

Something to think about

In my years in the ministry I was often asked why it was that the Bible didn't mention Dinosaurs and other species from the fossil record? That's the sort of question that can't be answered in a few brief words, because the underlying question is the real issue – Why do science and the Bible seem not to agree? That is the real question. And behind this question is the fact that so much of media driven science reporting, that is, popular science, dwells on the evolutionary aspect and leads one to believe that all life forms evolved from simple life to more complex forms over billions of years.

Dinosaurs are, for whatever reason, often the foil for a more basic question: Doesn't science prove it has replaced the Bible as the ultimate source of truth? Nietzsche – the Prussian philosopher (1844 to 1900) claimed that the discoveries of Copernicus, Galileo, and Darwin had conclusively replaced the Bible as the sole source of truth. Time magazine in 1966 devoted an entire issue that dwelt upon the question as to whether or not Nietzsche was right under the cover title "Is God Dead." The general impression given that indeed was the case.

Nietzsche wasn't the first one to raise the question, Voltaire was a French philosopher of the Enlightenment era, living in the 17th century, who thought it humorous that the putative God of the Bible would have an interest in the affairs of earth. The thought that God was the Creator of the world was simply a misconception. For him, Copernicus had conclusively proven that Earth wasn't the center of the universe and had, in fact, made the notion of God untenable. Copernicus was born in 1473 and had proven that the earth wasn't the center of the universe, but instead that it was a planet that revolved around the Sun. This was anathema to the Roman Catholic Church at the time, who taught that the earth was the true center of the universe. Copernicus was forced to recant his findings under the threat of the Inquisition. Of course, in time he proved to be right and the Roman Catholic Church was wrong, and this incident was to become an issue that in many people's minds proved that Christianity and the Bible were not to be trusted for the truth.

What keeps the debate alive is that both sides of the theological debate have an abundance of facts which they can trot out. Unfortunately, in the zeal to protect imagined biblical turf, the church has often claimed more for God's *assumed interventions* in nature and less for God's *law* of nature than the Bible itself claims. I should note that when I use the word "church" I have to restrict it to the

Roman Catholic and Protestant churches of the West. So far as I know, the Orthodox Church has never been drawn into this quarrel, nor has it addressed the question in any official manner. That doesn't mean, that as individuals, that they may not have raised questions about the matter, especially since the Orthodox Church has come into greater prominence in the west over the last two centuries, where it is very much an issue.

Let me now speak to the question as to why I think this may be of some concern to the Orthodox Christian. Recently I was asked how could I could explain the fact of dinosaurs in the light of fact that the Bible doesn't mention them? My response was to say that was too big of a question to ask one to explain in a few simple sentences, although I made the general suggestion that there were reputable scientists who find the Bible to be more descriptive of what I called phases in the evolution of this planet and the life forms on it than is generally known.

The question was raised because of the article that appeared in a recent issue of "The Spirit of St. George" telling of my discovery of the remains of an Apatosaurus in Utah in 1938. It is now on display in the Field Museum in Chicago. The discovery was an accident. I was assisting my Geology professor Ed Holt in the preparation of his Ph.D. thesis. I was doing the plane table and alidade mapping of a particular stratum that had led us into the Arches National Monument region of Utah. I was not searching for fossils – paleontology is the scientific name for the field - but I was, at that point of time, a geology major with a minor in paleontology.

What I have to say is not original with me. Instead I shall be telling you what others, who are scientists have to say about this issue. Because of my background of studies which is based upon my early college studies in Geology and in Paleontology, and upon both reading of a great number of books and attending lectures during my fifty years as a minister in the Episcopal Church, I have had to inform myself about the scientific facts, insofar as I was able, because my parishioners had sometimes raised the question with me.

What continues to drive the thought that religion and science must be at odds is ill-conceived? Current surveys in Western countries consistently report that most people (in excess of 70 percent) believe in some form of evolution and, at the same time, in a divine Creator. However, at the same time, many do this with some degree of questioning. Within this framework of belief there still lies the

misconception that somehow religion and science are a dichotomy rather than a duality: there is scientific truth, and on the other hand there is spiritual truth. And these two truths arise from different sources, and never the twain shall meet. Knowledge and intellect provides the basis for scientific truth, whereas, only faith provides the basis for spiritual truth.

For centuries this split has dominated our thinking and given many an individual believer the impression that it's best to ignore the split, but it still causes intellectual unease. We don't need a minister of the Christian faith or a university philosopher to measure the decay in the fabric of our society as regards the faith aspect. The daily news is ample evidence of the fact.

The medieval philosopher, Moses Maimonides (1138-1204AD) wrote that the conflict between science and the Bible arise from either a lack of scientific knowledge or a defective understanding of the Bible. To relate these two fields in a meaningful way requires an in depth study of both. Nobel laureate and high energy physicist Steven Weinberg is not sympathetic to the idea that ancient commentators on the Bible foresaw modern cosmological concepts regarding the origin of the universe. However, in his recent book *Dreams of a Final Theory*, he readily admits, "It should be apparent that in discussing these things....I leave behind any claim to special expertise."

For the religious believer, it is time to render unto Einstein that which is Einstein's: namely Einstein's science has given us a powerful tool for the examination of life as we know it. Scientists aren't always right, but they are very good about testing their own theories and correcting their mistakes. The late Professor Richard Feynman, a major founder of much in modern Physics, in the opening volume of his classic: *The Feynman Lectures on Physics*, describes what science can do for religion:

"Poets say science takes away from the beauty of the stars—mere globs of gas atoms. Nothing is 'mere'. I too can see the stars on a desert night, and feel them. But do I see less or more? The vastness of the heavens stretches my imagination—stuck on this little carousel my little eye can catch one million year old light. A vast pattern—of which I am a part—perhaps my stuff was belched from some forgotten star—(for we are made of star stuff). Or see them with the greater eye of Palomar (the observatory in southern California), rushing all apart from some common starting point when they were perhaps all together. What is the pattern, or meaning or the why? It does not do harm to the mystery to know a

little about it. For far more marvelous is the truth than any artists of the past imagined. Why do not the poets of the present not speak of it? What men are poets who can speak of Jupiter if he were like a man, but if he is an immense spinning sphere of methane and ammonia be silent?

Still, science has its limitations, and skeptics too must realize this. It can never speak to the *purpose* of life, the 'why?' which Feynman so empathized. Colleagues who follow in the footsteps of Einstein would do well to render unto the Bible that which is the Bible's, the search for purpose. Using logic, a modest degree of scientific knowledge, and ancient biblical interpretation, I would like to discuss the duality, not the dichotomy, of science and the Bible.

The scientist as he looks at the universe and tries to extract underlying principles by which it functions is relying on the inherent consistency he observes in nature. If the laws of nature are not fixed, if they are being somehow tampered with in some unknown way, then his science is useless. Fortunately, the consistency of the created order of things is also basic to our biblical religion. So, both science and the Bible are in agreement on that score, though not all scientists believe that there is anything in the Bible that they need to consider.

Some eight hundred years ago the Jewish kabalistic scholar Nahmanides wrote that, (quote) "since the world came into existence, God's blessing did not create something new from nothing, instead the world functions according to its natural pattern."(unquote) In other words, kabbalah states that the laws of nature were and are adequate to channel our universe toward the development and sustaining of life. Kabbalah is the Jewish term for deep logical thinking and there are numerous Kabbalah synagogues in Israel today.

Professor Weinberg is an avowed skeptic, but even he agrees with Nahmanides. He says, (quote) "Life as we know it would be impossible if any one of several physical quantities had even slightly different values....One constant does seem to require incredibly fine tuning." (unquote) This constant has to do with the energy of what has become known as the Big Bang. Weinberg quantifies the fine tuning as one part of 10 to the 120 power; that's the mathematicians way of saying, One part of 10 to 120 zeros. If the energy of the Big Bang differed by one zero there would be no life anywhere in the universe. In other words the universe was tuned for life from the beginning. Genesis agrees: when life first appears on the third day, the word creation does not appear. We are simply told: "The earth brought

forth life.” In other words Earth had within it all the necessary properties for life to flourish.

Michael Turner, astrophysicist at the University of Chicago and the Fermilab, describes that fine tuning with a simile.: (quote) “The precision”, he said, “is as if one could throw a dart across the entire universe and hit a bulls eye one millimeter in diameter on the other side.”(unquote) Scientists discover astonishing facts almost every day. Such as physicists realizing how a tiny difference in temperature at the time of the Big Bang would have made it impossible to sustain life as we know it. Biochemists and Biologists, like Michael Behe, author of the book, “*Darwin’s Black Box*,” have discovered, with electron microscopes that can reveal things as small as an molecule, the delicate marvels of the living molecular machines (for lack of a better word) that convey the food necessary for our sustenance to the various cells of the body. And the complexity of the cells, how they protect themselves from danger from outside for example, is astonishing. They even have chemical codes by which they communicate information between cells and those that service them. I never read Behe’s book without marveling at the wonderful complexity of our bodies. Behe himself is unabashedly a confessing Christian. Still, there are prominent scientists that are avowed atheists or agnostics in spite of what they see every day in their research. So, seeing doesn’t always lead to believing.

Aristotle, 2,300 years ago, observing that nothing comes from nothing, assumed therefore that nothing ever will—or did. Therefore he defined the universe as eternal. This stands in stark contrast to the claims made in the Bible, a thousand years older than Aristotle, in the opening verse of Genesis: “In the beginning...” Gen. 1:1. However, Aristotle had no trouble in believing in an eternal universe and a belief in a supernatural god. In fact, he believed in a whole host of gods.

There are some amusing claims about creation. Archbishop Usher of Armagh, Ireland in the 15/16th centuries assumed that by summing up all the generations listed and then estimating the length of the reign of each of the rulers in the Old Testament he could arrive at the date for creation. His declared date was for late autumn, at high noon 23 October 4004 B.C. On the other hand, Johannes Kepler, an astronomer contemporary of Usher disagreed with him, declaring that it was not in Autumn, but Spring of the year 4004 B.C. that creation occurred.

Amusing though it they may be, the fact is that it is instructive to note that Usher’s and Kepler’s calculations of an approximately six thousand year old

universe are infinitely closer to the current estimate of time since the Big Bang than either Aristotle's opinion, or that of two-thirds of the U.S. astronomers and physicists who were queried on the matter in a 1959 survey, who agreed with Aristotle. Their logic coincided with Aristotle but was in error. The biblical paradigm of a beginning for our universe, a creation, was correct. The error in the Bible age of the universe was not in the Bible, but in how Usher and Kepler used the details of the Bible to make their calculations.

If I had to assign blame for much of the ongoing struggle between science and religion and the resulting erosion of biblical credibility, it would be to the leaders of the Roman Catholic Church and numerous Protestant leaders. I am not aware of the Roman Catholic Church ever having officially repudiated the Inquisition. Copernicus (1473-1543) had the audacity to suggest the Sun, not the Earth, was the center of our solar system, not of the universe and was forced to recant by the Inquisition. He was a believing Roman Catholic as well as a prominent astronomer. His discovery did not shake his faith, but it mightily disturbed the Roman Church leaders.

So, the concept of evolution was condemned as unacceptable to the Roman Church, notwithstanding the fact that Darwin, in a closing line of his book attributed the entire evolutionary flow of life to, in his words, (quote) "in several powers having been originally breathed by the Creator in a few life forms or into one." (unquote) Darwin's sympathizers took up his argument and made him to be responsible for the claim of the evolution of all life, including humans, from lower forms into higher forms. Making him the Father of Evolutionary theory. However, it was really Thomas Huxley whose writings made all forms of life to be evolved over vast periods of time, the cornerstone of evolution. He wrote: (quote) "The myths of paganism {referring to the Hebrew Bible} are as dead as Zeus and the man who should receive them in opposition to the knowledge of our time would be justly laughed to scorn....In the 19th century, the cosmology of the semi-barbarous Hebrew is the opprobrium of the right believer....The doctrine of special creation (of each species) owes its existence very largely to the supposed necessity of making science accord with the Hebrew cosmogony." (unquote) This is the same Huxley who later promoted a falsified fossil record that purportedly proved the smooth evolution of the modern horse. Perhaps you have seen this pictured in texts showing the purported evolution of the horse. Huxley's reliance on the fossil record to eventually prove Darwin's thesis of gradual evolution is now known to have been misplaced.

There is no evidence in the fossil record of any smooth transition of life forms. The fossil record reveals that each species comes into being or passes out of being as a specie – no evidence of evolving exists.

What does the Bible have to say about this? Those who read Genesis literally are hard pressed to defend their position. How can such a strange and even poetic text be read literally? The Babylonian Talmud Hagiga dating from the year 500 states explicitly that in the opening chapter of Genesis, (quote) “all thirty-one verses are stated in a manner that conceals information.”(unquote) It is of more than passing interest the very first word twxr‘b(read right to left) “Be’raesheet” in Hebrew, and almost always translated as “In the beginning,” in the kabalistic tradition of Judaism means “With wisdom” God created the heavens and earth,” and elucidates that which is held within those verses.ⁱ Kabbalah is a system of logic, not mysticism, but it is logic so deep that it might seem mystical to those unfamiliar with it. I have sometimes said that much of what is read in the Old Testament has to be read metaphorically, that is, figuratively.

For example, the account of each of the first three days of creation week closes with “. . . and there was evening and there was morning . . .” (Gen. 1:5, 8, 13). Nothing seems unusual about that until we get to the fourth day when we discover that only on the fourth day does the author produce a sun (Gen. 1: 14-16). Having evening and morning on the first three days without a sun might, perhaps should have, caused us to look beyond the literal reading of the text.

Here is another: Adam is told: “Of every tree of the garden you may eat freely. But of the tree of the knowledge of good and evil you shall not eat, for on the day that you eat of it you shall surely die.” (Gen. 2:16, 17) The verb “die” in the Hebrew is doubled to emphasize the certainty of the punishment for transgression, tvmh tvm,, hence, the doubling of the verb means “surely die.” Adam does eat of it, and then he lives for 930 years (Gen. 5:5). Did I miss something? I thought he was to die on the day he ate the fruit of the tree – until you recall the Hebrew for “die” is doubled.

Has the author, divine or otherwise, forgotten what was written a few passages before? With a literal reading, the second sentence of the Bible contradicts the first sentence. What are we to make of this contradiction? Well, let me suggest that the author was smart, these contradictions are not by chance and are not errors. Instead, they are signals that should encourage us to seek the deeper

meanings held within the text, just as we seek meanings hidden within the subtleties of nature.

The first step for any cooperation between the findings of science and the Bible is for each to understand one another. Distancing the Bible from a few misplaced theological misunderstandings will help. For example, Earth doesn't need to be at the center of the universe for biblical religion to survive. Christian religion, for the most part, has learned to forego the notion of the universe revolving around the Earth. We have learned to accept gravity as a part of nature, and most important, to read the Bible as Moses insisted three times on the day of his death, as a song (poem), a metaphor, as a text having within a subtext that harbors multiple meanings (Deut. 31:19, 30, 32:44).

With the foregoing in mind, let's turn our attention to what science can tell us. Some 250 million years ago, 95 percent of all marine species suffered a massive extinction.ⁱⁱ The ecology was wide open for innovation, why didn't it happen? Almost four billion years ago, an exquisite, efficient system for encoding and transmitting the information needed to guide an organism's development from seed to adult appeared. That system, the double helix of our DNA, to this day guides all forms of life from microscopic bacteria to elephants and humans as well. We find as well that there are constraints. These restraints are not by chance. They reveal a limit, a definition, in fact a channel, for the breadth of choices available to the development of life.

Obviously, the biblical concept of an infinitely powerful Creator demands that in this infinity it can produce and control all of life at will. But there isn't a hint in the Bible that this control is constantly exercised. Instead, to quote Nahmanides again, "the world [channeled by the laws of nature] functions according to its natural patterns."(unquote) Consider just three episodes of the many that make this so clear.

1. To aid the conquest of Canaan, God promises to send hornets in order to make the enemy flee (Deut. 7:20). We read, "And the Lord thy God will cast out those nations little by little [Why little by little?] Because . . . lest the beasts of the field increase upon you." There's a problem here. If God can control the hornets to drive out the nations, why doesn't God also keep the beasts from multiplying? But nature is given a free reign at this level.
2. Of the twelve tribes of Jacob, only the tribe of Levi was to serve directly in the Temple. For this they must be physically fit. The Bible lists a number of

birth defects which unfit a Levi from fulfilling this potential (Lev. 21:17-23). Why can't God prevent such birth defects? The biblical concept of God is that He could prevent all birth defects. But the world as described in the Bible doesn't always function according to our demands. Most children are born healthy and physically normal, but not all. Nature has its level of freedom.

3. "And God saw the light, that it is good" (Gen. 1:4): "And God saw that it [the oceans and the earth] is good" (Gen. 1:10): "And God saw that it [the origin of plant life] is good (Gen. 1:12) – and on and on God sees that "it is good" seven times in the thirty one verses of the first chapter of Genesis—the creation chapter. Almost a quarter of all those verses are devoted to God's discovering that "it is good." Didn't God realize from the start that it would be good? Perhaps, but this is not made explicit in the text.

Time and again, the Torah (first five books of the Bible) implies that the infinitely powerful biblical God withheld His control and allowed the world to follow its own course. With this approach to world management, the results were not always "good." The Creator then redirected the flow of events. Adam and Eve are placed "in the Garden of Eden to work it and keep it." "And the eternal God commanded the man, saying, from every tree in the garden you shall surely eat." The one exception was that "from the tree of the knowledge of good and evil you shall not eat." But Eve and then Adam did eat, and God expelled them from the Garden. The rest is history.

I've written enough to demonstrate how complex the issues are, that make it difficult to make it clear that there shouldn't be any questioning of why dinosaurs (and a host of other species) once existed and now don't. For those interested I would strongly recommend that you acquire Gerald L. Schroeder's book: *The Science of God: the convergence of scientific and biblical wisdom*. Finally, let me quote directly from Schroeder's book (p. 45-47): "In the fall of the secular year 1996, the biblical calendar reached the year 5757. This is calculated by adding the ages of the generations of humankind as they are listed in the Bible and the rulers thereafter."

He further writes: "The calendar has reached the year 5757(1997). But what event marks its beginning? Logically, the calendar should start with the creation of the world. That would be the generations since Adam plus the six remaining days. But such is not the case. Two thousand years ago, long before there was any controversy over-millions-of-years old dinosaur bones and cosmic ages reaching

the billions of years, the starting date of the biblical calendar was set at the creation of the souls of humankind (Gen. 1:27), and not at the creation of the universe, the “In the beginning” of Genesis 1:1

“To understand the basis upon which ancient scholars relied in excluding the six days of Genesis from the biblical calendar, I suggest reading the opening chapter of Genesis a few times, paying particular attention to the description of the events and the flow of time related to those events. Then, read any other chapter in the entire Bible, again concentrating on the flow of events related to those events. Note how the context changes. The description of time in the Bible is divided into two categories: the first six days, and all the rest of time thereafter.

“During these six days, blocks of events are described and then we are told that a day has passed. This is repeated in a totally objective fashion, six times. It is as if there were a consciousness reporting the events from the outside looking in. There is no intimate relation between the event and the passage of time. The text, for example, does not state that five hours and twenty-three minutes into the next day God separated the water from the dry land; and then, after say another nine hours and forty-five minutes into the third day, plant life appeared. Rather we are told that the land and waters separated, plant life appeared, “And there was evening and there was morning a third day” (Gen. 1:9-13). No hint is given for the time each of these major events took.

“With the appearance of humankind, the accounting changes dramatically. The **events** now become the **cause** of the **flow of time** as we know it. Adam and Eve live 130 years and are the parents of Seth (Gen. 4:25, 5:3). Seth lives 105 years and is father to Enoch (Gen. 5:6). The passage of time is totally tied to the earthy events being described. These are indeed years of an earthly calendar.

“Now here’s a puzzle. If, as those ancient commentators claimed, the six days are twenty-four hour days, then why not include them in the calendar? Why not have the calendar start six days earlier? And why must these commentators tell me days are twenty-four hours each? The Bible says “day.” I know a day takes twenty-four hours to pass. Why do they think I would think otherwise?

“As we learned, our questions were anticipated thousands of years ago. The six days are not included in the calendar because within those (six twenty-four hour) days are all the secrets and ages of the universe.

“The confusion mounts. How can six days contain the ages of the universe? And if they are truly ages, then why refer to them as days? The ancient realization that somehow the days of Genesis contained the generations of the cosmos is based on two Bible verses: “These are the *generations* of the heavens and earth when they were created in the *day* that the Eternal God created Adam” (Gen. 5:1). In both verses, ‘generations’ are juxtaposed to days of Genesis.

“If the twenty-four hour days of Genesis were adequate to include all the days of the universe, the cosmic flow from the creation at the Big Bang to the creation of humankind, we clearly require an understanding of time that is not obvious to our unaided senses. Albert Einstein provided that understanding.

“In 1915, Einstein published a description of nature which revealed an extraordinary and seemingly quite unnatural fact: the rate at which time passes is not the same in all places in our universe. Changes in gravity and changes in the velocity at which we travel actually change the rate at which our time flows. At first such a concept appeared to be highly speculative and so this aspect of nature was referred to as the *theory* of relativity. But it is no longer a theory. During the past few decades, the relativity of time has been tested and verified thousands of times. It is now the *law* of relativity.

“The law of relativity tells us that the flow of time at a location with a high gravity or a high velocity is actually slower than at another location with lower gravity or lower velocity. This means that the duration between ticks of a clock (and the beat of a heart) in the high gravity or high velocity environment is actually longer than the duration for those in a low gravity or low velocity environment. These differences in time’s passages are known as time dilation.”

Actually, Schroeder has much more to say on the subject (205 pages), but enough has been said to at least make you aware of the fact that the Bible and science are in remarkable agreement. Seemingly contradictory statements have, I hope, been cleared enough to make one aware that there is no contradiction when rightly understood. Life forms came and went in several great lengths of time. They are beyond our ken in our time, but their time was real enough, and the reason for their being exterminated is another conundrum. We can perhaps have it all explained to us when the God and Father of us all takes us unto Himself.

1 J Levington., "The Big Bang of Animal Extinctions, *Scientific American*, July 1996
D. Erwin, " *The Mother of Mass Extinctions*," *Science* 270:1585, 1995
2 H. Pagels, *Perfect Symmetry*, Michael Joseph, London, 1985
J. Maddox, "Down With The Big Bang," *Nature*, 340-345, 1989

ⁱ Gerald L. Schroeder, *The Hidden Face of God*, p.178