Section 1: Introduction

The search for Truth using human reason and scientific methods had its real beginnings in the 16th century. Sooner or later, this kind of search, one that encouraged raising doubts about established beliefs, was bound to come into conflict with a Faith based entirely upon theological dogma and revelation. It took some time before they could be seen as complementary, but that is the premise behind this presentation: science and religious faith are complementary. Although early Greek philosopher-scientists like Aristarchus taught that the earth was spherical, common belief and Christian dogma in medieval times held that the earth was the center of the universe and the sun and stars revolved around it. There could be no doubt that mankind was the focus of God’s attention. If one could poke his head through the vault of the sky, God’s machinery would be revealed.

The science<->faith storm broke rather suddenly when Galileo, after observing the rotation of moons orbiting Jupiter, began teaching Copernican theory as factual. Due to his acerbic nature, he managed to provoke his friend, Pope Urban VIII, and was placed under house arrest for teaching that, contrary to Scripture, it was the earth that moved rather than the sun. Later this dispute over the most reliable source for Truth became more heated with the success of Newtonian mechanics in predicting the exact motion of our Earth, the sun and the planets. Taking into account all motion and matter, it seemed that science would soon explain all of physical nature. As the French mathematician, Laplace, explained to Napoleon why he had not involved God in his description of planetary motion (Mecanique Celeste): “Sire, I have no need for that hypothesis.”
A century later the battleground for truth’s source shifted from the heavens to life on earth. Many devout Christians thought science was surely attempting to deal a death-blow to religion when Darwin proposed that the amazing variety of natural life forms, and their apparent intelligent design—all this could be explained—not necessarily by a creator God, but by evolution—by chance operating on the survival of the fittest of variable offspring. If evolution were true, was there, then, no longer a place for a caring God?

As we move further into the 21st century, the competition between science and religion may appear to be intensified as to which is the superior means of leading humanity, if not to Truth itself, at least to a more satisfactory understanding of our world and how our lives fit into it. A group of very vocal scientists, dubbed the New Atheists (Dawkins, Hitchens, Harris, Dennett, Stenger, Weinberg) now argue that religions that are based on revelation and dogma have led the masses of people so far from the Truth (as revealed by science, of course) that it is time that public policy discourages religion and emphasizes science as early as possible in the school curriculum. We shall see, as this presentation continues, that the chief flaw in their argument arises over their failure to distinguish between what we might term as: 

(1) **Procedural atheism** (or methodological naturalism), which is a valid attempt by science to explain natural phenomena without resort to supernatural forces; and

(2) **philosophical atheism** (or metaphysical naturalism), which states a priori that no such supernatural forces can exist. It is true that scientists in the past often gave up too readily in seeking natural explanations for certain observations (e.g., the ‘design’ of the human eye), and invoked ‘the God of the Gaps’ explanation, in effect saying: “Since science is unable to explain this phenomenon, it must be God’s direct action”. Later, when these ‘Gaps’ were closed (for example, by Laplace in the case of celestial mechanics), it seemed to support the position of the philosophical atheists. As rational Christians we should support the ‘procedural’ atheistic approach in science: trying to close these gaps with natural rather than supernatural explanations. This strengthens, not weakens, one’s Faith. It does not require scientists to believe that God always maintains a ‘hands-off’ attitude to evolution or to any other natural phenomenon. They need not disavow belief in all the miracles recounted in the Bible. But we must
realize that much of what we take for granted in our times (e.g. air travel; global positioning, etc.) would be considered truly miraculous by folks living in those simpler times. Nevertheless, the past success that science has had using procedural atheism does not rule out there being ‘gaps’ that remain unclosed in the future. In this presentation I suggest that there are two such gaps that likely will remain unclosed: the beginning of Life, and the beginning of Humankind. When all is said and done, these two points, where there is the greatest disagreement between atheistic science and Christian faith, have the greatest theological significance. Knowing how the rest of the world around us came to be can satisfy our intellectual curiosity, but knowing how we came to be can tell us if we have a loving Creator.

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The author, Al Leo, began his high school studies in 1938. In those ‘ancient’ days science courses were not offered until one’s junior year, even for students headed for a science major in college. So my “shock” of reconciling the newly acquired knowledge from these science classes with the foundations of my Faith provided by the Baltimore Catechism in parochial schooling, was perhaps not as abrupt as it is for many Christian youngsters today. In these days, by the time they reach the fifth grade in public school, a boy or girl raised in a traditional Christian home with a faith supported by Sunday School Bible lessons, will be influenced (perhaps only subtly) by the concept that the only sure, solid knowledge they will gain will be about the material things that science deals with. Spiritual concepts, they will be led to believe, while not exactly pure myths, cannot be ‘pinned down’, measured, or put to experimental test, and so they should not be relied upon to the same degree as ‘good, hard factual data’. And as far as morality goes, it could be argued that an atheistic scientist can be as good a human being as a good Christian can.

So, just as they are about to enter puberty, when they are shoring up some of their more important cerebral circuits, youngsters today may be subtly asked to question some of the guideposts in their lives that they had learned at home and taken for granted. They begin to ask: “How do I know there is a God?” “And even if there is, how do I know He cares about me?” “What if there is no heaven--that it is just ‘pie in the sky’? Shouldn’t I try to have as much fun in this life as I can? What is worthwhile for me to do in life; does life really have a purpose?”

It is true that choosing science as a career can sometimes lead to an atheistic nihilism, depending upon the views of the teachers the student encounters. Fortunately some, like the Oxford chemist P. W. Atkins, present their atheism in such as dismal light that it is anything but attractive, as seen in this quotation from his book, “Time and Dispersal”: “We have looked through the window on to the world provided by the Second Law (Carnot Thermodynamics), and have seen the naked purposelessness of nature. The deep structure of change is decay; the spring of change in all its forms is the corruption of the quality of energy as it spreads chaotically, irreversibly, and purposelessly in time. All change, and time’s arrow point in the direction of corruption. The experience of time is
“the gearing of the electrochemical processes in our brains to this purposeless drift into chaos as we sink into equilibrium and the grave.” [Thanks for cheering me up, Peter. Have a good day!]

A totally opposing view is expressed by the theoretical physicist, Paul Davies in “The Cosmic Blueprint”: “The very fact that the universe is creative, and that the laws have permitted complex structures to emerge and develop to the point of consciousness—in other words, that the universe has organized its own self-awareness—is for me powerful evidence that there is ‘something going on’ behind it all. The impression of design is overwhelming. Science may explain all the processes whereby the universe evolves its own destiny, but that still leaves room for there to be a meaning behind existence.” Paul may be using ‘agnostic’ terminology here, but it is just a short step from Christian Faith. (He was awarded the 1995 Templeton Prize for bridging science and religion.)

There is no doubt that the relationship between science and religion is a ‘hot topic’ currently. Time magazine noted that Intelligent Design is being vigorously promoted for inclusion in high school biology curricula. The intent of I.D. is to show young students that life may have evolved, but it still has a purpose, rather than being just a ‘roll of the dice’. Time then asks its readers: Does God have a place in science classes? Before this question can be answered, two points must be made clear. We can propose two distinct levels of Designer activity: First Level, a Grand Designer whose extremely precise laws of nature, established at the beginning of time, have produced the marvelous Universe we see today which has had no need of His further intervention to keep it ‘on course’; and Second Level, an Involved Designer who must constantly ‘steer’ the evolving entities so that they are able to accomplish the Designer’s purpose. The 20th century’s most eminent scientist, Einstein, who was a Deist but not religious, subscribed to the first, and a modern biologist, Michael Behe, a Catholic professor at Lehigh University, is one of a minority of scientists who has been a spokesman for the second. More on this later.
The second Time cover asks how the small differences between the genomes (DNA) of a human and a chimp can lead to the enormous differences in the resulting phenotypes. The contrasts in body hair and jaw shape, for instance, may be clearly related to specific DNA sequences, but what about the differences in thought processes and ability to acquire language? And what about the even smaller differences in DNA between modern humans and their closer homonid cousins, the Neanderthals? Or between us and the early Homo sapiens of 100,000 years ago where the difference in DNA sequence appears to be zero? These questions will also be dealt with in more detail later.

The third Time cover features a debate between Richard Dawkins, the Oxford professor who is an ‘evangelical’ atheist, and Francis Collins, the eminent chemical geneticist, head of the National Institutes of Health, who terms himself a “Born Again” Christian. The strict materialist, Dawkins, who can be devastatingly scornful of anyone who claims to have a spiritual nature, is at his best in this short debate, and probably earns at least a tie. (He fares much worse when one compares their arguments made in full book length.) Note the clever associative device of the double helix blending into a rosary.
Sir Richard Dawkins, an Oxford professor of Public Understanding of Science, is a gifted writer, debater, and publicity seeker, but is no longer a ‘hands-on’ scientist. His first best selling book, “The Selfish Gene” was followed by many others and led up to another best seller (>2 million by 2010), “The God Delusion” in which he clearly states that it is his hope that every reader who begins it as a Believer becomes an Atheist by the time he puts it down; i.e. Dawkins is an evangelist for atheism. We shall see later how Sir Richard in one of his own previous books, “The Ancestor’s Tale” (see ref. 2) is guilty of the same charge he derisively leveled against Believers--he “flies in the teeth of evidence.”

In examining the relationship between science and religion, we should begin by noting that religion is by far the older of the two. Long before there was any written history, modern archeological evidence conclusively shows that modern Homo sapiens sought a belief system that could deal with: Who am I? The recognition of Self, and the realization that others in your clan were also ‘individual selves’ who had feelings and desires similar to your own—this was crucial to forming effective societies, and, as we shall see later, membership in a human society is necessary to become fully human. Where did I come from?” Many tribes called themselves ‘The People’, indicating perhaps that the Others they came into contact with might be considered as less than completely human. And they often created certain myths of how they emerged from the underworld—like from the ‘Sipapu Hole’ that the Hopis constructed in their ceremonial kivas and which represented the clear blue spring in the Little Colorado River canyon that the Hopi Native Americans revered as their entry point into the ‘upper world’.
As will be developed in more detail later, the earliest evidence of how modern humans burst on the scene is that, unlike their predecessors, they often buried their dead with jewelry and tools suitable for some sort of afterlife. This first scene depicts the burial of a woman trussed into a fetal position and covered with ochre, a red dye almost certainly representing the bloody way she entered this world. It is not just idle speculation to assume her loved ones wanted to send her back to some world from whence she came. It is safe to conclude that the appearance of modern humans and the appearance of simple religious belief were contemporaneous. If the science of anthropology tells us this, and yet some modern materialistic scientists still maintain that the spiritual realm is a delusion, then the human mind must have been ‘warped’ from the outset.

A visit to museums in Europe and the Mid East provides convincing evidence that in relatively modern times (Middle Ages and Renaissance) art was a principal expression of religious belief, and it undoubtedly was in prehistoric times as well. Breathtaking paintings of animals, some extinct for tens of thousands of years, are found deep in caves which must have been difficult to access using only the faint, flickering light of melted-fat wicked ‘candles’. This ‘Cave Art’ vividly attests to how our ancestors appreciated and acknowledged their dependence on the power these animals had on their lives. As the eminent paleoanthropologist, Ian Tattersall expressed it: “Art was emphatically not an occasional or incidental occupation among these people; it was central to their experience of the environment and to the way they explained the world—and presumably also their position in it—to themselves.” Were they expressing a level of spiritual Truth that we moderns are in danger of losing if we focus totally upon factual evidence provided by material things?
The third scene depicts a shaman instructing a group of youngsters (probably exclusively boys) what would be expected of them as they matured and took their place as contributors to the welfare of the clan. Later we will take up in greater detail how this feedback of societal experience to the new generation fed the rapid growth of what Pierre Teilhard de Chardin termed, the Noosphere. Personally, I can relate to a boy in this group, perhaps one of my ancient ancestors, listening with rapt attention to the old shaman’s tales. And if we fast forward a couple hundred centuries and replace the shaman with Sister Barbara………..

I could be one of the front row kids in the 1st grade at St. George parochial school learning lesson #1 from the old Baltimore Catechism (now sadly out of print). The first question/answer combination was simple enough: **Who made me? / God made me.** Wisely, it did not go on to ask “**How did God make me**”, but rather: **“Why did God make me?”** “God made me (i) to **Know Him;** (ii) To love Him and serve Him in this World and be happy with Him in the next”. This answer was clear and meaningful to a five-year-old, and yet, as my mind matured and I chose science as a career, it could be delved into in great depth without losing its integrity. Science urges one to question authority, to carefully examine all currently accepted paradigms and axioms. Thus in Chaffey High and Pomona College I faced up to these questions: Is religion just an “opiate for the masses” as Karl Marx would have us believe? Is God just a delusion, as Dawkins opines? For me, personally, answer (i) in the Baltimore Catechism, when given more mature wording, can stand up to any test, and it actually led me to a very satisfying World View.

[At this point we might digress a bit to note that scientists tend to focus on the *how* of things. For instance, if we ask a scientist “**Why** is the water in that teakettle boiling?” He is apt to answer something like this: “The fire under the teakettle has raised the temperature of the water so that its vapor pressure equals the atmospheric pressure at this elevation.” So he is informing us ‘**what makes the water boil**’. A housewife is more likely to answer: “I was planning to have tea. Won’t you stay and have some?” She has interpreted the **Why** as ‘for what purpose’. The same holds for the Baltimore Catechism: it tells the reader for **what purpose** he/she is here in this world, and
that should not conflict with what science has to say about *how*, in the course of history, we humans appeared amongst the varied life forms on earth. But, unfortunately, as long as science maintained that Darwinian evolution *alone* could account for human nature, there was a serious conflict. The fact that there has been a recent change in many scientists’ position in this matter is the main thrust of my presentation—something *beyond* evolution has produced modern human behavior.]

Fast-forward another ~40 years: from St George parochial school to the 1969 Robbins Lectures at Pomona College. The Nobel Prize winning biochemist, Jacques Monod, lectured us on his discovery of how the actions of complex enzymes are exquisitely controlled (e.g. by lac operon) in carrying out their chemical tasks in each cell in our bodies. At this time he was also putting the finishing touches on his soon-to-be best selling book, ‘Chance and Necessity’, and so after the post-lecture evening dinners he engaged the faculty and students in a discussion of the philosophy it espoused. Extrapolating his excellent biochemical insights *far beyond science* and into areas of philosophy and religion (as we shall see later, totally violating Gould’s policy of NOMA), he ends his book with this very nihilistic, atheistic statement: “The ancient covenant is in pieces; man knows at last that he is alone in the universe’s unfeeling immensity, out of which he emerged only by chance. His destiny is nowhere spelled out, nor is his duty.”

Instinctively I felt that this could not be true; yet no one in his audience, certainly no one from the Department of Religion or the School of Theology, challenged him on this statement. There was no doubting Monod’s intellectual gifts. But was he *wiser* than the Baltimore Catechism the sisters of St. Joseph used to teach me?

Everyone, Christian and atheist alike, hopes that all youngsters are taught to act according to a good Conscience--a word combining ‘with’ and ‘knowing’. Of course many scientists insist that the ‘science’ in con’science’ should be limited to *Natural* Science, such as physics, chemistry, and biology. On the other hand, religious believers feel that gaining knowledge of the *Super-Natural*, by means of revelation and theology is of equal or greater importance. Thomas Aquinas phrased it as: “Revelation comes in two volumes, the Bible and nature.” To minimize conflict between the two sources, the eminent science writer, Stephen Jay Gould, proposed imposing NOMA, or Non-Overlapping MAgisteria, so that experts in both fields would refrain from promoting or publishing works that reached conclusions beyond their areas of expertise. This might seem to be a commendable effort but it proved impractical in practice. An example of a church leader who Gould cites as supporting NOMA is Pope Pius XII who in the encyclical, Humani generis states: “…the teaching authority of the Church does not forbid that, in conformity with the present state of human sciences….discussions take place with regard to the doctrine of evolution, in as far as it inquires into the origin of the human body as coming from pre-existent and living matter—(but) the Catholic faith obliges us to hold that souls are immediately created by God”. [H.G. 36] Indeed, this does sounds like a recommendation to respect separate areas of expertise. But immediately following (H.G. 37) the encyclical states: “For the faithful cannot embrace that opinion which maintains that after Adam there existed on this earth true men who
did not take their origin through natural generation from him as from the first parents of all, or that Adam represents a certain number of first parents....the sources of revealed truth and the documents of the teaching authority of the Church proposed with regard to original sin which proceeds from a sin actually committed by an individual Adam in which through generation is passed onto all and is in everyone as his own” . Clearly, for Pius XII, the dogma of Original Sin takes precedence over the scientific observation that the present genetic diversity of Homo sapiens could not have passed through the “bottleneck” of a single couple. The current Catholic Catechism also clearly states that Adam’s Original Sin is official doctrine. [Developed more fully in Epilog 2: Original Sin]

But Gould himself did not always adhere to his own NOMA rules. In his article “In Praise of Charles Darwin” in Discovery magazine Feb. 1982, he states: “No intervening spirit watches lovingly over the affairs of nature....No vital forces propel evolutionary change. And whatever we think of God, his existence is not manifest in the products of nature.” So it seems prudent for each of us to examine carefully the merits of the arguments from both sides where they may impinge on the other, granting both an ‘ordinary fallible magisterium’, but neither an infallible one. We could follow the lead of Einstein who saw a complementary rather than confrontational relationship: “Religion without Science is blind; Science without Religion is lame”. In the 17th century Blaise Pascal expressed this dualism thusly: “The heart has its reasons which reason knows nothing of. We know the truth not only by the reason but by the heart.”

In 1996 Pope John Paul II rephrased Einstein when he addressed the Pontifical Academy of Sciences: “Science can purify religion from error and superstition. Religion can purify science from idolatry and false absolutes. Each can draw the other into a wider world, a world in which both can flourish.” The terms “idolatry” and “false absolutes” used by Pope John Paul refer to the fact that science deals with a material universe and depends upon observation and measurements to gain understanding. But claiming that anything that cannot be so measured or observed is unreal and unimportant makes that claim a false absolute and thus, in a sense, idolatrous.

Thus, by the time I reached college, I had found reliable support for my hope that I would find science and religion compatible. But yet, in addition to my inability to rebut Monod’s arguments, there were a couple of other questions that my first grade ‘theological training’ from the Baltimore Catechism seemed unable to answer adequately. For example: ‘If God made mankind through evolution over a vast number of years, and not all at once in Eden, then at what point did he determine humans were “in his image” and worthy of immortal souls? Animals may have mortal souls, but there is not a gradual transition between mortal and immortal. It’s one big jump. But Darwinian evolution does not take ‘Big Jumps’—end of argument! Or so I thought at the time. But what if Darwinian evolution brought Homo sapiens very close to ‘true humanity’, nearly ready to become God’s image bearer, but not quite there. More on that in Section 2 that follows.
Section 2: The Noosphere is Real Not Just Mystical

Sir Richard Dawkins has built quite a reputation as Professor for Public Understanding of Science, and he is adamant that: ‘Darwinian evolution must proceed in tiny steps with no particular direction. The “Tree of Life” with humankind at its very crown is a misnomer,’ he claims. ‘It really is a ”Bush” and humans are just an accidental twig on some side branch. We occupy no special position in the scheme of things’. To me, something in his argument just did not fit. Obviously Dawkins’ view of evolution is antithetical to Christian faith that sees humans as God’s image bearers.

I had been taught this in science: When you just cannot fit certain observations into a time-accepted pattern, perhaps you need a new pattern, a new paradigm. So in my search for a ‘new paradigm’ I recalled what the Jesuit philosopher-priest, Pierre Teilhard de Chardin had proposed in his book “The Phenomenon of Man”.

Teilhard was far ahead of his church in accepting human beings as the biological species, Homo sapiens who exist in the biosphere along with many other species that had evolved over eons of time. According to current knowledge, this Biosphere (the sphere of Life) is limited to a thin skin on our planet earth, which in turn is a very small speck in a huge Cosmosphere. He proposed that only a relatively short time ago, a new, non-material Sphere appeared on earth—a new sphere populated with thoughts, ideas, products of Minds that, in their propagation and interaction, produced human civilization. Teilhard proposed that this third Sphere be called the Noosphere (Nous for Mind). Scientists greeted his proposal that Mind appeared suddenly on the earthly scene and was not a normal evolutionary development within the biosphere--this might be something of interest to the fields of philosophy or religion, but it certainly did not belong in ‘true science’. But as far as I knew, no one had actually looked to see if it had any scientifically-valid observational support as a new paradigm. As we shall see later, this
support was not that hard to find, and at the very least provides the framework of a new hypothesis about human origins.

Indeed, as it turns out, there are some parallels between evolution in the Noosphere and evolution in the Biosphere, but the former is more Lamarckian than Darwinian, more rapid, and it produces even greater variety. The greatest advantage of accepting this new paradigm-- the reality of the Noosphere--is that it can explain some of the puzzling differences between modern Humans, i.e., Homo sapien sapiens, and our most recent progenitors Homo sapiens. The realization that we modern humans have a foot in each of two spheres, biosphere and noosphere, explains the conundrums seen previously as Cartesian Dualism. More on that later. Also, before assigning this new paradigm to the ‘Crackpot File’, I will show that the modern atheists, Dawkins and Stenger, both cite evidence of the some effects of the Noosphere (e.g. the gene-like action of ‘memes’) even though they appear unaware of its implications. And the planetary scientist, Carl Sagan, in the movie, Contact, has our earthly Noosphere making contact with another one located in the planetary system surrounding the star, Vega. (Sagan was the prime mover in SETI, the search for extraterrestrial intelligence. Also note that biospherical contact with a distant civilization depends on the science fictional use of theoretical ‘worm holes’ in space-time in order for a material object [actress Judy Foster] to span the immense distance involved.)

[But is this use of the Noosphere and ‘brain programming’ merely a cleverly disguised “God of the Gaps” explanation for the sudden appearance of Mind? Not really. In the search for a valid biochemical mechanism that would explain a sudden emergence of Mind and the Noosphere, the known epigenetic action of DNA methylation provides a reasonable starting point. As the body begins construction of a particular organ, say the heart, then DNA methylation shuts off all the rest of the ‘blueprint’ except that portion of DNA dealing with the heart, so in embryonic heart cells it functions solely at the task at hand. But the DNA methylase enzyme seems to operate differently in the construction and operation of the human brain. The current research on the brain methylome [Gabel & Greenberg, Science, 2013, V3411, 626-627] offers at least a hint that science may, in time, close the ‘gap’ posed by the sudden appearance of Mind. But in any event, by whatever mechanism it suddenly appeared, Mind certainly supports the contention that we Humans are something special in the scheme of things and not just the product of pure chance. Too bad Monod is not still around to work on the problem.]

Charles Darwin was a very careful, meticulous scientist, and his reluctance to publish the early findings--from his study of barnacles, in his breeding of pigeons, and his observations while on the HMS Beagle--was partly due to his desire to be absolutely sure of their accuracy. Possibly of equal importance, however, was his reluctance to face up to the conclusion that life on earth, as we now see it, resulted in the favoring one slightly altered feature of an offspring that better fit to the environment that it was born into. If that is also how humans appeared on this earth, it did not seem to fit into the Anglican
Faith he was taught as a child and even considered as a ministerial vocation. That Faith—that God created Adam and Eve, the first humans, in his own image, and for his own purposes—is still a cornerstone of most Fundamentalist Christian belief, and is held by the spokesmen for the Roman Catholic church, Cardinal Schönborn and Pope Benedict XVI as well as most Protestant denominations.

So must a person choose: Biblical Creation **OR** Darwinian Evolution? What about the alternative: Is there an honest way to consider that God created **VIA** evolution and yet included humanity in the picture as *something special* in His eyes.

As noted previously, in 1950 Pope Pius XII declared that the evidence for evolution was worthy of consideration as long as it did not conflict with the dogma that God created human souls concurrently. Pope John Paul II went a step further in 1996, proclaiming the evidence was *overwhelming* for the neo-Darwinian-type evolution of all life on earth—but again *excluding* us humans. As might be expected, some scientists maintain that making such an exception is ‘unscientific’, but, as we will see later, others (Tattersall, Morris and even Dawkins), after carefully examining new archeological evidence, are in agreement that there is *something special* in how modern humans suddenly appeared. But in spite of this new scientific support, and after the death of Pope John Paul II, Cardinal Schönborn of Vienna, a close advisor of the new pontiff, wrote a piece for the New York Times (7/7/05) warning that neo-Darwinian theory is NOT compatible with Christian faith since it is “an **unguided, unplanned** process of random variation and natural selection”, while the Church “proclaims that by the light of reason the human intellect can readily and clearly discern purpose and design in the natural world, including the world of living things.” The relationship of Intelligent Design with Science will be discussed in more detail later, and, to a degree, Schönborn’s view can be defended. However, the Catholic Church doctrine, as stated in its official Catechism which Schönborn edited, is extremely difficult to reconcile with science. It maintains that Adam was the first human, *created perfect*, and “God destined him not to die”…and “Bodily death, from which man would have been immune had he not sinned ..”(#1008, p. 285; quote from Paul, Cor. 15:26). And on p. 109 (#388) it states: “Original Sin—an *essential* truth of the faith”. So it would appear that perhaps the ‘conflict’ has not been resolved after all. It would be asking a great deal of a teacher of modern biology if she must convince students that the God who created all animal life via evolution could have intended that *any* of his creatures was to be *immune to bodily death*. In the biosphere Death is an essential event for the formation of new Life, and so it should not be seen as an evil or an imperfection. Both Science and Scripture contain *Creation Narratives*, and we should carefully examine each to see how this conundrum arose and how it can be resolved.

[The reader should be aware at this point that the author has **no** expertise in interpreting scripture. He will judge which passages in Genesis were meant to be considered literally and which allegorically just as the ‘average ‘man in the street’ would. For a more professional treatment, see]
For the Scriptural Creation Narrative, we can turn to the first five chapters in Genesis that are pertinent, realizing that it probably was the writers’ intention to explain man’s relationship to his Creator, not the mechanism of human creation. Chapter 1 pictures the creative events in a manner that is quite thoughtful, considering that it was written some 3,000 years ago. Out of nothing, God created light (aka the Big Bang), and later the earth with oceans that he filled with fish, and then land where animals and plants would become sustenance for humans, whom he created as male and female—concurrently, not separately and in His image. God saw all this as very good (no sin; no curse) and gave His blessing to human procreation and an admonition to act as stewards over earthly creation. Skipping to Chapter 5 we see that God’s blessing to the couple is repeated and the genealogy of their offspring begins.

Even casual reading of Chapters 2,3,& 4 reveals that they are the product of other authors, almost certainly after their experiences as captives in Babylon. Surely the lush fields between the Tigris and Euphrates rivers--in contrast to the rocky, dry hills of Judah-- inspired the story of the Garden of Eden. And just as surely, the account of Eve being created from Adam’s rib (almost as an afterthought after all the other animals were created and none found suitable as a helpmate for Adam) was not meant to be taken literally. Even the ‘simple’ people of those ancient times would have known better and realized that it clearly contradicted the account in Gen.1 where the couple were created concurrently. However, it might have been important to impress people of that day that Adam, who was physically stronger than Eve and might be tempted to dominate her, should instead treasure his mate as part of himself (supported by the statement that ‘the two shall become one flesh’). So these three chapters have wisdom to impart, but only if interpreted allegorically. Perhaps the greatest mischief to come from a purely literal reading of these three chapters is the misinterpretation of the effects that would befall the first humans upon gaining knowledge of Good and Evil. The writers phrased it so the act of eating the ‘Forbidden Fruit’ was disobedience and thus became Original Sin. Furthermore, it resulted in an angry God casting Adam and Eve out of Eden and fating them to die. In “Doing Without Adam and Eve” theologian, Patricia Williams (p.52), phrases this dichotomy as: “Genesis 1 portrays God as omnipotent and benevolent, the author of a good creation. Genesis 2 & 3 portrays God as inept and ignorant, even vicious.” That may be putting it too strongly, but it does show how a literal reading can be counterproductive. The final chapter of the Science Creation Narrative can be interpreted (from a perspective of Christian faith) as God instilling a Conscience in the most complex of his evolved creatures, and it is the acquisition of this Conscience that marks the beginning of Humankind. This fulfills God’s intention that something in his creation could potentially become his image bearers. Furthermore, the Science version is consistent with the statement in Genesis 1: “God saw all that he had made, and it was very good.” Surely Conscience is a Gift, and only its misuse becomes a Sin. Therefore it
seems sensible, to this author anyway, to consider Genesis 2,3,& 4 as an allegory, a parable or fable that was meant to convey a moral lesson—not as fact or history. Before turning to the Scientific Creation Narrative as a comparison, we can take a short side trip to visit a modern fable, the story of Pinnochio, which also conveys subtle wisdom.

Geppetto longed for a son, and so he carved a puppet from wood and named him Pinocchio. At first the puppet was animated by strings (like Homo sapiens acting on instinct), but then he was assigned a Conscience in the form of Jiminy Cricket. Initially, Pinocchio ignores Jiminy and gets into serious trouble, but the moment he listens to his conscience and starts doing what he ought to do, only then does he turn into a real human boy. This fable is remarkably applicable to the latest scientific scenario of how Homo sapiens, a separate genetic species for as much as 100,000 years, suddenly transcended their instinctive animal behavior, acquired a mind and conscience, and became the modern human beings we recognize today.
The Creation Narrative as seen by 21st century science is a remarkable intellectual achievement, but it still contains significant gaps (that scientists expect to fill in the future) and undoubtedly some significant errors. (Also this is a greatly simplified version.) Many scientists greeted evidence for the Big Bang as bitterly disappointing (including Sir Fred Hoyle who gave it that sobriquet). As confirmed atheists, they did not want the ‘man in the street’ to think there might indeed be a Creator. [To get around the idea of a Creator God, and to explain the fact that the physical constants had to be finely tuned to an astounding degree at the very outset, some astrophysicists now propose a theory of ‘Multiverses’ or ‘Parallel Universes’ where billions of Universes are automatically formed from the centers of black holes or as bubbles popping out of an energy-rich vacuum—until eventually one forms with the ‘right’ constants, and so here we are! ]In this presentation we will stick to the simpler version: an Intelligent Creator started it all off with a Big Bang which began the unfolding of the **Cosmosphere**. Energy contained in the Big Bang quickly took the form of a Quark Plasma and its early expansion (Inflation) seemed to have proceeded faster than the speed of light. It did not expand evenly but formed clumps which, as they cooled, consisted of two elements: hydrogen and helium. Gravity further aided clumping and stars began to gather in galaxies. As gravity compressed each star it thereby heated the interiors enough that hydrogen and helium fused, and, in a series of further fusions, the heavier elements up to iron were formed. Evolution of the Cosmosphere would have stopped at this rather uninteresting juncture had not the early stars run out of the hydrogen that fueled their hot interiors. Lacking interior heat, the sudden gravitational collapse created the enormous pressures that formed the elements between iron and uranium 92, and in the supernova
explosion that followed, distributed these elements throughout space. The oft-repeated saying that ‘we are all made up of stardust’ relies on the accuracy of this scenario. During this roughly 5 billion period of cosmic evolution, there was only a modest increase in complexity and almost no increase in information.

The second period of cosmospheric unfolding (5-10 BYBP) featured enormous clouds of dust and gas, much like the ones in the Horsehead Nebula pictured here in a photo from the Hubble Space Telescope. Photos taken in the infra red spectrum clearly show rotating discs of gas and debris falling in toward new proto-stars—new solar systems in the making. In interstellar space, there is spectrographic evidence of hydroxyl ion, formaldehyde and HCN—all ingredients that can form the sugars and nucleic acids that are the components of RNA and DNA—the blueprint and the basis of all earthly life. But these building blocks, without a recipe, could not form life. So during this second 5 billion year period, there still was only a modest increase in complexity and information. Without a doubt the CosmospHERE was impressive. But God was the only observer. The appearance of a creature that would be impressed was far into the future.
Our earth, “the third rock from the sun”, is in what is known as the “Goldilock’s Zone”, where the conditions are just right for H2O to exist in its three forms: liquid, vapor and solid. Perhaps some sort of life form could ‘evolve’ under other conditions, but it seems highly unlikely. Astronomers have now detected over 1000 planets revolving other nearby stars, but present day instruments have found few that have earth-like characteristics in the ‘GZ’. The earth accreted by the infall of asteroid-size debris which heated the surface probably to its melting point, but after cooling enough for the water (probably arriving from comets) to condense into oceans, they likely were a thin soup of the nucleotides: A, T, G, & C. But an ‘alphabet ‘soup’ contains no information. Even if concentrated in ‘warm tidal ponds’ (Darwin’s hypothesis) how did the letters, A, T, G & C combine into meaningful words along with the grammar that could make them information carriers? It is thought that preferential adsorption on montmorillonite clays might have aided somewhat, but after more than 60 years of trying, the best scientists in the field (Crick, Orgel, Eigen and hundreds of others) have all but given up. Could it be that the Apostle John, in opening his gospel, was inspired beyond his own understanding when he wrote: “In the beginning (of Life?) was the Word…”?

Scientists now propose that the polymeric nucleosides, RNA (ribo-nucleic acids) which have been shown to have weak catalytic properties, were the first information carriers. Random differences in polymer structure allowed these to compete, in the sense that those that were sufficiently stable to stick around long enough to replicate their kind,
prospered. RNAs form single stranded helixes and are relatively reactive, while their
deoxy relatives, DNA, are more stable and form the well known double helix.
Somewhere in time, DNAs took over the ‘blueprint role’ while RNA took over the
‘service’ role, and the **Biosphere** began to rapidly accelerate the creation of variety and
complexity. In the evolutionary progression that led from virus-like competitors to
membrane-covered eubacteria to multicellular organisms, **competition** was the main
‘driving force’. However, at least two examples of **cooperation** were crucial to the
eventual history of life on earth: (1) **plant** cells began a symbiotic relationship with
**chloroplasts** that used sunlight as a source of energy to split water, release oxygen, and
combine it with CO2 to build carbohydrates; and (2) and **animal** cells symbiotically
acquired **mitochondria** that use ATP to efficiently energize cell activities. There is now
compelling evidence that chloroplasts and mitochondria were independent and free-living
organisms before being ‘swallowed up’ (preyed upon?) by a competing organism. But
then both ‘learned’ that they ‘profited more’ (survived longer and reproduced better) if
they cooperated instead of competed. During this period where life evolved exclusively
in the oceans, there was an enormous increase in both complexity and information
content. As evolution produced more sensitive nervous systems, competition often took
the form of a predation that was accompanied by **fear and pain**—a creative mechanism
we hesitate to attribute to God, and so some still prefer to blame it all on ‘Adam’s Sin’.

**Genesis 1** tells us that God created life in the oceans first, followed by life on land. The
science story sees it like that also. Chloroplasts in oceanic plants released ‘poisonous’
molecular oxygen, which other organisms ‘learned’ (through evolution) to live with, and,
indeed, eventually used to their benefit. As this oxygen, O2, accumulated in the earth’s
atmosphere it diffused into the troposphere where sunlight changed it into ozone, O3. Just
by coincidence (not by design, Heaven forbid!), ozone filters out ultra violet rays that are
harmful to life. Water also absorbs these rays, and so oceanic life had always been
protected, but by 500 million years ago (the Silurian) enough of the originally poisonous
oxygen, now transformed into ozone, made it possible for the lifeless land to support, at
first, some hardy plants like liverworts. (See diagram p. 21) While these prospered and
evolved into more complex species, animals found a new food source and a new niche.
Eventually the stage was set for the appearance of our primate ancestors and finally the
genus, Homo. During this period, organisms became more aware and developed complex
nervous systems, and, as noted previously, competition could become what we now
would call ‘cruel’. Among members of the same species, competition could cause the less
fit to starve or the less aggressive males to remain bachelors. Competition between
species often took the form of predation, with the predator terrifying and painfully killing
its prey. Many folks, including Darwin himself, were reluctant to accept that this could
be God’s original intention. To retain their conceptions of a loving Creator, it seemed
necessary to attribute painful predation as one of the consequences of Adam’s sin. Could
it be possible, they asked, that God’s method of creation necessitates both Agony and
Ecstasy? Isaiah expressed our longing for a sinless, painless world where the ‘wolf will
dwell with the lamb’ (and happily chew on grass instead of lamb chops).
In developing my argument that humans recently began the Noosphere, it is important to realize that the ‘mechanism’ of Darwinian evolution involves building upon what has worked in the past. A change in environmental conditions might dictate that the ‘old model’ is so inefficient that a completely new tool would be much more efficient. If there were any geological evidence of the sudden appearance of such a new tool in the past, then the belief in God as a guiding Intelligent Designer would be strongly supported over Darwinian evolution. But our human ‘triune’ brains bear out this ‘add on’ method, at least to a rough degree, must have prevailed, at least until very recent time. The inner core that handles the autonomic chores (breathing, heartbeat, etc.) and basic emotions (flight or fight; fear or aggression) can be seen as the ‘reptilian complex’, i.e., the ‘alligator brain’. On top of this sits the Limbic System that serves the more complex functions and the emotions of mammals; i.e. the ‘horse brain’. The brain of the Homo genus has a very large neocortex, which is highly convoluted to maximize its area and serves much more complex needs, like planning and simple organizing. All of this, we can confidently believe, was the product of Darwinian evolution: small mutations, occurring by chance, and those mutations that most successfully passed on genes to the next generation were chosen by competition. However, rare but obvious occurrences of exaptation are recognized in Darwinian evolution. Exaptations are mutations that confer perhaps only a small competitive advantage under the existing environmental conditions, but neither are they costly to maintain, and so they are not ‘discarded’. The enormous increase in the size of the neocortex in the 3 million yrs. prior to Homo sapiens did confer some competitive advantages: the Homo species figured out a way to move into colder climates by learning to ‘borrow’ animal furs, making up for the lack of genes that would produce them; they learned to make stone tools for hunting to make up for the teeth and claws that evolution gave to other predators. The most obvious ‘cost’ was the increase in size of the fetal skull, and thus the need for a wider birth canal. But still, all things considered, a Homo sapiens brain with perhaps 80-100 billion nerve cells appears ‘over-designed’ for their simple culture—or else it was an exaptation waiting to be exploited. So, where in all of this archeological science is the support for Pope John Paul II’s claim that we humans are an exception? Why should we think that we have a Creator God who is especially fond of us?
Well, the Homo sapiens living 150,000 years ago, who were our forebears and had (as near as we can tell) exactly the same DNA as we do, had a brain about equal in size to that of their cousins, the Neanderthals and lived the same life style—but these Homo sapiens were not US! Modern archeology tells us that for a period of over 100,000 yrs. they made the same tools (Mousterian), lived in the same small family groups, and hunted the same game as the Neanderthals. Then suddenly, about 40,000 yr. ago these Homo sapiens took a Great Leap Forward, becoming Homo sapiens sapiens. It was as if their brains, each having about 100 billion nerve cells and more potential connective circuits than the IBM Blue computer, were suddenly supplied with a new operating system and programs. The ‘hardware’ had been around for a hundred thousand years or more—adequate to keep the species competitive but with a much greater potential than was being realized. We can think of the realization of this latent potential as the conversion of an organic brain into some combination of Mind and Spirit that immediately was expressed in art, music and ritualistic burials of their dead. This was the ‘birth’ of what Teilhard called the Noosphere. If Darwinian evolution does not provide an answer for ‘the great leap’, where else should we look?

Tattersall (ref.3, p. 190) asks: “Where does our consciousness come from? Are our minds distinct from our bodies, or does the one emerge from the other? Most acutely posed by Rene Descartes well over three centuries ago, this question is still the center of vigorous
debate. The introduction of evolutionary thought hardly did anything to resolve it; Charles Darwin was firmly of the opinion that brain evolution through natural selection was the unambiguous explanation of human consciousness, while Alfred Russell Wallace, an energetic proponent of adaptation through natural selection in all other matters, was simply “unable to see how this process could have brought into existence the extraordinary awareness of human beings... The mechanisms that lie behind these emergent properties (of the brain) remain among the most important unanswered questions of science, although many lines of investigation are energetically being pursued by neurobiologists, psychologists, philosophers, and others.”

Simon Conway Morris, professor of evolutionary biology at Cambridge University (a ‘traditional’ Christian & author of “the Crucible of Creation”) puts it this way:

“(Darwin assumed) that humans must have had a process of gradual emergence. But the archeological record doesn’t really show that. We know that modern humans only appear about 200,000 years ago. But they didn’t really do much for the first 100,000 years. Why not? They have the same brain size, but they seem rather stagnant. I’m deeply puzzled about the origins of the things that make us completely human, such as our ability to use language and engage in rational discourse, our ability to employ our imagination. I’m not persuaded those things can simply be extrapolated from Darwinian processes.”

This Great Leap Forward (Jared Diamond’s terminology) is the beginning of (in Teilhard’s terminology) the Noosphere —-the Sphere of the Mind and Ideas, which followed after the Biosphere and Cosmosphere. The rapid progress we now see in human life style has nothing to do with our ‘biogenes’ being acted upon by Darwinian evolution. Instead, we are now affected most by evolution in our Noogenes (or in Dawkins’ terms, ‘Memes’). Ideally, competing Noogenes should improve human societies. Our biogene pool has actually become less robust in survival terms, since medical science has prolonged the life of the human carriers of some suboptimal genes (e.g. diabetes) so that they can be passed to the next generation.

We propose that Modern Humans could have appeared through a ‘programming’ process similar to the programming of a modern computer and in such a way that that a single human could then express his/her ideas by use of symbolic words to others, effectively spreading the Noosphere. These words would have to have been expressed vocally, of course. Tattersall states (ref.3,p. 228) “Homo heidelbergensis is the first homonid we know of that had a skull base designed to accommodate a vocal tract of modern kind. The descent of the larynx and the elaboration of the supralaryngeal structures that underlie speech occurred in a more general, respiratory context. And it follows from this that the modern vocal tract arose as an exaptation for language: a preexisting condition that made this remarkable innovation possible once the necessary brain wiring had been acquired.” So these two exaptations certainly makes it feasible that the ‘program for mind’ could be transferred (i.e. taught) ‘by word of mouth’ from the first recipient(s) to
the other million or more Homo sapiens living at that time. As expressed again by Tattersall (p.232): “Language, with its associated mental abilities and behavioral complexities, spread (and diversified) from its place of origin through contact and diffusion among established human populations that already possessed the latent ability to acquire it.” Even though Tattersall does not suggest that evolution can ‘plan for the future’ (i.e., act teleologically), nevertheless, exaptation can occasionally make it behave as if it did. Unlike sexually transmitted biogenes that take 20-25 years to pass to the next recipient, these ‘voiced noogenes’ could be transmitted in minutes, male to male, female to female, child to elder, with the result that the spread of modern human societies could take place at an explosive pace—which is what actually has been observed—an observation that has yet to be explained by the ‘conventional’ science of genomics.
Enlargement of the primate brain during the past 10 million years has no precedent in the evolutionary history of any animal organ. Based on fossil skull sizes, Australopithecus *africanus*, who lived about 3 million years BP and is considered a probable human ancestor, had a brain capacity of 400 cc. A million years later, the brain size of Homo *hablis*, who had the mental capacity to conceive of and craft useful stone tools, had increased by 50% to 600 cc. By 500,000 yrs. BP the brain size in Homo *neanderthalensis* had more than doubled to 1,400 cc. Anthropologists have reasoned that the environmental pressures placed on our earliest ancestors, mainly the rather sudden shift from the ‘friendly’ forests in Africa to drier open savannas, made it more difficult both to *obtain food* and also to keep from *becoming food* for the big cats and hyenas that roamed there. Certainly the enlarged brain made possible the thought processes necessary to craft stone tools that allowed the Neanderthals to become awesome predators even though they lacked the teeth and claws of the big cats. And they had the intelligence to ‘borrow’ the furs of their prey to devise clothing that kept them warm as they moved into the game-rich areas adjacent to the northern glaciers.

Quite an accomplishment, but did that *really* take a 1,400 cc brain—about 7% larger than ours today that we find sufficient to devise a space ship that landed gently on mars to send back color photos and analyze its soil? Was not the Neanderthal brain an outstanding example of evolutionary ‘overkill’—a huge *exaptation*? Apparently so. Darwinian evolution rewards mutations that enable a life form to *survive and reproduce* in the Biosphere—but not necessarily to *maximize the efficiency* of any function it had accidentally produced. The hand axe is a tool that first appeared with Homo *erectus* and later served the Neanderthals very nicely for about 200,000 years without need for significant change. The same axe design also served the early Homo sapiens for >50,000 yrs.—until their brains were, somehow, programmed for exchanging information via language. Then tool design changed rapidly. Their entry into the Noosphere changed all the rules of ‘survival’. The circuits formed from the >80 billion nerve cells in their brains...
were somehow ‘programmed’ to retain information that proved useful, and formed such a redundant network so that, if a gradual loss of nerve cell function occurred, others could take over that function. This resulted in an unbelievable increase in efficiency, as evidenced by a modern study of adult hydrocephalus.

Hydrocephalus is a not-uncommon condition in newborns where an excess of cerebrospinal fluid (CSF) causes the ventricles in the brain to become enlarged. When sufficiently severe, a shunt is inserted to drain the fluid into the spinal cord canal. In 2007 a 44 yr. old Frenchman, who was treated for this condition as a child, was examined by physicians for a slight weakness in his left leg. Upon taking a CT scan of his brain, they were amazed that the ventricles had enlarged, displacing brain cells, so that what remained of his brain was only a thin sheet adhering to the skull. See illustration.

![Illustration of a shunt and a brain scan]

Although his I.Q. showed slight impairment, he was married, had two children and had been leading an entirely normal life. In other words, he was operating as a modern human while having far less than half of the brain size of one of our ancient ancestors, Lucy, the famed Australopithecus afarensis who lived 3 million years ago. This certainly supports the hypothesis that the Noosphere is real, and once a human is born into it and
his/her brain programmed by it, the *inefficient, chance-directed* Darwinian evolution that produced it is supplanted. Just how this ‘programming’ results in ‘mind/soul’—in art, music, philosophy, religion & science—may never become clear. But surely we should now realize what Teilhard de Chardin maintained—that we humans are creatures with one foot in the Biosphere and the other in the Noosphere—this can be accepted on a reasoned scientific basis, and we will never attain a satisfactory understanding of ourselves until we acknowledge the truth of that premise. [Treated further in Epilog 3.]

Oddly, the scientific creation narrative can solve the conundrum posed in Genesis: *Where did Cain get a wife?* Did he incestuously mate with one of his sisters? If he took a bride from the ‘people of Nod’ (Gen 4:16), perhaps they were actually the other *Homo sapiens* who needed only to be taught the ‘new program’ in order to join the human family. Cain seems to be the first farmer, and perhaps he passed on this knowledge as well. In any event, it was the invention of agriculture (somewhat later) that enabled cities to be built and thrive. In addition to creating admirable paintings, sculpture and music, modern humans seemed to revere their dead much more than their predecessors did. Quoting again from “Becoming Human”, Ian Tattersall (p.10): “The Neanderthals had occasionally practiced burial of the dead, but among the Cro-Magnons we see for the first time evidence of regular and elaborate burial, with hints of ritual and belief in an afterlife. The most striking example of Cro-Magnon burial comes from the 28,000 yr. old site of Sungir, in Russia, where two young individuals and a sixty-yr. old male (no previous kind of human had ever survived to such an age) were interred with an astonishing material richness. Each of the deceased (see photo) was dressed in clothing onto which more than 3,000 ivory beads had been sewn, and experiments have show that each bead had taken an hour to make.”
The progress of humans in the Noosphere can be seen as a spiral (not as the circle shown) where humans form societies, which in turn influence the noogenic component of the next generation of humans. These societies are a composite of: governments, religions, charities, corporations etc. each of which has a more-or-less fixed core of “noochromosomes” (e.g constitutions, dogmas, by-laws) composed of “noogenes” that can be amended (i.e.,’mutated’) as human needs change. From this perspective, the ‘selfish genes’ each of us inherits via Darwinian evolution might be considered the ‘Original Sin’ passed down genetically to us from Adam. Then the Personal Sins that each of us becomes accountable for can be seen as our failure to live up to the requirements imposed by our conscience—a conscience that was imparted to each of us to re-direct our selfish genes as we became occupants of the Noosphere. St. Paul (Gal. 5:17) expressed it thus: ‘For the flesh desires what is contrary to the Spirit, and the Spirit what is contrary to the flesh’. What we must constantly be aware of is how the ‘collective conscience’ of our society influences the formation of our personal conscience. Alexander Pope in 1732 expressed this as: “As a twig is bent, so is the tree inclined.”

To take a moment to summarize my version of the Science Creation narrative: The scientific paradigm that can satisfy Christian students in understanding our Universe has the beginning of time and space marked with the sudden appearance of a burst of energy--some sort of creative act by an Intelligent Being. Following extremely precise laws set by the creator, this Cosmosphere unfolded for almost 10 billion years before a primitive form of Life appeared, issuing in the Biosphere. On our planet earth, even the earliest form of life displayed two properties: first, it had to have the ability to store, replicate, transfer and express genetic information; and second, it had to extract ‘free energy’ from the environment and convert it into chemical and other forms of work. It accomplished the second by means of high-energy phosphate bonds. Efforts by scientists (e.g. Crick, Orgel, Eigen) to explain these two properties as having arisen by chance have, so far, failed. About 200,000 years BP, an advanced form of life, Homo sapiens, had evolved a brain circuitry inherently capable of operating as Mind; i.e. inherently capable of conscious awareness and abstract thought, and, most importantly, inherently capable of creating complex societies. To actualize this inherent capability, the Homo sapiens brain had to be provided with what computer scientists now call an operating system and programs. This sudden appearance of what has been called the Noosphere certainly cannot, at present, be ascribed to any evolutionary change in human genes. It is epi-genetic. [epi meaning ‘outside of’] For most people, who are uncomfortable with scientific terminology, the Biblical image of the Creator breathing spiritual life into the shape He had formed from clay serves as well as any.

As an alternative hypothesis--proposed by some scientists who acknowledge no creator god and who demand a purely material explanation for all events--proposes that our present Universe is
only one of many billions that have burst as bubbles from an energy filled vacuum. Our Universe only by chance had the exquisitely-tuned physical constants that has allowed it to exist for the time required to form planet earth and to evolve human life, Homo sapiens. The sudden bursting forth of human culture and the knowledge that has allowed us to be aware of all of this, is still unexplained by Darwinian evolution which requires the relatively slow sexual transmission of genes that impart improved survivability. In contrast, the Christian paradigm we are proposing, which acknowledges the reality of the supernatural, satisfies reason, and actually better satisfies Occam’s Razor, whereby scientists, when faced with two competing theories are advised to choose the simpler one!

Still, what I have proposed here may pose problems to those who hold to a more fundamental Christian Faith. I maintain that modern humans are the result of the relatively sudden instillation of ‘spirit’ and ‘conscience’ into an animal species formed by evolution over many millennia, an event that is better described as ‘Original Blessing’ rather than ‘Original Sin’. As such it hews closely to the Creation Spirituality movement promoted by Teilhard de Chardin and Mathew Fox. Both of these Roman Catholic priests (living a half century apart) were chastised by their church because the official Roman Catholic dogma continues to maintain that all humans are ‘born into original sin’, and unless one acknowledges Christ as our savior from the consequences of that sin, committed long ago, he/she is not worthy of God’s favor. So the scientific narrative and the literal scriptural narrative differ in an important way at this point. The scientific narrative, like Genesis 1, sees no evidence that Humans were created ‘perfect’, destined to live a life of eternal ease, and only later, after sinning, had to laboriously scratch a meager sustenance from the earth. Only a literal reading of Genesis 2 & 3 gives us the conception of disobedience being the Original Sin that incurred God’s wrath and resulted in the curse that was passed on to future generations.

The most strident of atheistic scientists are in the minority when they ignore the unprecedented sudden appearance of humankind on the planet. The world renowned paleoanthropologist, Ian Tattersall in his book “Becoming Human” states: “Truly a new kind of being was on earth”. And further: “Modern Homo sapiens is a totally unprecedented entity, not simply an improved version of its ancestors.” Also: “How did we acquire our singular linguistic/symbolic abilities? The mechanism remains totally obscure.” Then: “Burials with grave goods indicate a belief in an afterlife.....Incontrovertible evidence for existence of religious experience.” Another respected anthropologist, Robert Boyd at UCLA, states: “Evolutionary theory (Darwinian) provides a perfectly good explanation for the behavior of other primates, but not humans. And Bill Calvin, a noted neurobiologist at the University of Washington, is agreement: “mere anatomical modernity was not the big step (toward) the life of the Mind”.

A clear presentation of the argument for the unique position that humans occupy in the scheme of evolution is seen in the book, “Life’s Solutions” by Simon Conway Morris, which has the subtitle: ‘Inevitable Humans in a Lonely Universe’. The main thrust of his book is devoted to showing how convergent evolution ‘navigates’ life toward complex solutions to environmental challenges, and that such features as balance, hearing, olfaction, and intelligence seem destined to emerge on earth, or even on other planets that may support the beginnings of life. In other sections (e.g. p. 275) Morris cites
In view of his strident atheistic attitude, it is surprising to find Sir Richard Dawkins, who gains notoriety in deriding people of Faith, has himself experienced an “epiphany” (even if short-lived) regarding this sudden appearance of humankind. In “The Ancestor’s Tale” (Ref. 2, p. 35): “Archeology suggests that something very special began to happen to our species around 40,000 years ago. Anatomically, our ancestors who lived before this watershed date were the same as those who came later (i.e. no genetic difference)....Something happened then...I like Jared Diamond’s name for it, the Great Leap Forward.” And further: “Perhaps the great Leap forward coincided with the sudden discovery of what we might call a new software technique.” (It would appear that Dawkins assumes there is some sort of supernatural ‘Programmer’, or else a new Operating System was installed by a heavenly Systems Manager.) Embarrassed by his inadequate ability to explain how humankind appeared so suddenly, Dawkins then states: “Much as I would like to linger around the heady time of the Great Leap Forward...we must press on” He then fills in over 600 pages with a commendable account of how Darwinian evolution explains all other life forms. Thus, while certainly not meaning to, Dawkins effectively supports the position stated by pope John Paul II; namely, that whatever the role that evolution played in our development, humankind is intrinsically different from other life forms, both past and present.

Thus we see that John Paul II’s position has been supported by some of the most respected scientists in the field. And yet, after his death there seemed to be a fear in the papacy of Benedict XVI that religious orthodoxy would be threatened by acceptance of Darwinian evolution as God’s method of creating any life form. And thus the Roman Catholic church appears to be retreating to a position supporting Intelligent Design—not just Design on an initial grand scale, but on an ongoing involved basis throughout history. It is too early in the papacy of Pope Francis to speculate on the direction he will impart to this question.

Many proponents of Intelligent Design do find it difficult to reconcile a Caring God with an evolutionary system that depends so heavily on random chance, and so they look for evidence of a God who continuously oversees the process of creation by steering it in accordance with His plan. (This may be poor theology, for then one might visualize God as a sort of Wizard of Oz frantically busy at a console, pulling levers and pushing buttons to keep nature ‘on course’.) To find examples of this ‘steering’ or Specific Design, scientists like Michael Behe look for mechanisms in biological organisms that appear so complex that if one looks at their component parts, none of them could earlier have had any function by acting alone. He calls this ‘Irreducible Complexity’.
In citing the flagellum example shown on the left, he notes that it requires as many as 50 different proteins for proper operation. Bacteria and sperm that use this feature do not fossilize well, and so we have no hard evidence from the past of any simpler models of such locomotion devices. But some living bacteria, such as the one causing bubonic plague [at right in Fig. 2] have a syringe-like device (type-III secretory system) to inject poison into other cells, and though it is quite similar in shape to the locomotion device, it needs only ten special proteins. The other 40 proteins can be found in the bacterial cell performing other functions. Thus the Ken Miller ‘camp’ can argue that the ‘parts’ were present, and over eons of time could have been ‘co-opted’ to ‘construct’ the first crude propulsion devise that led up to what we see today. [Prof. Miller, like Prof. Behe, is a practicing Catholic.] Nevertheless, lacking fossil evidence, there is no scientific way to resolve the question of ‘irreducible complexity’ in this particular example. However, a similar argument was previously made for the human eye, having a simultaneous need for a lens to focus incoming light, an iris to adjust light intensity and a photo receptor to receive the image. In this case there is compelling fossil evidence that the animal eyes were ‘invented’ by evolution at least a dozen times, and now the octopus has one which is more efficiently ‘designed’ than ours.

Most scientists object to Prof. Behe’s efforts on behalf of the Discovery Institute as attempts to teach I.D. as an alternative to evolution—at least that is the way it is often referred to in the press (Time 5/30/11 p.34). Indeed, this would be bad science. However, it would seem proper somewhere in the high school curricula to make room for refuting Jacques Monod’s leap of Atheistic Faith: proposing Chance as the sole Designer—reaching a metaphysical conclusion that evolution never exhibits a purposeful direction. For a balanced presentation, students should at least be made aware of the work of: 1) Simon Conway Morris who does not espouse Intelligent Design but does present solid evidence that evolution is actually constrained to move only in certain directions; and also 2) Ian Tattersall’s “Becoming Human”

It was pointed out earlier that, at the level he used to explain the mechanics of our solar system, LaPlace did not see evidence for the guidance by a god-like intelligence. But as the entire Universe was being explored in greater detail in the early 20th century, architects of the New Physics became aware of the beauty and intricacy of the Laws that
keep everything running, resulting in understandable order instead of total chaos. Indeed, they acknowledged that there appeared to be some kind of Intelligence behind nature’s 
Grand Design, evidenced by the unbelievable precision required of several fundamental 
constants. This induced several noted scientists to propose different levels of an 
**Anthropic Principle;** that is, that the Universe seemed to be programmed to exist for the 
very long time it would take to evolve creatures with sufficient intelligence to appreciate 
the wondrous world they lived in. Three of these exquisitely fine-tuned constants are: 1) 
If the proton’s mass were 0.2% heavier than it is, then all the initial hydrogen would have 
decayed in 12 minutes; 2) the gravitational force between two bodies is the inverse 
square (power of 2) of the distance separating them, and this holds to five decimal places, 
2.00000; 3) the electric charge attraction is also an inverse square relationship, and this 
holds to 16 decimal places. The theoretical physicist, Freeman Dyson, is unabashedly 
direct in support of the anthropic principle: “The more I examine the universe and study 
the details of its architecture, the more evidence I find that the universe in some sense 
must have known we were coming.”

Max Plank, considered the founder of modern physics stated: “*A certain order prevails--one independent of the human mind...there is evidence of an intelligent order of the universe to which both man and nature are subservient.*” Not long afterward, Einstein followed suit: “*There exists a superior mind that reveals itself in the world of experience; this is my conception of God..*” Unfortunately, recent ‘post-modern’ physicists, like Alan Guth, have gained much publicity in reversing this trend: “*Einstein felt free to talk about God; physicists today abhor the word.*”

So, what are we to conclude: On the topic of Creation & Evolution, are science and 
religion in conflict? Much of the apparent conflict between Science and Religion results 
from asking the wrong questions about the essential positions of each. It was previously 
noted that prominent scientists and church leaders have called for cooperation rather than 
competition. Radical positions on each side of the ‘conflict’ muddy the waters— the 
‘Creation Science Institute relies on Genesis to justify a youthful earth, and publishes 
books citing Arizona’s Grand Canyon as evidence for the run-off from Noah’s flood. On 
the opposing side, avid atheists, such as Richard Dawkins, whose desire to prove God is a 
‘delusion’, blinds him to his own statements of facts.
There is both humor and sadness in Michael Ramirez’ cartoon. Of course it is not true that all scientists thumb their noses at God. As pointed out previously, one such is Prof. Morris of Cambridge Univ. who explains how he harmonizes his Christian Faith with evolutionary biology in the Faraday Institute for Science and Religion lectures. (see link above). Another is Francis Collins whose book, “The Language of God” has convinced us that a Christian believer need not change spectacles worn in the lab whenever he/she goes to church. The scientists who do thumb their noses at the very idea of God (e.g. Guth and Weinberg) are the poorer for that stance—both emotionally and philosophically. By denying the reality of the Spirit, they are, as Einstein said, “somewhat lame”. They miss a dimension of Life that even a simple shepherd boy 3,000 yrs. ago was able to grasp. When David became king, he wrote down these thoughts (noogenes) as Psalms, and recently Bernadette Farrell set Psalm 139 to music, which is available on this link: http://youtu.be/uweB3ETATEU (be sure to click on ‘full screen’) My knowledge of science gave me a greater appreciation for the beauty that I’ve tried to express in these photos, but, by itself, science could not express the emotion they invoke.
O God, You Search Me
By Bernadette Farrell
From Psalm 139

O God, you search me and you know me
All my thoughts lie open to your gaze.
When I walk or lie down you are before me:
Ever the maker and keeper of my days.

You know my resting and my rising.
You discern my purpose from afar;
And with love everlasting you besiege me:
In ev’ry moment of life or death, you are.

Before a word is on my tongue, Lord,
You have known it’s meaning through and through.
You are with me beyond my understanding:
God of my present, my past and future, too.

Although your Spirit is upon me,
Still I search for shelter from your light.
There is nowhere on earth I can escape you:
Even the darkness is radiant in your sight.

For you created me and shaped me,
Gave me life within my mother’s womb.
For the wonder of who I am, I praise you:
Safe in your hands, all creation is made new.
Epilog 1: Summarizing a World View that Reconciles Religion with Science

In a Nutshell: God created this Universe *ex nihilo* about 13.5 billion years ago, giving it freedom to unfold and evolve in various ways that would produce a maximum of variety and complexity out of its original simplicity—an immense flash of radiant energy. How life began is still a mystery, but it greatly speeded up the appearance of both variety and complexity until it had produced conscious minds in a primate we call Homo sapiens—minds that could attempt to figure out how they were created and what their purpose might be.

The behavior of early Homo sapiens, our ancestors who passed on their genes to us, was determined largely by instinct. Without genetic change, this behavior (in ‘Adam’) suddenly became subject to the operation of Mind and produced what we now recognize as exclusively human: religion, science, art, music, free societies. ‘Adam’ passed on to us genes for the proclivity to sin, not sin itself.

(A) A point made early in this presentation was that acquisition of conscience appears to be the essential prerequisite for marking the historical beginning of human nature (like the fabled Pinocchio), and so we should ask: How can science guide us in questions of morality and justice? One unsatisfactory atheistic view, proposed by Sam Harris, is that science can totally replace religion as a moral guide. Even agnostic scientists find this unreasonable. It makes more sense to recognize that the simple circular (or spiral) diagram, (p.26) depicting the interaction of humans with the society in which they reside, hides an immensely complicated relationship that sums up how the ‘collective consciences’ dictate what is accepted as moral code and fosters a system of justice. We can only be truly ‘human’ if we are part of a human society (Donne: ‘no man is an island’). But if societies evolve and their ‘collective consciences’ establish the moral code, this is in stark contrast to the past belief in the instantaneous creation of Adam, and the fixed moral code God had ordained at the very inception of human souls. There are many examples of the controversy raging over this topic today: Traditional Values hold that a valid marriage is only between one man and one woman, but our U.S. president admits that his view on Gay Marriage has ‘evolved’. Or use of ‘the Pill’ that can separate sex from reproduction—seen as morally acceptable by a commission established by Paul VI, but overruled by that Pope himself in the encyclical, Humanae Vitae. Did God ever really decree that charging interest on loans was evil? Or are we now as a society getting to know our God better? Based on their interpretation of Scripture, past societies allowed one human to own another as a slave; now our collective consciences say we ought not.

If we accept the Baltimore Catechism postulate that God created us to know him, and society is essential to acquire the knowledge base to make any reasonable attempt at doing so, then God must be intensely interested in the kind of societies we freely form. Religions and Governments are two of the most powerful components of modern societies. In the U.S. (and most Western democracies) it has been decided that separating these powers leads to maximizing the positive contribution of each. This is in contrast to
the theocracies (Spain in the 16th century; Iran today) where the essentials of morality and justice were expressed by ‘inspired’ human minds (or, as some believe, directly dictated by God) a thousand or more years ago. These remain inflexibly coded into law, even when faced with modern reality. Humans in a ‘failed state’ (e.g. Somalia or Afghanistan) are hard put to further their knowledge of their Creator. There no such knowledge can be sought outside the Koran, and Sharia Law is imposed. To us in the West this can seem frightening, and yet how much truth is there in the radical Islamist charge that the U.S. (and most Western societies) deserves the title of “The Great Satan”? Are we in the West ignoring some of the moral anchors that our Christian religion provides?

Under the most ideal of conditions it is sometimes difficult for the human mind to reconcile reality with a Just and Loving God. For instance there is ‘The biblical Job Conundrum’—“Why do bad things happen to good people?” It has stumped many a theologian and preacher through the centuries. The ‘spin’ given in the book of Job has been re-worked in countless homilies in various churches and synagogues, and almost none of them appeal to reason. The modern scientific view of the evolution of the Cosmosphere and Biosphere does offer a reasonable answer, but one that takes some re-thinking of the divine attributes; i.e., has God’s method of creation shown that he has always been Just and Caring in the ways that humans currently view those qualities? A hint of this ‘reasonable spin’ can be seen in ‘the Voice from the Whirlwind’ mentioned in Job (38-41) “Where were you when I laid the foundations of the earth?”

The primary attribute of a Creator God—one that is totally compatible with contemporary science and Christian Faith—is Intelligence. The Laws governing the development of the Universe in the first microseconds of its creation (Hoyle’s Big Bang, or Lemaître’s Ylem) are complex beyond our present understanding, but they evidently were sufficient to ‘unfold’ (rather than evolve) a Cosmosphere that finally contained 92 types of atoms that could combine in ways that provided a foundation for Life. In the beginning of the Biosphere, after primitive pre-life forms reproduced information that could compete for survival, the concepts of Caring and Justice could have little or no meaning. Even when these life forms became complex enough to become aware that they were in a competition for survival, the essence of the Creator’s plan to increase complexity and variety demanded that each species reproduce more of its kind than its environment could support. Perhaps this is what the Voice from the Whirlwind declared: the joy and ecstasy of New Creation demands agony for those who are losing out. As life forms became more aware of pain and fear and immanent death, this, to modern human minds, may sound like a callous method of creation, and yet it produced some exquisite variety and forms of animals and plants that are marvelously adapted to the environment they participate in. Could human intelligence have devised something better? Having set the
Universe in motion to freely create variety, perhaps God waited patiently for evolution to produce a life form (on earth) that was capable of an intelligence that could, at least dimly, appreciate the Creative Intelligence that was responsible for everything. And He invites us, both as a society and as individuals, to become co-creators with Him, infusing into our communal lives the elements of Care, Compassion, and Justice that we see lacking in the Darwinian evolution that preceded us. Yes, He wants us to continue His work!! If there is pain in this world, it is up to us as co-creators to minimize it (giving purpose to those at NIH, Doctors Without Borders, City of Hope etc.); if there is injustice, it is up to us to set matters aright (every lawmaker, judge and jury should take heed); if we have been given dreams of what the ‘heavenly kingdom’ might be like, it is up to us to bring them into actuality here on this earth, as much as it is possible to do so. The ability to form large, powerful societies is what enabled modern humans to become the dominant life form on earth. But any reading of history clearly indicates the downside of that power. The core of Jesus’ message is that this Power must be harnessed and directed by Love and Compassion to accomplish the purposes God has in mind for humanity. As founder of our Christian faith, Jesus was unique in that, although part of the Biosphere during his lifetime, he had no wish to extend the biological aspect of himself into the future (in spite of what Dan Brown tried to pass off in “The Da Vinci Code”). Sacrificing his human life to illustrate the power of Love, he impacted the Noosphere like no one else ever has or ever will. The Bible tells us we are made in His image, but that refers to the spirit. How much freedom does this give us to repair the biological defects we inherit from Darwinian evolution? [Further discussion of this controversial topic will be found in Epilog 4: Emerging Humans.]
Epilog 2: Original Sin

St. Paul (in Rom. 5:12-21) set the groundwork for the belief that the sin of disobedience committed by Adam was passed down to all future generations. However it is probably accurate to state that Original Sin was not fully embedded as dogma until the controversy between Pelagius and Augustine was settled at the 2nd Council of Orange in 529 in favor of Augustine. In light of the greater amount of information available to us today, it is rather unfortunate that Pelagius and his adherents were judged to be heretics (Augustine was declared a Doctor of the Church and later a saint). Now we realize that both these philosophers had valid points to be made in their arguments. In what follows I use the perspective developed in my main presentation, namely: ‘Adam’ is considered to be one (or more) early Homo sapiens that first received the gift of Mind and Conscience and was the first human(s) to enter the Noosphere. Original Sin can be seen as the condition of the evolved Homo sapiens (pre-Adam) who possessed ‘selfish genes’ and acted largely on instinct.

The three most important points that Pelagius wanted to make were: (1) Even if Adam had not sinned he would have died; 2) Adam’s sin harmed only himself, not the human race; 3) Children just born are in the same state as Adam before his fall. As pointed out in the main presentation, if point (1) is not true, then all biological science is false. As for point (2), the possession of ‘selfish genes’ should not be termed a ‘sin’ in the usual sense, but it is a frailty, and this frailty is truly passed on to future generations. Thus point (3) truthfully states that a modern baby enters this world morally frail but sinless. Thus, having inherited the genome of early Homo sapiens (‘pre-Adam’), the newborn must do battle with those selfish genes by using the conscience given first as a gift to Adam and later passed on, epigenetically, through the Noosphere. That is one of the responsibilities that the sacrament of baptism confers on the godparents.

Once Pelagianism was declared a heresy, it is difficult to use a reasoned approach to see what might have been lost. On the other hand, if Pelagius point (3) is true and babies come into this world free of Original Sin, then what is baptism for, and what is the role of Jesus as our savior? Sin, we can understand, and saving us from its consequences is obviously desirable. It is much more difficult to explain to the average person that we need ‘saving’ from the consequences of our ‘selfish genes’. After all, if we are the result of God creating us via evolution, isn’t he ultimately responsible for everything that IS, but the history of the entire Universe represents a journey. Where is it leading? What are we humans BECOMING? Stated in grossly oversimplified terms, perhaps God, when he perceived (about 40K years ago) that, on this earth at least, evolution was not going to produce a life form that could be viewed as in his image, he intervened and instilled in Homo sapiens a conscience as a gift, pure and simple. Then later, as this gift was being badly misused, he sent his son (as true a likeness of himself as can be contained in a human form) as a model and teacher of the converting power of Love. Is it heretical to believe
that Jesus was sent to earth, not to save us from God the Father’s wrath, but rather to show us that we humans could truly be worthy of the description ‘made in God’s image’ if in our hearts and minds we really believed in God’s Love? If this could be brought about, would it not be Parousia—Christ’s Second Coming?
Since he postulated that humans began the Noosphere relatively recently on a geological scale, Teilhard would not be too surprised to learn that in the 21st century the Geological Society of London is considering giving the name, ‘anthropocene’, to the present era that reflects the effects humankind is having on earth’s biosphere and atmosphere, and which, unfortunately, may cause species extinction rivaling those marking the end of the Devonian and Cretaceous eras. Note: All of Teilhard’s works make for difficult reading. Many find him ‘too mystical’. This may be due to a combination of the translation from the French, or to his fondness and overuse of parentheticals, or to his perceived need to present his avant-garde philosophy as a more difficult target for Vatican authorities to condemn.

In ‘The Selfish Gene’, Dawkins titled the final chapter, “Memes: the new replicators”. He credits them as the foundation of human culture, and sees them as giving purpose to an otherwise meaningless existence. “We have the power to defy the selfish genes of our birth….We can even discuss ways of deliberately cultivating and nurturing pure, disinterested altruism—something that has never existed before in the whole history of the world. We, alone on earth, can rebel against the tyranny of the selfish replicators.” Of course, as an evangelical atheist, Dawkins cannot attribute this in any way to God’s plan for humanity.

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