Stephen Hawkins himself, several astro-physicists portrayed their scientific endeavor as the act of trying to understand the “mind of God.”

[1] Although I am not a “creationist” in the traditional sense of the term, it is interesting that there appears to be an irreconcilable conflict, rarely reported in the mainstream media, between the essential sciences of physics and mathematics and that of the naturalistic theories of the universe. For example, even an inconceivably tiny change in any one of the four forces of physics would have resulted in a universe without galaxies, stars, atoms, or even nuclei -- and, thus no life. Higher mathematics actually fits the cosmos, and does so in ways that cannot have arisen from evolution or survival advantage. That is not to say that physicists and mathematicians are arguing against the gradual emergence of life, merely against its happening by chance. Randomness and naturalism, the reigning dogmas in high school and university textbooks, have no support in math and physics. (See The Case Against a Random Universe, by Daniel C. Peterson and William J. Hamblin)

All in all, it feels as though we are on the verge of a massive paradigm shift that dwarfs anything else that ever rocked the intellectual world.

Physics is the most fundamental of the sciences. It underlies chemistry, which in turn underlies the life sciences. Everything familiar to us begins with, and rests upon physics.[2] When the laws of physics are applied to the cosmos the process is called astrophysics. It is interesting that it is the world's top astro-physicists that have been most forthcoming about their search to reveal "the mind of God."

Whereas my personal interests lie in the fields of history and anthropology (archeology in particular), I find scholastic disciplines of this nature not particularly scientific because, in the end, they offer only opinions and conjecture. All written history, along with most of the declarations coming forth from the study of anthropology and archeology, ultimately reflect the author's worldview, even if the writer endeavors to be "fair and balanced." These fields of study sometime employ scientific methodology, but their conclusions will always remain theoretical. It is therefore curious to me that it is anthropologists that seem to be the most vocal in presenting an atheist view whilst promoting theory as fact. In this regard I find myself agreeing with the late outspoken master physicist Lord Rutherford when he stated flatly, "In science, there is only physics. The rest is stamp collecting." Put a little strong perhaps, but he makes the point of what is, and what is not, real science.[3]

Scientists can do the most remarkable things. "If someone strikes a match on the moon, they can spot the flare.[4] From the tiniest throbs and wobbles of distant stars they can infer the size and character and even potential habitability of planets much too remote to be seen. With their radio telescopes they can capture wisps of radiation so preposterously faint that the total amount of energy collected from outside the solar system by all of them together since collecting began (in 1951) is less than the energy of a single snowflake striking the ground."[5]

The curious now have at their disposal machines so precise that they can detect the weight of a single bacterium and so sensitive that readings can be disturbed by someone yawning 75 feet away. These incredible devices tell us stuff like… one hundred billion neutrinos originating in the sun pass right through every square inch of our bodies every second of every day. Or… the sun loses material from its

[2] Neil DeGrasse Tyson and Donald Goldsmith, Origins, 2004, Norton & Company, New York, p.51
[3] When thinking in these terms it is helpful to remember that chemistry, geology and the life sciences all derive from physics, whereas sociology, psychology, anthropology and similar studies, do not.
[4] Although I love this quote by Carl Sagan, the fact is that one could not strike a match on the moon because there is no oxygen.
[5] Carl Sagan as quoted by Bill Bryson, A Short History of Nearly Everything, 2003, Broadway Books

surface at a rate of 200 million tons per second.[6] This kind of bizarre data reminds me of the Red Queen in Alice in Wonderland, who claimed that with practice, one could believe six impossible things before breakfast! (Perhaps it was the White Queen that said it…but you get the point.)

Since the planet Pluto was discovered in 1930 we have been taught that the earth was one of nine planets that constitute our solar system. But, in 2002 astronomers discovered Quaoar, followed in 2003 by Sedna, and in late 2004 yet another frozen world was located in our solar system. All three of these recently discovered planet-like worlds circle the sun out beyond Pluto. It is now widely believed there may be several more large planet-like bodies in our solar system inasmuch as only 15% of the sky has been surveyed for objects in the area of the Kuiper Belt, (pronounced Kiper.)[7] Although these three newly discovered celestial bodies are technically planets by definition, they will likely not be referred to as such and in fact, Pluto may lose its planet status once a new definition is agreed upon.

In addition to planets and planet-like globes, the solar system contains at least ninety-five moons. Some of these moons are essentially worlds in their own right having active volcanoes and possibly oceans of a sort that may harbor life. Several of these moons are larger than the planet Mercury and eminently more habitable. Our local solar system is also home to numberless asteroids, at least two-dozen of which are about the size of the state of Oregon. The larger asteroids, with which we are familiar, circle the sun in the asteroid belt between Mars and Jupiter right along with tens of thousands more of varying sizes.

Our solar system is located in the Milky Way galaxy. A galaxy is a giant collection of stars and their accompanying planetary systems. A galaxy is essentially an island universe separated from other galaxies by unbelievably large distances of apparently empty space. But, even within the galaxies, the amount of empty space is still absolutely enormous; the average distance between stars is on the order of 20 million millions miles.[8] Our galaxy is about 120,000 light-years[9] in diameter and contains upwards of 400 billion stars. It is now believed that many, or even most, of these stars are potentially capable of having planetary systems. Our sun, with its

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[6] Neil DeGrasse, Origins, 2004, Norton & Company, New York, p.201

[7] Pluto and its large moon Charon are embedded in a vast swarm of icy stuff known as the Kuiper Belt. Some Kuiper Belt objects appear to have been produced by an ancient collision that created the Pluto-Charon system. The total number of Kuiper Belt objects is believed to be about 100,000.

[8] A million millions are actually a trillion but somehow the term “trillion” doesn’t seem to explain it.

[9] Expressed in common terms, light speed is 670 million miles per hour. A light year is simply the distance light will travel in a year calculated at the constant speed of 186,847 per second, times 60 seconds, times 60 minutes, times 24 hours, times 365 days. The sum is 6 million millions, or 6 trillion miles. Six trillion miles multiplied by 120,000 is the rough diameter of our local galaxy.

array of planets, moons, asteroids, etc., is located approximately half way out from the center of the Milky Way galaxy on one of its spiral arms. A galaxy is unimaginably huge, but there is an even larger structure than a galaxy; it is a super cluster, or a meta-galactic system, which is in essence a group of galaxies circling one another in one area of the universe. Some of these groups contain up to a thousand galaxies. Our Milky Way is part of a super cluster of 30 galaxies. One of our close neighbors in the Local Group (yep that's what it's called) is the giant Andromeda galaxy with over a trillion stars! The enormity of the numbers boggles the brain!

Ever since Einstein uttered his famous dictum E=MC^2 we've known that energy and mass are two sides of the same coin. Greater energy means greater mass, and vice versa. Numerous elements of Einstein's theories of Special and General Relativity have been confirmed again and again insofar as scientists are able to test and validate the far-reaching implications of these critically important explanations of the large. However, at the subatomic level relativity falls apart and quantum mechanics, an equally important and central piece of physics, comes to play. Both relativity and quantum work beautifully at their own levels but are exclusive to their worlds of size, and each fail miserably to explain anything outside their own realm. Perhaps the largest problem with this reconciliation is that general relativity demands gravity and clockwork predictability, and quantum mechanics seems to ignore gravity and instead asserts the uncertainty principle. Oddly enough both theories are demonstratably true, as something akin to organized chaos reigns at the subatomic level, the exact opposite of structures larger than the subatomic. Thus, the two most compelling bodies of work central to physics today are currently incompatible. But, this may soon change.

There is massive effort to articulate a unified Theory of Everything, generally referred to as the T.O.E. The TOE will have to meld relativity and quantum, which is what String Theory attempts to do. There has recently been a renewed interest in a modified version of an earlier string theory, now called Super String Theory[10] and it just may provide the framework to explain the conflicts between relativity and quantum along with the WHY of the four forces of physics.[11] At its core, string theory says that the most elementary particles, originally thought to be the atom before the discovery of protons, neutrons, electrons, etc., are infinitesimally small vibrating strings of energy.

[10] String theory is essentially a quantum theory that includes an explaination of the gravitation force.
[11] During the past one hundred years physicists have accumulated evidence that all of the interactions between various objects and materials can be reduced to combinations of four fundamental forces. These are: the gravitational force, the electromagnetic force, (this one includes visible light, radio waves, x-rays, gamma rays, etc.), the weak force, and the strong force.

As it turned out, atoms were made of protons, neutrons and electrons, which in turn are comprised of even smaller elements called quarks, or at least the protons and neutrons are. Quarks are pretty odd. There are up quarks and down quarks, top quarks and bottom quarks, charm quarks, and (believe it or not), strange quarks. They come in three varieties, referred to as red, white, and blue, and to make it even weirder, quarks are thought to use gluons, a mass-less force particle, to "glue" them together into various combinations.

Super string theory claims that the mass of elementary particles is determined by the energy of the vibrational pattern of each particle's internal string. If correct, there is only one basic building block of physical creation. The elementary particles would then constitute a google of infinitesimally small vibrating strings. Heavier particles are thought to have internal strings that vibrate more energetically; lighter particles to have internal strings that vibrate less energetically.

Differences between the identical elementary particles apparently arise because their respective strings undergo different resonant vibrational patterns. Another curiosity is that they are believed to vibrate in higher-dimensional hyperspace, or in other words, in as yet undiscovered dimensions. Ergo, "what appear to be different elementary particles are actually different notes vibrating on a fundamental string. The universe is composed of an enormous number of these vibrating strings and therefore it is something akin to a cosmic symphony. Every particle of matter and every transmitter of force consists of a string whose pattern of vibration is its fingerprint." [12] Perhaps the most interesting part of Super String theory is that it calls for eleven dimensions rather than the three physical dimensions with which we are so familiar plus the fourth dimension we know as time. (The basic three dimensions are width, length, and depth, or perhaps easier to grasp: left and right, forward and backward, and up and down.) The extra dimensions of Super String are believed to play out their roles at the tiniest possible subatomic levels but profoundly influence the basic physical properties of our universe.[13]

Until rather recently, the major problem with string theory has been that there were at least five versions of the theory and physicists were beavering away in different directions. Along came a fellow named Witten who observed that what appeared to be dissimilar theories were essentially different aspects of the same concept. (Sort of like describing an elephant by grasping different parts of it blindfolded.) Witten named his amalgamation of the five approaches to string theory, the M-

[12] Brian Greene, The Elegant Universe, 2003, Vintage Books, New York, p.146

[13] Stephen Hawking, the most brilliant theoretical physicist of our time, thinks it possible to travel through a wormhole to another universe or to another time. He reasons that an advanced civilization could exploit a subatomic wormhole and inject information (DNA, etc.) via nanotechnology to re-create a cloned civilization in another time or in an entirely different universe.

theory. The movie "The Matrix," appears to have co-opted various elements of M-theory and wove them into a science-thriller. Maybe the "M" does stand for the term "matrix," or perhaps "mystery," or maybe it means the "mother of all theories." Anyway, Witten's observation that the work done on all five approaches are likely valid has put a new shine on the enthusiasm with which physicists are anxiously pursuing an integrated Theory of Everything.

Some of the strange conclusions that quantum physics portray come out sounding absolutely wacky as it clearly states that things like elementary particles are actually just a wave of probabilities that coalesce into existence only when observed. This process is generally referred to as the "quantum collapse." Thus, quantum physics is now telling us that the things we think of as most static and real, the stuff that matter is made up of, i.e.: atoms and their sub-atomic particles, are actually only a fuzzy cloud of probabilities jumping in and out of existence and that there is really nothing physical about physical matter! The bottom-line is that we now know that matter (the objects we have always seen as most solid and firm), is virtually nothing more than a wisp of charged energy in mostly empty space. Thus matter, at its basic sub-atomic structure, has more in common with the energy equivalent of a thought. In fact, many leading physicists are now suggesting that all of reality is actually projected thought, which curiously enough has led many of them back to contemplate the meaning of God inasmuch as the entire concept bespeaks intelligent design.

Based on everything we've come to believe from our life-experiences the recent "discoveries" of quantum physics is truly bizarre and certainly non-intuitive. Nevertheless, it may just be that life is a sophisticated program designed to educate and enlighten or allow us perceived encounters in a manufactured environment. If we are indeed experiencing a kind of temporal holodeck life within some form of projected quantum matrix, it leads directly to the question: Who is running the program?[14]

Thinking about the large, the very large, and the very small, brings to mind a prophetic utterance:

> "All kingdoms have a law given and there are many kingdoms, for there is no space in the which there is no kingdom, and there is no kingdom in which there is no space; either a greater or a lesser kingdom. And, unto

[14] As strange as it may seem, these are the conclusions arrived at by numerous physicists around the globe. And, lest one think there is no basis in quantum theory let us remember that this is the science that all our recent technological goodies, everything from computers and cell phones to electronic inventions, have been based.

every kingdom is given a law, and unto every law there are certain bounds also and conditions."[15]

One last comment on super string theory…as it turns out it provides a rather sophisticated and theoretically sound connection between black holes, (the stuff of general relativity), and that of elementary particles, the domain of quantum mechanics. Hmmm…curiouser and curiouser, said Alice in Wonderland.

So…the cosmos and the subatomic world are much more fantastic than we dared think just eight years ago. Black holes[16] are now a demonstratable reality, and it appears that they form the center of most, or even all, of the galaxies that fill the universe and are likely galaxy causative. The black hole at the center of our galaxy has a mass of more than 3 million times that of our sun.[17] Another major discovery by the end of 2004 was that dark energy (whatever that is) apparently makes up 73% of the known universe, dark matter 23%, and the things we can see and observe such as planets, stars, gas clouds, etc., constitute a mere 4% of the entire universe.[18]

Recent estimates suggest there are somewhere between 200 to perhaps as many as 1,000 billion galaxies in the known universe, each of an average magnitude of possibly 200 billion suns which in turn are likely accompanied by trillions of planets, and googles of moons and asteroids, etc. The number of stars and planetary systems is simply beyond our capacity to number, which echoes an ancient explanation for our modern discoveries:

" And the Lord God spake unto Moses, saying: The heavens, they are many, and they cannot be numbered unto man*:* but they are numbered unto me, for they are mine. And as one earth shall pass away, and the

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[15] Doctrine and Covenants, 88:36-38

[16] In astronomy, a black hole is a celestial object of such extremely intense gravity that it attracts everything near it and in some instances prevents everything, including light, from escaping its gravitational pull. The primary way a black hole is thought to develop is when a very large star begins to collapse in on itself. According to physicists, once the nuclear fire of a large sun begins to wane, nothing remains to prevent the star from collapsing without limit to an indefinitely small size and infinitely large density, a point called the "singularity." At the point of singularity, the effects of Einstein's general theory of relativity become paramount. Space becomes curved in the vicinity of matter; the greater the concentration of matter, the greater the curvature. When a star shrinks below a certain size, as determined by its mass, the extreme curvature of space seals off contact with the outside world. The place beyond which no radiation can escape is called the event horizon. Because light and other forms of energy and matter are permanently trapped inside a black hole, it can never be observed directly. However, a black hole can be detected by the effect of its gravitational field on nearby objects, or by the X rays and radio frequency signals emitted by rapidly swirling matter being pulled into the black hole. Source: Columbia University Press

[17] Michio Kaku, Discover Magazine, December 2004, p.50

[18] Summaries from the 2003 Wilkinson Microwave Anisotropy Probe designed to analyze cosmic radiation

> heavens thereof, even so shall another come; and there is no end to my works, neither to my words."[19]

Cosmologists, (scientists that study the cosmos), tell us that the entire galactic process is one of stars, and probable planetary systems, being birthed in stellar nurseries, maturing through many phases and eventually, over unbelievably long periods of time, either exploding into space or shrinking into black holes.[20] In either case matter becomes chaotic and disorganized and is eventually reprocessed into new stars, planets, or other celestial objects. The whole concept is one of inconceivable scope summed up by the renowned biologist J.S Haldane, when he said: "The universe is not only queerer than we suppose; it is queerer than we can suppose."

Astronomer Frank Drake, the co-founder of SETI, developed an equation to predict intelligent life in the Universe. To be brief, projections suggest there is, or has been, something on the order of tens of thousands, to even tens of millions, of civilizations in our Milky Way galaxy, depending on various premises. The number could be exponentially higher, with some form of living organisms in as many as all 400 billion sun systems in the Milky Way. One must admit that it seems thoroughly reasonable that with all these trillions of likely planets circling all of these billions upon billions of suns, in our galaxy alone, logic demands there is life out there. This conclusion is mirrored by ancient prophecy:

> "And worlds without number have I created; and I also created them for mine own purpose; and by the Son I created them, which is mine Only Begotten. And the first man of all men have I called Adam, which is many. But only an account of this earth, and the inhabitants thereof, give I unto you. For behold, there are many worlds that have passed away by the word of my power. And there are many that now stand, and innumerable are they unto man; but all things are numbered unto me, for they are mine and I know them."[21]

The most recent scientific reports claim the universe is 13.7 billion years old and our local solar system, including the earth, is about 4.5 billion years of age. Whether the exact age is right or wrong is perhaps not as important as the concept that our earth is much younger than other areas of the universe. In other words,

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[19] Moses, 1:37-38

[20] Mathematician Roy Kerr showed that a rapidly spinning black hole will collapse not into a dot but rather a rotating ring that cannot break down because of centrifugal forces. A Kerr ring has the same topology as Alice's looking glass; the wormhole at its center might connect our universe to other points in the same universe or to an infinite number of parallel universes. In July of 2004 Stephen Hawking reversed himself and decided we might be able to retrieve information back from a black hole.

[21] Moses, 1:33-35

assuming life has existed elsewhere for eons of time before the earth was formed, it should not take much of a leap of faith to believe there exists incredibly advanced society somewhere out there amongst the stars.[22]

Let's change gears for a moment and consider how far humankind has come in just the past hundred years. Electronics did not then exist. In fact, a mere century ago scientists did not even agree on the concept of the atom; its theoretical model was still controversial.

Consider what it might be like to go back in time with all our working gadgets a 1000 years when 80% of the people died of tooth and gum decay. How would one explain a flashlight, a microwave oven, a cell phone, a portable computer, television, a digital camera, a gun, or any other of a myriad of devices, to people so backward there was not one in a thousand that could even read? Surely our technology would brand us wizards of the highest order. In fact, the incredible power and knowledge we would possess on a comparative basis would surely elicit a worshipful response from many, particularly if we used our knowledge and technological goodies to help others. (Then again, we might have a similar reaction if we just shot people.)

By comparison, how would we view a civilization a thousand years ahead of us? Would we, or could we, even comprehend a society so advanced? If the last thousand years has made such an incredible difference in the development of mankind, what might a culture a billion years ahead of us look like? This would surely be a society so advanced that their power was unlimited, (at least from our point of view), and their knowledge so beyond us that we would be little more than wide-eyed, pre-school-aged children, if even that?[23] What would we call beings so advanced that death was only ancient history? What would they consider to be their purpose for existence? What might their work and glory consist of? Consider this prophetic utterance:

> "And God saw these souls that they were good, and he stood in the midst of them…We will go down, for there is space there, and we will take of

[22] One of the more recent theories now making the rounds of the scientific community suggests that life arrived to earth via meteors from other parts of the universe where it was already in full blossom. In other words, life began somewhere else and eventually arrived here.

[23] Russian astro-physicist Nikolai Kardashev classified advanced civilizations according to their energy consumption. A Type One could derive limitless hydrogen from the oceans, perhaps harness the power of volcanoes, and control the weather. A Type Two civilization could control the total output of the sun itself and derive energy from solar flares and antimatter. They would be able to effectively utilize 10 billion times the power of a Type One civilization. A Type Three civilization would be 10 billion times more powerful still, capable of controlling and consuming the output of an entire galaxy. This society would extract energy from billions of stars and black holes.

these materials, and we will make an earth whereon these may dwell. And we will prove them herewith… And the Gods watched those things which they had ordered until they obeyed."[24]

Of course, a society that is older does not necessarily mean it is wiser, just as having greater technical information at your fingertips does not mean one has more wisdom. But there are a number of logical reasons to believe that a much older and progressed civilization…one that continued to exist…would of necessity be more mature and enjoy significantly greater wisdom than do we. (This argument is more fully developed in footnote [25].)

It seems reasonable that a civilization that has progressed for a billion years longer than our own would have survived only if their ethical and moral standards evolved to perfection. The only other reasonable option would require the individuals in such a society to be so controlled that only a single ruler held all power and knowledge. (Review footnotes 22 & 24 in this light.) In other words, a highly advanced society, in order to survive, must ultimately choose a course of scrupulously correct decision making for all concerned or one bad apple could put everyone else out of business. Based on this premise I submit that Deity is logical.

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[24] Abraham 3:23-25, 4:18

[25] In the case of a technologically advanced civilization there is a strong case for greater individual and societal maturity. The laws of mathematics and physics appear to be universal, and we have no particular reason to believe otherwise, therefore any advancing civilization will ultimately discover similar realities. This should be true regardless of the biological environment. For example, we know that spectral light, sound waves, x-rays, gamma rays, etc., are prevalent throughout the known universe. The basic building blocks of stuff (the elemental properties) seem to be everywhere observable.

Although it's reasonable that a number of elements exist of which we are not yet aware, every meteor that falls to earth contains the same things of which we are now familiar, i.e.: iron, magnesium, gold, etc. This suggests that if the basic building blocks of matter are everywhere present, then the basic scientific truths are actually universal laws. So...if the older civilization that we speculate exists and it has survived, it has done so having had to cope with a number of things on a relative basis with which we are now familiar, such as life and death, heat and cold, light and darkness, pleasure and pain. And, as this older civilization continued to discover the essential universal laws and apply them to technological development, at some point they would have discovered and evolved a nuclear world. It has been well argued in the past that the greatest risks to the survival of an advanced civilization are nuclear and biological. At this point in the evolution of an advancing society, the power to destroy the many can be controlled by the few. Today the world's superpowers are trying desperately to control the proliferation of nuclear arms and devastating biological agents, yet they are still in great abundance. For example, there are enough nuclear missiles to kill every human on the planet ten times over. It may not be long until wealthy individuals, or perhaps even criminals, will have access to massive destruction capabilities.

What we are now experiencing is absolutely amazing technological advances with only sporadic improvement in our emotional/spiritual development. This does not bode well for civilization at large and it is the very reason why many futurists worry about nuclear and biological capability. It is an open question as to whether or not a society can collectively mature to the point that individuals may be trusted with a power so awesome that a small group of persons by their own actions could unleash a holocaust so terrible that it could virtually destroy everyone in it.

Dennis McKay, a long-time friend and associate, summarizes the situation thus:[26]

- Due to stem cell research, spin offs from the genome project, etc., mankind will eventually be able to eradicate the causes of disease, aging, and death, and either reverse the effects of growing old, or grow replacement parts for damaged body parts.
- Given that man is a sentient being he will eventually abolish war as being counter-productive and costly. In other words, biological immortality will force mankind to eliminate war or constantly be at risk.
- The wise men living at this time (the immortals) determine that in order to further prolong life and achieve happiness, they must eliminate all negative actions. Accordingly, these wise men embark on a project of drawing up a constitution by which their world's citizens are obliged to accept or be expelled. The constitution contains such items as service to others, love of all, kindness, honesty, patience, forgiveness, etc.; in short CHARITY. This exemplar Constitution embodying the principals of CHARITY is not a "religious" document per se, but simply necessary too more efficiently perpetuate the race in a state of happiness and productivity.
- As new people are born, created, or come into being, it is necessary to determine if they qualify for the rarefied existence of their society. Will new prospective citizens voluntarily live by the Constitution of CHARITY? There needs to be a test! Each individual shall be left to themselves for some period of time under circumstances that will test their allegiance to good. (I have left my children alone enough times to know that in my presence they behave immeasurably better than when left to themselves. What they do when they do not think they are being observed is the real test of their character.)
- Thus it is that world's are organized with conditions sufficient for those interning on them to be tried in order to determine their ultimate loyalties. Each person will need food, shelter, clothing, and have their natural feelings of pleasure and joy fulfilled. They will be marked and judged on how they accomplish this.

The following brief scriptural excerpts relate to the formation of the earth, which seem particularly meaningful in view of this line of thought:

> "And the Gods said among themselves; On the seventh time we will end our work, which we have counseled… And thus were their decisions at the time that they counseled among themselves to form the heavens and the

[26] The McKay summary was produced by me using largely his words from various emails

earth… Abraham saw that it was after the Lord's time…for as yet the Gods had not appointed unto Adam his reckoning."[27]

"And it came to pass that Moses looked, and beheld the world upon which he was created; and Moses beheld the world and the ends thereof, and all the children of men which are, and which were created; of the same he greatly marveled and wondered… and he said unto himself: Now, for this cause I know that man is nothing, which thing I never had supposed… And the Lord God said unto Moses: For mine own purpose have I made these things.[28]

Recent advances in the mapping of DNA, coupled with improvements in medicine almost assure that at least some humans will have considerably longer lives than those of our predecessors. Gene specialists believe that it is only a matter of time until they are able to turn on and off various genes in humans the way they are already doing in plants and some animals. They are already touting their likely ability to "fix" or "replace" faulty pieces of DNA thereby allowing us to regenerate lost limbs like a crab, renew skin like a snake, hibernate like a bear, and live longer like a parrot or an olive tree; gene splicing and genetic restructuring promise huge changes in the near future. In fact, it is not hard to believe that within the next few decades that we may be able to extend human life in the developed world to an average of a hundred years or more. This assumes we do not blow ourselves back to the Stone Age or release a pathogen so deadly we are unable to cope.

If we are able to continue to add years to our lives and scientific discovery proceeds at it's current rate, (and technology is able to keep up with such discoveries), by the time those fortunate humans having access to all the most recent advances in medicine have lived a 150 years or so, there is a predictable likelihood that some few might become biologically immortal.

Shifting gears yet again, it strikes me that notwithstanding our growing cadre of knowledge and our incredible technological accomplishments, science is unable to answer the great philosophical questions that have intrigued all societies on earth, during all periods of time. The great questions are generally considered to be: Who am I? Where did I come from? Why am I here? Where am I going? There are many more important questions to be sure, but these four seem to be THE critical ones upon which everything else rests.

For some, the answers to the great questions are that we are simply a transitory sentient being comprised of materials made in the core of stars and that there is no

[27] Abraham 5:2-3, 13
[28] Moses, 1:8, 10, 31

purpose for our existence and we're going to die and that event will end our existence. If you are not satisfied with this kind of thinking, religious experience remains the only viable way to elicit answers to the great questions.

Most religious organizations feel some pressure to provide answers to the great questions, but few are able to conjure more than a cursory response. This leaves the serious investigator with a nagging fear that we really do not know who we are, where we came from, why we're here, and where we are going. But the alternative to seeking spiritual enlightenment is the position that the quasi-science of anthropology espouses with their declaration that there really are no answers to these questions because we are only evolved animals sitting atop the food chain. Ergo…we have no particular purpose other than to live, breed and die.[29] Admittedly, this may be an attractive doctrine for those wanting to suppress conscience and justify actions, after all, if there is no higher moral authority one is free to do virtually anything without pause, provided one does not openly violate society's laws…or at least get caught at it.

The typical way out of the religious dilemma for most people is to simply not think about it. Others sidestep critical thinking by glibly claiming they believe in spirituality, but do not believe in religion, a clever twist of terminology for most, but there is truth in it. Learning to live with a spiritual paradox is perhaps the great challenge of spiritual growth and acceptance. Some actually believe in the anthropologist's declaration. Curiously, the last choice may actually take the greater faith inasmuch as to believe we have no eternal destiny is in direct conflict with our intuitive understanding and forces us to tamp down what our emotions and subconscious quietly tell us to the contrary.[30] Ultimately, in the end, each of these approaches seems to leave us philosophically starved.

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[29] Logic and facts are supposed to be the realm of science but when words are shifted and redefined as they are in our textbooks, one can only assume that the truth is not the final goal but rather the promotion of an ideology. Biological laws do not spring accidentally from the laws of physics and chemistry. Self-organization of a biological system is impossible without prior information. Self-organization can produce ordered patterns in systems with an energy flow. But ordered patterns are irrelevant to the origin of life. No plausible theory has ever been developed whereby self-organizing systems could produce information. The origin of information, not the origin of complex patterns, is the central problem in origin of life scenarios. Living matter, as currently understood, could not have come from the laws of physics and chemistry. For example from the book, A Case Against Accident and Self-Organization, by Dean Overman, he states: "To construct a plausible theory for the origin of life, scientists need to discover a theory which explains the generation of complexity, not the generation of order. In terms of the formation of life, information content, such as found in the genetic code, is the stumbling block." To whit: the ordered patterns in the evolution of a fish are irrelevant to the origin of life. The problem is the impossibility of generating information (instructions in DNA) from the laws of physics and chemistry. If anyone has seen self-organization work to create life (which means create information), they should shout it to the world because no one currently has any plausible ideas concerning the source of biologically relevant information.

[30] Strange as it may sound, only one who believes in miracles of a sort can believe that the volumes of specified and instructive information contained in even the simplest conceived biological cell came about

The study of world religions usually does little to give one much confidence that mankind has a good grip on the great questions. However, as it turns out, individual study of the Judeo-Christian scriptures, and other religious works, is another matter entirely. Real enlightenment is an intensely personal experience; no one else can do it for you! The majority of people have probably had spiritual promptings at one time or another, but typically rather than follow these promptings on to the obtaining of greater knowledge and enlightenment, they get side-tracked by the world, lose focus, and become hopelessly mired in their circumstances.

Prophets and teachers from all over the world during many periods of time and from many different religious disciplines have sought inspiration and dared to seek answers to the world's great questions. Thankfully the Lord has seen fit that we may have answers. Consequently, many inspired men and women have found deeply satisfying resolution to life's perplexing puzzles. Looking back through history it seems that no single group had the complete franchise on insight and inspiration.

Our sun is one of many stars and its near twins exist in great numbers throughout the galaxy. For some reason the vast majority of religious institutions find this fact threatening. There is no particular biblical reason why life could not exist off world but most of those interpreting the Bible have historically taught that the earth was, in effect, the center of the universe. In an earlier time, scientific icons like Galileo were placed under arrest and incarcerated for claiming something so outlandish as the earth was revolving around the sun. Astronomer Giordano Bruno, a former monk, was burned to death for refusing to recant after stating he believed as much. Bruno was also of the opinion that the universe was so incredibly huge that there must be numerous other worlds peopled by God's children. Curiously, this was thought to be the greater heresy by the Roman church.

The reigning church of the western world taught that our planet was the literal center of the universe and notwithstanding Galileo's telescope and the mounting information to the contrary, it was unthinkable to believe otherwise. In a similar vein, up until about thirty years ago anyone who seriously considered the possibility of life on other planets was scorned by both science AND religion. Certainly, that was true for virtually all scientists, and it still is for most religionists. On a personal note, I vividly remember the derision and utter exasperation of my 8th grade science teacher for my even suggesting the possibility of life elsewhere in the

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by complete accident. The theory of evolution does not help because information is the essential ingredient of life and it must exist BEFORE evolution can operate! The catch-all phrase "evolution did it" does not work here.

universe. And heaven help you if you'd have suggested such a thing in most religious circles just forty years ago! It seems that currently acceptable philosophy, rather than fact, is the rule against which we tend to measure truth.

Most traditional institutions of religion, be they Christian, Muslim, Buddhist, or what have you, view their spiritual conviction as threatened by science. The geological timeline and Darwin come immediately to mind. But why should this be?

If we believe in God, Source, the Creator, or whatever name one would like to escribe to the universal creative force and his incalculable superiority to us, why are we so insistent on forcing God's methods of doing things into our limited opinions about how such things ought be accomplished? Why do we insist on God being unknowable, and yet demand He must have done things the way we believe they should have been done? Isn't it vastly more reasonable to believe that God is God because He has perfect knowledge and is therefore all-powerful, and that He is absolutely good with no exceptions? Isn't God supposed to be the embodiment of light, truth and love? The scriptures claim God is our Father in Heaven; do we dare to believe such a thing?

Is it reasonable to believe that what God does is done within the framework of universal law? Consider that if it were otherwise, God would be a changeable and arbitrary being like the gods of the ancient Greeks.

Shouldn't our personal pursuit of truth be just that…to seek after light and knowledge towards the end of discovering real truth, not just learning the currently acceptable philosophies of men? Truth is truth, no matter how one discovers it. Apparently, we are able to learn truth through common experience, training, thoughtful contemplation, scientific endeavor, and those flashes of insight, or enlightenment, (personal revelation) that through application and experiment are provably correct.

About 185 years ago, a 14-year-old backwoods farm boy from upper state New York claimed to have a new corner on religious truth. He said he had been visited by a celestial being that gave him authority to restore all things.[31] He said he had seen and spoken with God the Father and Jesus Christ and that they were two distinct individuals. He went on to observe that mankind was indeed in God's literal image, a doctrine so contrary to traditional Christianity at the time, that this young boy was immediately in jeopardy for his very life and eventually was killed by a murderous mob led by ministers of the day. (So much for Christian tolerance.) Before his death, and subsequent to his vision, he translated major works of

[31] Matthew 17:11, Joseph Smith – History, History of the Church, Volume 1, Chapters 1-5

scripture,[32] and restored what he claimed represented the early Christian church in fulfillment of prophecy.[33] The Priesthood, which anciently was the authority to act in the name of God[34], was also restored and the dispensation of the fullness of times was ushered in.[35] As required by the Bible, he organized his church based on Prophets and Apostles[36] to be directed by revelation,[37] and asserted without hesitation that there were worlds without number that contained life.

Ministers of the time were scandalized. Scientists were amused. Religious teachers of the period taught that prophets were no longer available to mankind. And, there were literally no scientific minds willing to concede that there might be life on other worlds in the 1800's. The backwoods farm boy was Joseph Smith, Jr.; the founder of the Church of Jesus Christ of Latter-day Saints, ("LDS"), commonly referred to as the "Mormons."

The Mormons have prospered in spite of severe initial persecution. They have become the most educated, healthy, and successful people in the world, not to mention the fastest growing Christian institution. It is also interesting to note, that the Latter-day Saints (LDS) community is able to lay claim to having more scientists as active participating church members than any other Christian faith. LDS philosophy has had a significant impact on religious communities all over the globe and numerous other religious groups have begun to co-opt and integrate elements of LDS doctrine, philosophy and culture into their own programs.

In the end, neither physics, nor any other science, is able to prove the truth of religious claims, but there is no question that a great deal of exacting light is now being shed on the topic of organized religions, and only one of them seems to flourish in the bright illumination of new scientific discoveries. And yes, that's right…it's the Mormons.

Thirty-five years ago, I was introduced to the LDS church as a consequence of my life-long interest in correlating Mesoamerican archeology with that of the ancient Middle East. Contrary to anything I had ever expected, the overwhelming evidence in the archeological record supported the claims of Joseph Smith.[38] Strangely, the

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[32] The Book of Mormon, the Pearl of Great Price, the Doctrine and Covenants

[33] Acts 3:17-21, Revelations 14:6, Matthew 17:11 "Throughout the entire Bible there are passages of scripture…hundreds and hundreds of them…reciting promises and recording covenants to be fulfilled in the last days, none of which can come to pass without revelation." Bruce R McConkie, Mormon Doctrine, p. 643-650

[34] See the entire Epistle of Paul the Apostle to the Hebrews and particularly 5:6,10, 6:20, 7:11, 17

[35] Ephesians 1:10

[36] Amos 3:7, 1 Corinthians 12:28, Ephesians 4:11

[37] Matthew 7:6-8,

[38] See "In Defense of an Obsession," a paper by the author, which comprises information gained from fifty-odd trips to the Mesoamerican area.

church was quiet on this point and did not teach these incredible correlations. In my case I was left to work out this information on my own, which I did with the help of independent researchers who were just then beginning to publish findings in this area. Intellectually stunned, I asked after the doctrine of the church from an acquaintance that was a member. Dr. John Mackey was both a PhD physicist and a PhD mathematician, so his approach to teaching me the concepts of heaven were certainly different than what most people might hear.[39] It's slightly bizarre that I still remember his reference to God's kingdom, as "N dimensions plus one", and frankly I'm still not really sure what that means. Nonetheless, John infected me with an abiding interest in a larger worldview and broader vision of the universe and all things within it. He encouraged me to view the Plan of Salvation, and Theology in general, in a way that embraced all the sciences and to see the pursuit of knowledge as the pursuit of eternal truth.

The incredible connections in the archeological record supporting Smith's claims, (almost all of which were discovered well after he was long dead), were simply astonishing to me! Couple this with the testimony of a highly intelligent scientist, and I was early on presented with a real quandary. Could I simply dismiss this information on the basis that it seemed so incredibly strange? If not, was it possible that the claims of Joseph Smith were true? But, if so, why would God, the Eternal Father and his only Begotten Son, Jesus Christ, appear to an uneducated farm boy in the 1820's in upper state New York?

The questions were endless but my temptation to dismiss the whole matter was counterbalanced by the credible testimony of a scientist and supported by my own unique Mesoamerican archeological associations. On the face of it, the entire matter seemed absurd. Smith's claims were so utterly over the top that it should be easy to expose them in light of 150 years of progress since his declarations. I was hooked and took up an aggressive investigation. Many nights I was still reading at daybreak. However, it was not long before I arrived at the point where the mere acquisition of more information did not deliver further insight, and wisdom on a subject seemed unattainable due to the mass of confusion and widely different interpretations of the data I was studying.

John suggested I seek spiritual insight. This was not an altogether foreign concept, as my mother was a devote Baptist and had taken me to church every Sunday of my youth, notwithstanding my father's agnostic views and my sister's eastern leanings, she also a double doctorate. As I was to discover, the process to spiritual enlightenment was the oft-repeated counsel to study, fast, pray and mediate. In other words, learn all you can, work things out in your mind and actively seek

[39] Many years later Dr. Mackey went on to gain a law degree and passed the Washington Bar exam.

spiritual confirmation for the tentative conclusions you've drawn, whilst remaining open for further inspiration.

For me, the studying, and thoughtful contemplation came relatively easy, sincere prayer was something to be learned, but listening for the "the still small voice," was another matter entirely, as was the concept of fasting to demonstrate sincerity and to become spiritually centered. The process requires serious effort. The good news is that it works. An ancient prophet shared these thoughts regarding spiritual confirmation:

> "And when ye shall receive these things, I would exhort you that ye would ask God, the Eternal Father, in the name of Christ, if these things are not true; and if ye shall ask with a sincere heart, with real intent, having faith in Christ, he will manifest the truth of it unto you, by the power of the Holy Ghost. And by the power of the Holy Ghost ye may know the truth of all things." [40]

Overtime I was to discern that there are various ways to arrive at truth. Scientific endeavor is one of these; study and deep contemplative thought coupled with spiritual confirmation is another. Some of the conclusions I've reached through these processes are not particularly unique, but I have felt powerful and undeniable spiritual confirmation regarding them.

In due course, I was privileged to receive a dramatic manifestation of the reality of God. My sweet wife and I both recall with considerable awe one special night where all my questions were answered in a flood of light and enlightenment. Without belaboring the experience, which is most sacred to us, I can state unequivocally that I have discovered for myself that there is and was a creator, call that creative force Source, God, or what have you. I also have powerful reason to believe that Jesus is the Christ, and like all of humankind, he was the seed of deity, or perhaps better said, he too is "A child of God." I have received a profound witness that we are living in the "last days," anciently prophesied as the "Dispensation of the Fullness of Times." What does that mean? I do not know for sure, but I sense and believe that the very earth itself is in transition and there will be a definitive period of struggle before a transition to higher vibration. I have also received confirmation that there is purpose in all that God does, that we are here for a reason, and that each of us has a great deal to say about where we are headed.

[40] Moroni 10:4-5

Once upon a time I dreamt of a long rope extending out of sight in both directions. There was a small piece of ribbon tied around the endless line. The ribbon was a representation of earth life, a small but important marker in an infinite existence. Scripture teaches that we are spiritual beings having a human experience, not the other way around.

Those that have children have surely experienced how they can play the strings of your heart so completely that you may sometimes find yourself embarrassed by tears when there is no reason to be crying. I cannot explain this kind of love, but I know it is real. I cannot address this intensity of experience with any kind of rational argument, but I have felt it move through me with great power. Thus it is with deeply moving spiritual experience. You may not be able to explain it in terms understood by those who have not felt it, but there is no question that it is real.

This life is a classroom. It is the place where we may grow, mature, and become, or live a life of self-centeredness and never quite be happy because we are so wrapped up in ourselves that we cannot appreciate quiet beauty; the good, and the now. The poet William Wordsworth penned two wonderful verses in *"Ode on Intimations of Immortality"* that speak truth to our very core:

"Our birth is but a sleep and a forgetting;
The Soul that rises with us, our life's Star,
Hath had elsewhere it's setting
And cometh from afar;

Not in entire forgetfulness,
And not in utter nakedness,
But trailing clouds of glory do we come
From God who is our home."

So, now we are here, and we're faced with making choices, all day, every day. From the moment we get up to the last minute of the day we are deciding things. And the choices we make determine the quality of the life we live. All of us make some really good choices and all of us make a lot of mediocre choices, and all too frequently, we all make some hurtful, harmful, bad choices. The trick is to make fewer and fewer of the bad ones and more and more of the good ones. I think that's what righteousness is, right choices made often. Nothing weird or spooky spiritual, just choices based on being able to forgive others their bad choices, which by itself speaks to our progress towards goodness, caring, honesty, and love.

Moses once saw in vision all of creation, he saw the heavens and worlds without number. Overwhelmed with what he experienced he uttered the famous dictum:

> "Now, for this cause I know that man is nothing, which thing I never had supposed….

The Lord provided further enlightenment to Moses, and when he understood, Moses declared:

> "For behold, I am a son of God, in the similitude of his Only Begotten"

We are blessed with special insight that speaks volumes about God, mankind, and the universe, when the Lord stated succinctly:

> "For behold this is my work and my glory ---to bring to pass the immortality and eternal life of man."[41]

Some other conclusions I have come to, which may not be particularly unique but are certainly a blessing unto me, they are:

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- We have Heavenly Parents who love us more than we could ever imagine. Our celestial family is large, intelligent, and cares about us. We are literally the children of God.

- We are here on earth for a celestial purpose that transcends anything we can fully comprehend at this time in our development, although a part of it is to gain a biological body, to learn and be tested. Opposition and freedom to choose are critically important in this process, as is how we respond to them. But no matter our level of maturity here on earth, we are but children in a galactic sense.

- I believe that the first principal of enlightenment is Free Agency, which is the power to choose. We choose to be as right, or as wrong as we want to be.

- We grow through exposure to opposition and as a consequence of our making correct choices and prudently acting upon them. The power to choose, and to choose correctly, is the essence of deity.

- Justice, mercy, and righteousness are eternal principals, well defined in the Scriptures, and consistent throughout the universe.

[41] Moses 1:10, 39

- Repentance is the way back home. We must set our course for perfection. We demonstrate our love of truth and right by doing good works and providing humble service.

- There is something absolutely fundamental about families throughout eternity, and it is up to each one of us to decide whether or not we want to be part of our eternal family. Families can indeed be forever.

- I believe in Prophesy, Revelation, and in the power of Faith. And I believe that Faith is the ultimate organizing power of the Universe.

- I believe in love.

In closing I refer to one last scriptural reference:

> "And now, I would commend you to seek this Jesus of whom the prophets and apostles have written, that the grace of God the Father, and also the Lord Jesus Christ, and the Holy Ghost, which beareth record of them, may be and abide in you forever. Amen"[42]

[42] Ether 13:1-11