

Millennial Physics

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Synopsis: This writing covers many areas of study within physics and physical chemistry. It discusses gravity, the origins of the universe and transmissions between stars. It creates a structure on which the future of physics can be supported. The writings do not discuss in depth the qualities of antimatter and imaginary time, and discuss atomic physics to integrate antimatter and imaginary time into other subjects.

I: *Significant Moments*

This presentation was written in the *Significant Moment* known as year 2005. What do I mean by the phrase *Significant Moment*? The word 'Moment' is defined as a period of time, which has an instant at which it begins, a duration, or a span of time, and an instant at which the Moment ends. 'Significant' relates this moment to any subject you are studying. By use of a defined beginning or ending instant, and its duration, the time constant used to define an event can greatly help express the event. A defined *Significant Moment* has both a specific beginning and a specific ending instant, and its duration is set along the real timeline. The use of a proper *Significant Moment* in descriptions of events in physics helps the researcher and the student to better grasp the meaning of events.

As an example, pretend you are giving a lecture on the erosion of a present day mountain range on Earth. If your description includes only *Significant Moments* that begin before the mountain range existed, then the lecture will not be a success. *Significant Moments* that begin within the larger moment when the mountains exist are better for almost all possible mountain range erosion issues.

If you select a scale of *Significant Moment* duration for your lecture on mountain range erosion that is not appropriate, then the lecture will also not be a success. If you choose to describe the erosion of the range and use a duration of one microsecond for the *Significant Moments*, then, by the time you have completed your description of the first year's erosion, the audience of humans will have died of old age. Both duration and

position of the *Significant Moment* in time will affect your ability to work with a physical event.

Scientific observation involves defining sequence and a logic of the progression of events. Only by following the most strict rules of logic can the scientist succeed. Pretend there is an uncooked chicken egg on the flat, horizontal surface of a table, and that the table is in the kitchen of my home. Pretend the egg has no unusual physical properties, and is in every way a typical chicken egg. Pretend you are not concerned about how the egg got there, and pretend you are first observing the egg as it is rolling toward the edge of the table. By my description, the first *Significant Moment* shall end at this instant, with the egg rolling. I will then change the duration of the *Significant Moments* within the description. For a *Significant Moment* with duration of one year, at the end of the first *Significant Moment*, the egg is rolling toward the table's edge. At the end of the second *Significant Moment*, the egg has completely vanished.

What happened to the egg within that year? You are the scientist, and your audience wants to know. The answer, more often than not, is related to the social environment of the scientist. For scientists in some historical settings, the best-received explanation was that the egg was removed by neighboring barbarians; for other scientists in other times, it was magically removed by sorcerers and witches. Scientists could have concluded the egg was removed by the divine actions of God, while others scientists could declare the vanishing as workings of evil. Still others concluded that individuals from another planet visited my kitchen and removed the egg for their own needs. Each of these answers could have been valid for the moment when the scientist lived. Almost a century ago, my Grandfather returned from medical school and tried to explain the 'new' medical doctrine that connected bacteria to a large variety of illnesses, and he found it difficult to convince the community. Were my Grandfather alive in the *Significant Moment* year 2005, he would find his audience more receptive.

In the example of the egg, change the duration of the *Significant Moment* to a week. At the end of the first *Significant Moment*, the egg is rolling toward the table's edge. At the end of the second *Significant Moment*, the egg has vanished. Some of the same

conclusions are possible, yet some others are excluded. We know that George Washington, America's first President could not have removed the egg, because he is dead. Vikings could not have discovered that the egg was here in my North American home, sailed their long ships to the shore, marched overland to my town, entered my house and taken the egg because they could not have arrived within a week, unless they had heard about the possibility of the egg's rolling across the table - exposed to theft, and had sailed months before in anticipation.

Change the duration of the *Significant Moment* to a day. At the end of the first *Significant Moment*, the egg is rolling toward the table's edge. At the end of the second *Significant Moment*, the egg has vanished. Some of the same conclusions are possible, yet more possible explanations are excluded.

Change the duration of the *Significant Moment* to an hour. At the end of the first *Significant Moment*, the egg is rolling toward the table's edge. At the end of the second *Significant Moment*, the egg has vanished. Some of the same conclusions are possible, yet even more possible explanations are excluded.

Change the duration of the *Significant Moment* to five minutes. At the end of the first *Significant Moment*, the egg is rolling toward the table's edge. At the end of the second *Significant Moment*, the empty shell of the egg is lying in shattered pieces on the floor. These sections of eggshell are scattered around the area of the floor where the egg would have landed if it had fallen off the table's edge. Since events similar to this have been observed many times before, speculation and calculations of the simulated results allow you to conclude that the egg had fallen off the table and its shell may have broken when it hit the floor. But these speculations had also included results from such an impact upon the contents of the egg, and the contents were expected to also be present on the floor's surface, and you observe they are not. Also, the shell fragments are not exactly in any arrangement expected by those who have guessed in the past what the array of shell fragments would be. The conclusion is that the egg fell to the floor, then, as it lay on the floor, extra-terrestrial wizards traveled in their Viking long ships at light speed from the moon to do God's will by teleporting the contents of the egg to their laboratory, where

they would grow nutrients and feed their starving children. Unfortunately, evil spirits interrupted the teleport and instead, delivered the egg's contents to my neighbor's home and onto his face, thus implicating him in a crime he did not commit. As the egg's contents arrived in front of his face about to impact, George's ghost appears and zaps the contents into another dimension to feed hungry ghosts, saving my neighbor from a difficult time explaining events. Since the neighbor was sleeping at the time, George's appearance and the activities of the egg's contents had not been detected; and since my neighbor is a barbarian, nobody would have believed him anyway. At the end of the third, five-minute-duration *Significant Moment*, the egg shell fragments are gone; still a mystery.

Change the duration of the *Significant Moment* to one minute. At the end of the first *Significant Moment*, the egg is rolling toward the table's edge. At the end of the second *Significant Moment*, the shell of the egg is lying in shattered pieces on the floor. Amongst the shell fragments, the contents of the egg are observed. Models of the event from previous conclusions from viewing similar events allow you to conclude that the egg had fallen off the table and its shell had broken when it hit the floor. The fragments are in expected array, and the distribution of its contents also appears to support the conclusion. At the end of the third *Significant Moment*, my dog is lapping the contents of the egg off the floor. He has moved many of the fragments to get as much of the contents as he can. At the end of the fourth *Significant Moment*, my dog is carefully removing the last of the egg's contents from the floor and from the shell's fragments; my dog is very good at such efforts. At the end of the fifth *Significant Moment*, the floor and the shell fragments of the egg are clean of the egg's contents, the shell fragments are arrayed on the floor in a pattern not indicated by the egg's expected fall, and your conclusions now include the effects on the egg of its collision with the floor, and the dog's removal of the contents. At the end of the sixth *Significant Moment*, my spouse is observed picking up the shell fragments. At the end of the seventh *Significant Moment*, my spouse is observed wiping up the dog's tongue marks from the floor. At the end of the eighth *Significant Moment*, the floor is clean and as it was before the egg's impact. Between the eighth and the tenth *Significant Moment*, there is no significant change in the scene.

By fabricating an example, I have tried to explain how science actually has worked for the last four thousand years. As prehistoric human gatherers were first able to conclude if they traveled into a certain part of the forest during a specific time of year, then the berries would be ripe, this type of science began, defining a *Significant Moment* of one year. The gatherers would develop an understanding of the berries until they could plan the planting of seeds and thus plan the harvest. As the first hunters were able to observe a moving herd of animals and conclude that if the hunters repositioned themselves in front of the herd, their chances of success were better, science expanded. Eventually the hunters could schedule the hunting group's migration to match the herds' travels. The most interesting part of this historical example is that the success of humans was advanced when these hunters removed the concepts of time from the tracking of wild herds, and began domestication of animals. Planting crops was more efficient than traveling to find them in the wild. As with the egg example, when we are able to shrink the duration of *Significant Moments* within which we see the physical activities of the universe, these processes become clearer and more detail is revealed.

Consider that light travels in real space at a very fast rate. We speak of its speed in miles or kilometers per second. There are areas of study where the moment required for light to travel the diameter of a single atom is too long to be useful. For humans in the *Significant Moment* year 2005, these small values are very hard to imagine. That is the reason I have formulated the concept of a *Significant Moment*. It liberates our imagination from trying to think about specific qualities of time. The expectation is that you will be better able to concentrate on the events if you can forget about any importance of specific time standards, like milliseconds or decades.

And now, the Word from our sponsor: the word is:

God

and is Allah

and is Vishnu

and is the endless set of names given by each of us and all of us in the worship of the Creator and Ruler of our Universe.

II. Gravity

To begin the section on basic gravity, I am now going to fabricate a rule: I shall create an artificial physical law, commonly referred to as a premise. This premise is not shown as truth. Meant only as an educational tool, it may be discarded if necessary somewhere along the way. You are asked to understand that this premise is just something I made up. It is artificial. It simply is not proven to be true. The premise is not even a theory, because I will not try to prove it. Sound the trumpets!

Premise: Gravity is continuous in relation to time.

To put this premise into the scope of the rather long-winded description (Part I) above:

Premise: For every *Significant Moment* in real time, the effects of gravity if present at the beginning and at the end of the *Significant Moment*, is continuous throughout the *Significant Moment*.

I am asking you to pretend that no matter how small we make the *Significant Moment* for a description, the effects of gravity will be there, and most importantly, will not be interrupted. That's all there is to it.

Note: I refer to 'real time' because some philosophers think in 'imaginary time' as well. Real time is what you and I usually consider to be time. I also often think in imaginary time, which is why I pay great quantities of fines at the lending book library. The librarians there use imaginary time to fabricate schedules that make my books overdue for return before they are due in real time. Some of you may also experience brief glimpses of imaginary time at the video rental store.

We are told that the amount of gravity related to a planet matches how much mass belongs to the planet. Jupiter has more mass than does Earth or than does a teabag, and

we have demonstrated Jupiter's gravitation force is the greatest of the three. What I want you to see is that the force of gravity of the Earth is the effect of its particles. Most people know that every particle in the planet provides some of the planet's total gravity.

Think about what you can observe about gravity by living on the Earth. Imagine picking up a rock and then releasing it. I want you to see that the acceleration of the rock from its position, as you release it, is toward the Earth's center of gravity. I want you to also see that the physical rules that define that center of gravity's position are set by the particles that make up the Earth.

This is the *Significant Moment* year 2005. Unfortunately, as most humans are taught about gravity, they are permitted to rationalize gravity's complexity into a type of "averaging" of the forces on the falling rock. In an effort to simplify the model of gravity, most humans are led to see it as a single force. A much better model here is that each particle of the Earth is attracting the rock discretely toward itself. Every particle is participating in this effort, and some pull from the left, some from the right. Since the great majority of the particles of the Earth are located below its surface, from anywhere on or above its surface, the combined forces between the rock and all of the Earth's particles has a net vector that travels down into the surface. That is why most things fall down. Sir Isaac Newton further developed the understanding of gravity on Earth by modeling the planet as discrete spherical shells, each infinitely thin and progressively smaller as you travel toward the center of gravity. The outer-most shell represented the surface of the Earth, yet infinitely thin. The next smaller shell had the same thickness and a radius exactly one thickness smaller. He modeled a particle traveling from the surface toward the center of gravity traveling through these smaller and smaller shells. Newton mathematically demonstrated that, though it is moving closer to the center of gravity and should therefore be more attracted to it, exactly enough particles (shells) are behind it, and each is the exact distance behind to make the particle's acceleration constant with their pulling of the particle in the opposite direction. The thin shells were used as a model in his proof.

The moon is part of the Earth. We can show that the net force of gravity has a smaller vector into the Earth when the moon is overhead, with its particles pulling in the opposite direction. The ocean tide rises and falls following the moon.

Imagine an airplane flying across the sky. Its particles are part of Earth, yet it is in motion. If it is moving, does its movement result in the movement of Earth's center of gravity? Yes. A freight train moving across country affects position of Earth's center of gravity. Every cloud that moves through the atmosphere shifts Earth's center of gravity. Your movement, traveling across the street changes the location of Earth's center of gravity. I will show that, for every *Significant Moment* related to the activities of the Earth, every single particle within the Earth shall be in motion. Actually I will show you that the universe moves faster than the Earth, so from any reference point outside the Earth, our planet moves slower than the universe's bouncing reference point. I will then show that this external activity creates constant motion within the earth. There are very short duration moments in which Earth's center of gravity does not significantly move, but these moments are too short to explain any activities on Earth.

Since I made up a rule (premise) that states that **gravity between the set of particles that are part of the Earth is continuous**, then for all *Significant Moments*, the existence of the center of gravity of the Earth is continuous. Therefore, (trumpets again, please):

The definition of the location of the center of gravity for the Earth during every *Significant Moment* is a continuous arc.

(I imagine crowds of cheering spectators)

Every particle in the Earth is in motion, so the Earth's center of gravity is always shifting. This motion is continuous, and every *Significant Moment* has duration. As the position of the gravitational center shifts, during any *Significant Moment*, it defines a curved path.

In the realm of *Significant Moments* with very short duration, it is easy to imagine a short curve, but the world as perceived by humans includes *Significant Moments* of much

longer duration. Imagine the path of the Earth's center of gravity to be like a length of knitting yarn. As the very short duration *Significant Moments* are pieced together, they create a continuous timeline for a much longer duration moment, and the piece of yarn (representing the real-time gravitational center's arc) grows longer. When you remember that the yarn has existed for an extremely long time, it becomes easier for you to imagine its becoming a spherical ball of yarn as the duration of the *Significant Moment* becomes one of long duration. The difference between a typical ball of yarn and the model of the Earth's center of gravity is the arc of travel. The yarn starts at the center of the ball, and its length builds layers of yarn around the center. The model of the center of gravity over a longer duration moment has the path of travel moving freely within the ball in any vector, traveling towards its center during some moments and along its surface during other moments. The moon is moving overhead, every molecule of water in the ocean is moving and every particle of air shifts. Somewhere an egg is falling off the edge of a table, and coins of money are moving from my hand onto a librarian's desktop. We are moving.

The rock you recently released is observed by your brain. The human optical system reviews the image presented by the eyes about thirty times a second, so the arc of the gravitational center has been permitted that duration to travel along its path. The shifting of six billion trillion particles in the Earth during that time has created a very complex arc over such a long duration, so the actual travel of the rock has been continuously re-directed by the shifting of these six-whatever particles during the moment. You see the rock's travel as a straight line because the total set of shifts is neutralized by the shift of a different total set of particles somewhere else in the Earth.

What we humans normally see as the Earth's center of gravity is actually a region in the Earth's center where the center of gravity travels in real time. The spool of yarn model is very clear. The longer you survey the center of gravity's position in real time, the less it looks like an arc and more like a ball of yarn, occupying space. When the duration of the moment reaches the span that we as humans respond to, the region is very well defined by longer and longer lengths of yarn, with a surface to the ball of yarn that is somewhat uniform. That is why the rock's descent looks straight.

Here is a note for the mathematically inclined. It can be proven that, for any movement of any particle within the Earth during any *Significant Moment*, there exists No individual movement of any other particle that duplicates, exactly, the negative effect of the first particle upon the Earth's center of gravity. There is no such thing as equal and opposite motion canceling each other. The set of movements of particles must be seen as a "sigma total" of all the motions and particle masses at once.

Pretend a line segment connects the example rock and the instantaneous position of the earth's center of gravity. As the center moves through its arc, the line segment would vary in length and in vector. This model of the connection between the rock and the Earth's center of gravity is an example I will later use to make a few points. As the center of gravity moves through the region at the Earth's center, the line segment between the rock and the Earth's center of gravity continuously exists (premise!), and since the rock is moving and the Earth's center of gravity is also moving, then from any external reference point in real time, the line segment connecting them is always changing vector and length. If you view the line segment from the rock or from the Earth's instantaneous center of gravity, the length will also be continuously changing. Thus, from both the perspectives from outside the model and from the model itself, the line segment length and the line's vector will change within all *Significant Moments*. Imagine an elastic string that connects the two items. It is always straight, and is always traveling.

Here is the problem. How real is this center of gravity? We can model it, but that does not make it true. We know that it occurs mathematically, but numbers can lie. It is easy to dismiss the Earth's center of gravity as a mathematical model, except that the actions of every thing on the Earth state that it exists in reality as well. Scientists have demonstrated the direct link between center of mass and center of gravity for all sizes and shapes of celestial bodies, and we have documented acceleration from gravity toward a center of the Earth from all spots on the planet's surface. We have orbited the moon and have successfully landed upon and launched from its surface by using calculations of acceleration based on our findings on the Earth and Earth orbit. We have a lot of

‘providence’ to justify a model of the Earth’s center of gravity related to the set of particles included in the Earth. The best is that the rock you drop travels toward the surface, no matter on which portion of the surface it will strike – on North America, Asia, or the South Pole. The difference between imagining a point at the Earth’s exact center and imagining the arc model is the simple acknowledges that its particles are constantly moving and shifting, which creates the arc of travel.

A very good key to understanding the validity a moving center of gravity lies within the atom. Imagine that somewhere in the Earth, there is an atom. Those of you who study field effects on atoms will appreciate this next part. Imagine an atom positioned in the Earth and within very short distance of the path of the center of gravity. For this example, during a very short *Significant Moment*, the Earth’s center of gravity is on one side of the atom. In a second very short *Significant Moment*, the Earth’s center of gravity moves alongside the atom, and in a later very short *Significant Moment*, the Earth’s center of gravity is on the other side of the atom. During the first *Significant Moment*, the atom is being accelerated by gravity in one directional vector, and during the later *Significant Moment*, in the opposite direction. If you accept that gravity is (trumpets!) continuous, then there is no way to avoid accepting this model. Polar atoms re-orient and fields generated within the atom shift. Polar bonded molecules will want to rotate one atom around the rest in response to the gravity center’s shift from one side of the particle to the other. For these three related *Significant Moments*, if the center of gravity is located very close to the molecule, the shift from accelerating in one direction to the opposite direction occurs within a very, very short moment.

If an atom you are studying is on the Earth’s surface, we have already described how boring is its existence. The atoms in the center of the Earth have a much livelier time. They are responding to a center of gravity that is over here, then over there; first very close and then fairly far away. If the continuous gravity premise is accepted, there is no way around this type of movement and activity, which tends to make the Earth’s center much hotter than is the surface by the increased chemical and mechanical activity.

The real interesting part of this concept is not the effect of the Earth's center of gravity upon the region's atoms, but the opposite. The Earth's center is full of atoms, and the center of gravity has no choice but to occasionally travel through some of them. Sir Isaac Newton says some very interesting things about distance and the effects of gravity. Essentially, Newton points out that as two particles grow closer, their net attraction to each other goes up geometrically. As the distance that separates the center of gravity from the nucleus of an atom becomes less than the radius of the atom, the acceleration on the atom's nucleus is remarkable. The whole of the earth's mass is levering a single atom from a very short distance to spin around and to follow it. The effect of the mass of the atom's nucleus on the Earth's center of gravity is not much. Essentially, the vector on which the Earth's center of gravity is moving will be deflected only the slightest amount – we are comparing the entire Earth with one atom. The key to understanding is that both Euclid and Newton agree that the center of gravity must, however deflect. This miniature deflection is almost meaningless, until you accept that Earth's center of gravity is almost continually traveling through atoms, each deflecting it as it passes. Please observe that the amount of times the center of gravity is deflected during any moment is directly related to the density with which the atoms are packed at the Earth's center: a heavier planet, like Jupiter would present a more compacted mass at its center, so for any moment, the opportunity to traverse atoms is greater.

Since the mass of the nucleus determines how far each atom may deflect the center of gravity's path, and since there are only a set number of nuclear mass choices for the Earth's set of atomic elements & isotopes, the result is a collection of deflections of the Earth's center of gravity during any long-duration *Significant Moment* with resonance and repetition. Rather than totally random deflections, the Earth's center of gravity travels a path whose highest frequency vibration is determined by the atomic content of the Earth, and whose second highest set of vibrations is a finite set of harmonics directly related to the quantity of each element's isotopic atoms in the path of the arc. Rather than total chaos of unspecified deflections and resulting vibration of the Earth's center of gravity, the center resonates with clarity, repeatability, and most importantly to my discussion, self-sustaining harmonics.

This is big stuff, and this model will extend into examples of other principles later in the presentation. I had the pleasure of listening to a college professor teaching first-year trigonometry as she went through the classic derivation of the Law of Sines. The principles she explained provided a startling clear vision of how significantly the Earth's gravitational center is influenced as it transverses an atom. The Sine function deals with lengths of line segments, and how these lengths change in relation to each other as a locus (center of gravity) moves across a unit circle (atom). As the derivation approaches its 'limits' (trigonometric term: as a function approaches its limits, certain features of the function – in this case, line segment length, very rapidly become very large or very small, and at the limit, these features are either infinitely long or of virtually zero length – imagine the force of gravitational attraction between two bodies at nearly zero distance).

The continuous movement of the Earth's center of gravity creates a region at the Earth's core comprised of atoms that are always in an increased state of agitation as they try to follow the gravitational center's movement in a continuously shifting vector that by definition accelerates and rotates the atoms in all directions. Atoms on the Earth's surface only have to follow the Earth's center of gravity within a cone whose point is the surface atom, with the cone expanding as it travels down to encompass the region. This defines a difference between the state of motion for the set of atoms residing inside the region of travel for the Earth's center of gravity, and the remaining atoms of Earth that reside outside this region. Scientists typically use the phrase 'event horizon' to describe the boundary between the region where activity is present (usually spherical), and the surrounding regions where it is absent. For the Earth, during *Significant Moments* with very long duration, its gravitational center's event horizon is a sphere, located at the center of the Earth. The gravitational event horizon of the Earth contains the center of gravity for all moments within the study. A fun model of the gravitational event horizon of the Earth is to relate it to the Sun for a *Significant Moment* of one year. Since the Earth orbits the Sun, in the span of one year, the event horizon becomes a circular (actually, elliptical) torroid (donut), encircling the Sun and with the diameter equal to Earth's orbit. This concept has recently provided humans with a dramatic astronomical discovery, which I will describe in Part VI: Gravity - Advanced.

One of the most interesting sets of evidence demonstrating the presence of this region is earthquakes, or more specifically, our ability to measure them. Instruments charting vibration (called, seismographs) are located around the world, on or near its surface. Scientist soon discovered they could detect not only local vibrations of the Earth's crust, but as their instruments improved, earthquakes around the world could be studied as seismic, low frequency waves traveled through the Earth, directly to the distance instruments.

Sometime later, scientists discovered that the center of the Earth contained a region that did not permit these seismic waves to pass through: for every earthquake, there was a shadow disc on the opposite side of the world that could not detect the vibrations. Many scientists used this evidence to support their contention that the core of the Earth was a solid ball. Diameter variation of the shadow's disc related to frequency and other data has since indicated the center of the Earth is not solid, and now you know that hyper-excited atoms exist within Earth's Gravitational Event Horizon which would keep anything from remaining solid. The activity of these atoms damps the transmission of mechanical (seismic) waves, blocking them from moving across. No low frequency mechanical forces can traverse this maelstrom of activity as an intact wave, so they are not detectable. What makes this interesting is that the region surrounding the event horizon also is too excited to permit these low frequency waves passage, and this 'corona effect' matches its diameter to the frequency of the waves: lower frequency waves are blotted over a larger diameter than are higher frequency waves.

Future seismic studies will help define the Earth's gravitational event horizon at varying frequencies. Since the diameter of the effects of hyperactive atomic motion is set by the frequencies in the study (the duration of the *Significant Moment*), earthquake scientists will be able to calculate the size and the harmonics of the Earth's gravitational event horizon long before we can study it directly. We will find that, at different frequencies, the center of gravity's event horizon will appear a different size. The shorter the *Significant Moment*, the smaller will the horizon appear. Consider the presented model and begin shortening the *Significant Moment's* duration. What appears for long duration *Significant Moments* to be a sphere with an event horizon, loses the integrity of the round

surface, as the 'yarn' (arc) becomes shorter. As *Significant Moment* duration becomes very short, the center of gravity appears only as an arc in three dimensional space. Frequency is directly related to *Significant Moment*. For electromagnetic signals with higher frequencies, the *Significant Moment* is shorter, and for this example, there is a shorter arc available to interfere with its transmission. For extremely short *Significant Moments* (extremely high frequency signals) the length of the Earth's center of gravity is only a small length of string, and unable to affect the signal.

So, we have a rather static Earth in general, a more active region at its center, and all of our gravitational forces rattling around within the spherical event horizon at its center. This system is not closed. There are outside forces that impact the Earth... can you think of a big one? How about the Sun?

Is there any reason to expect that the same issues that create a region at the Earth's center are also not present in our Sun? No. Well, maybe. It has a solar gravitational event horizon. For every *Significant Moment*, the momentary location of the Sun's center of gravity defines an arc (well, not really), and as the duration of the moment grows from a very short moment to a long moment, the simple arc grows to define the spherical boundary at the Sun's center (well, it does form a sphere, but not like Earth's nor any of the planets). This is the solar gravitational event horizon. As with the Earth, the Sun is made up of particles, and every particle is in motion for all *Significant Moments*. But there are some huge differences.

The most obvious difference is that the Earth has a center of nuclear fusion activity, but it is almost meaningless until we begin discussing interstellar propulsion systems – not during the *Significant Moment* year 2005. There is an event horizon for fusion activity inside the Sun, and it is very significant to us. The Sun is bigger and has more particles than does the Earth, so the path of its center of gravity must, by definition, move faster as well to keep up with the movement of all of its particles.

Less obvious is that the center of gravity for the solar system must, by definition, reside for every *Significant Moment*, within the Sun. Note that the solar system's center of

gravity will not be the same as the Sun's for any *Significant Moment*. The movement of the solar system will track that of the Sun, trying to keep up with it. The Earth must do this as well. This means, not only does the Earth's center of gravity need to navigate the atoms at the Earth's center, it must also respond to movement of the Sun's gravitation center as it rattles around inside its own event horizon.

Unlike the Earth, the Sun is mostly made of non-atomic material. Since the center of the Sun is too active to permit atoms to exist, this region is populated with independent protons, neutrons and other subatomic particles, jammed together by the Sun's 'gravity well' into a region too bizarre to maintain atomic definition. The Sun's center of gravity – like the Earth's, is a region, and the calculations show that the radical shifting of the instantaneous center of gravity and the accelerations placed on atoms near the path of travel for a mass as big as the Sun, shreds any object even looking like an atom. This region looks more like it is full of antimatter than of atoms. The solar external surface is mostly made up of hydrogen and helium, and hydrogen fusion into helium is the principle activity of the surface.

The difference between the Sun and the Earth is that the Sun maintains a thermonuclear explosion within its surface for all *Significant Moments*. The Sun has enough mass and gravitational potential to contain a continuous fusion explosion, which provides us with sunlight. What I wish to do now is to extend the model of gravity to help explain what is going on in the Sun.

Imagine there is a set of atoms that are part of the Sun which, during a *Significant Moment*, is in the process of individually expressing energy from fusion. I have described this activity to occur not at its center, but farther out from the center, in part of the surface. The set of atoms in fusion defines a center of activity. What you need to see is that, at the physical position where you would expect the center of thermonuclear activity to be for the Sun - at its geographical center, no atoms are present: it is not possible for thermonuclear activity to occur because no matter exists there. Again, our imaginations are skewed by classic models. I will later explain why the center of fusion cannot be a point at the Sun's geographical center because that location does not exist in real time.

For all *Significant Moments*, this position is filled with antimatter, and time does not exist there – we cannot define time there. It is full of subatomic lending library cards in imaginary time. As far as the physical solar system is able to determine, there is nothing there.

The center of fusion activity must occur in real space and time, so it must occur within the surface of the Sun, not at its core. That means, it is very difficult to imagine the center of fusion as a point, because any point in the region of the surface is not close to the geographical center of the fusion activity. The short explanation states that we are looking at the fusion activity of the Sun in real time, within any duration *Significant Moment*, no matter how short or long duration. The model of an arc for the center is replaced by the model of a shell, an extremely thin region of space that is located within the surface's region for all moments. This shell replaces the point. Though a point or an arc in space has no volume, and this shell has thickness directly related to the duration of the *Significant Moment*.

This shell is the Time Space Energy Continuum's answer to "What do I do if my center of fusion exists within a region of space too disruptive for the activities of fusion?" The center of fusion, which is a mass-and energy conversion activity, occurs in real time and space, so it cannot be in a region where no fusion is able to occur. The location of the center of fusion inside the Sun's core of antimatter is meaningless, so the center is translated to real space, where it can be understood by the physical universe.

The center of fusion is pushed out from the center of the Sun to the boundary – or event horizon of antimatter, which is a sphere. There, it becomes a 'balloon'. The manifestation of the center of fusion becomes a balloon that spends its entire time within the surface of the Sun. The balloon is pressurized to prevent collapse by the contrast of matter in the Sun's surface and the antimatter at its core. Beneath the surface of the balloon, there is a constant attempt of the antimatter to explode and above the balloon is the gravity load of the matter that makes up the Sun's surface. Over our Sun's life, this balance has equalized to produce a balloon whose position and size is most stable.

Can you remember ever inflating a toy balloon until it is very taut, then snapping the surface with your finger? The balloon ‘rings’, and these vibrations emanate from the outer surface to your ear. Is it clear to you that this sound comes from the surface, and not from the balloon’s center? See that the sound vibrations travel in the air as a spherical wavefront, traveling in all directions as a contiguous and expanding bubble. This is how the radiation from the Sun’s fusion even horizon balloon reaches the Solar System.

The balloon is continuously enclosing the antimatter, and since there is a staggering amount of mass and antimatter in the Sun, and since for all *Significant Moment* every particle is in motion, then the balloon is also in motion for all *Significant Moments*. Like Earth’s center of gravity, this balloon’s surface area travels through atoms as it moves and is deflected by each atom’s nucleus. The difference between the example of the Earth and of the Sun, is that for the Sun, this balloon is contacting very, very many atoms at once. Over the life of the Sun, this constant deflection has acquired very stable harmonics we detect as electromagnetic emission. The entire Sun is agitating a balloon’s surface which pulses, radiating out harmonic vibrations along the entire electromagnetic spectrum – light, x-rays, cosmic rays, beta rays, and infrared. The cool part about this is that these vibration harmonics are directly related to the atoms found in the Sun’s surface through which the balloon must travel. The Sun’s second tier of harmonics is directly related to the ratio of the Sun’s content of elements. Each star we observe has a unique composition of different elements, in different ratios, so, as we observe every star, we can identify its contents by the spectral analysis of its emissions. Each star’s balloon has a different set of atoms to transverse, so it broadcasts a different set of harmonics, in unique ratios.

The area in center of the Sun is too active to permit the presence of matter, so it would be vacant if the antimatter decided to leave. The activity level and its related absence of real time prevents the transmission of the electromagnetic harmonics inside the balloon. The antimatter contained by the balloon removes this interior space from our physical universe. This will be stated better in the next section. If you simply accept that the ‘center’ of fusion must occur where the fusion is happening and in real space, then the justification for the balloon model is easier.

What about the Sun's gravity? Does it also require the balloon model, or does the concept of universal, continuous gravity include regions of antimatter? I answer that a little later too. Consider the difference in magnitude between the Sun's mass and the Earth's. For every very short *Significant Moment*, the motion of the Sun's center of gravity is a much longer (thicker) balloon/arc than is the length of arc occupied by the Earth's center of gravity. Since the Sun is the local reference for gravity in the solar system, then for all issues relating to the Earth – including the moon, and all systems external to the Earth, for all *Significant Moments* the reference point of the Sun's center of gravity will have moved. Einstein tried to drill into our heads the importance of relativity, and the above states that the rest of the solar system is shaking so fast in comparison to the Earth, that for any *Significant Moment*, the Solar system has moved in comparison to the Earth. Thus, for any position on the Earth's surface, a falling rock's path is governed by its own center of gravity (moving) and the Earth's center of gravity (moving). These are both modified by the attempt of the Earth's center of gravity to respond to continuous relocation of the Sun's center of gravity. The rock is also trying to respond to the Sun, but the Earth's gravity is more dominant.

For *Significant Moments* that are very, very short, it can be shown that the ability of matter to react to the constant relocation of the Sun's center of gravity, and also the relocation of the Earth's center of gravity result in a relationship between a particle and its attempt to respond to these two continuous vectors of acceleration for the particle, that exceeds the speed of light. A practical limit exists below the speed of light that keeps the matter from rotating or moving in response to the movements of the centers of gravity. Light speed as a limit is stated by Einstein. If the matter were traveling faster than light, then it would cease to be matter (later, in The Big Bang, I talk about how all matter in the universe eventually travels much faster than the speed of light). The harmonics created by this conflict of where the particles want to be and how light speed and acceleration limits motion, permit the matter to respond to the gravitational movements and still remain matter. These harmonics we call 'String Theory'. The study is limited by the scientist's ability to mechanically view and mathematically model smaller and smaller *Significant Moments*.

So, returning to the rock being dropped onto the Earth's surface, during any *Significant Moment*, the movement of air particles swirling around the rock & each air particle's distance from the rock, the rock's momentary distance from the Earth's center of gravity, the harmonics of the solar balloon, the gravitational pull of the moon and the planets, plus the gravitational influence of every particle in the universe, all combine to alter and redirect the relative acceleration and path of travel for the rock as it drops. For the Earth, its center of gravity is in constant movement responding to its particles, is resonating as it passes through atoms in its path, and is responding to the constantly changing position and distance to the Sun's center of gravity (not to mention the planets & a universe full of particles), and to the Sun's gravitational center's harmonics. It's a jungle out there, and to define the actions of the rock, the duration of *Significant Moment* required for light to travel across a single atom is too long to provide much meaning.

We just say the rock fell.

Pretend you have just created something spectacular. How will you use it? Will your discovery and hard work contribute to the welfare of the world, or help to destroy it? How will you know what is a good and responsible path for it, and how will you know what choices are wrong?

Historically, it is clear that any large and valuable discovery will be pursued by both those who wish to do good and those who wish to do evil in the world. How will you know the difference when these persons come to you? Are you so arrogant to think you would be able to easily tell just by appearances? I suggest you cannot choose properly without significant research. You will have to choose.

The question I present is, "Can you afford to make the incorrect choice when the time comes?" My perception is that the most valuable discovery you will make, the most precious creation of your life, will be yourself. Thus, this decision determines how you will see yourself as an old person – wise and content, or bitter from the loss and wasting of your efforts. The sadness is that young persons can brush away their

defeats and failures with the promise of future success, while old folks cannot be so easily see any future tasks that can redeem their past mistakes.

We all have accomplishments we can be proud of and others we do not view so happily. We can all remember having listened at times to the wrong voice, so the goal of life is to work toward listening to the best sources of advice and direction we can find.

Study God. Read the works and discuss the passages. Listen often and long to numerous wise persons of your faith, and listen to those of other faiths as well. Honor God by seeing God through the eyes of persons who have been here before. It is your best chance at making the right choice when your fate is in the balance.

III. Rates of Chemical Reaction

One of my chemistry professors, during my class's final lecture, presented some modern issues and conundrums of chemistry. He explained that some calculations demonstrated that typical molecules in the atmosphere and at sea level, appeared in some experiments to be moving at about 1500 feet per second (about 500 meters per second, or 900 miles per hour). He seemed to think that was not reasonable, considering what damage particles traveling at that speed can do to other materials, yet many very delicate objects are not damaged by moving air.

Consider my model of the polar atom influenced by Earth's gravity. Pretend there is a polar atom, stationary in space above the Earth's atmosphere. It is in space, with no other particles around it, only the Earth below. A line segment connects the atom to the Earth's center of gravity, and as the center continuously moves, the line segment also moves to maintain the connection. Please ignore the changes in distance between the two, and focus on the rotational shift of the line as the Earth's gravitational center moves within its event horizon. As the center moves relative-left, the line segment rotates left from the stationary atom. As it then moves right, the line segment follows it continuously. It can be shown that each atom has both a physical shape and field shape. As the line

connecting the model's atom to the gravitational center of the Earth, it can be shown that the atom's nucleus will rotate as well in response. Now add a second atom to the model, near the first in space.

Try this. Place your hand on a nearby surface, palm-down, fingers stretched. Without repositioning your wrist, rotate your hand back and forth. Your fingers will sweep through an arc, centered at the wrist, and along the surface of the table. Then place your other hand onto the surface nearby, and rotate both hands in unison – both go clockwise and then counter-clockwise at the same time. This is to simulate the two atoms in space. Both atoms are rotating to follow the same Earth's center of gravity, spinning first one way, and then the other, but during any *Significant Moment*, they are spinning the same way. Now, slowly bring your rotating hands closer to each other, until the tips of the fingers begin to touch. This is to simulate the collision of the two atoms. Notice that, the collision of your fingertips is not related so much by how quickly you move the hands together, but by how rapidly you are rotating the hands. Since any two atoms positioned next to each other will always be rotating in unison, their collision vector assures them to collide with surfaces spinning against each other.

For any two atoms in collision in a planet's gravity, the velocity of linear collision is minimal when compared to the angular velocity of the particles as they follow the planet's center of gravity. Therefore, at STP (Standard Temperature, and Pressure), the primary transfer of kinetic energy in atomic collisions is rotational.

In chemistry, we know that by increasing the speed of the molecules' motion by heating, the rate at which they chemically react will normally increase. A piece of sodium at a temperature near absolute zero will not chemically react as rapidly as when the same sodium is at 900 degrees Celsius. We also know that the scale of this "rate of reaction" for an element over any range of temperature is fixed. By measuring its reactivity at a set of temperatures, the rate at any intermediate temperature can be determined. I conclude this motion includes a rotational factor, and that for some conditions, this rotational component of motion exceeds the linear velocity. As the location of an atom is set closer to a planet's gravitational event horizon, for the set of *Significant Moments* that define the

frequency range controlling chemical reactions, rotational velocity becomes more dominant.

A long time ago I had determined that rates of reaction would be different on other planets, in relation to the rotation of the atoms. The gravitational event horizon for a smaller planet would be a smaller sphere, and the change of vector would be proportionally smaller; the number of particle of the planet would also be fewer in number. Total planetary density and mass distribution also varies. Since each chemical is affected differently by gravity, discovering the difference of chemical reaction rate for one element would not hold for any others. Humans recently sent a probe to Mercury that included a chemical rates-of-reaction module; it found precisely that the rates of reaction on Mercury are different than on Earth. I had wondered if the closeness to the Sun and its widely shifting center of gravity would affect the rates, and it appears that the balloon model stands for *Significant Moments* relating to chemical reactions.

Recall the two atoms in space above the Earth. They each rotate to track the same center of gravity. If one atom is larger, then its surface is moving faster during the same rotational moment. This will also affect rates of chemical reaction. One atom's electronic (chemical) harmonics at collision may match or be dissonant to another element. Some chemicals prefer chemical bonds with selected others, and some types of bonds are stronger than others. Hydrogen and chlorine creates a strong bond, but fluorine and hydrogen bond more strongly because their rotational harmonics are better in Earth's gravity well.

Move the two atoms in space closer to the Earth. As they relocate inward, the Earth's instantaneous center of gravity's movement requires the atoms' following rotational arc to increase. More rotation provides for a stronger collision. As chemicals move closer to the Earth's center, they become more physically active. The material at the Earth's core is constantly jostled and crushed at the harmonics that control its chemistry.

The impact of this study relates directly to space travel. If a chemical rocket is to operate within Saturn's gravitational fields, then to get precise thrust, the reaction rates for Saturn

must be discovered. If we are to survive on Mars, then our human catalytic metabolism must be adjusted on a known curve before we go. I speculate that bone density loss in Earth orbit may be slowed by finding out how the human metabolism is affected by any changes in the rates of reaction that far from the Earth. When we send a ship to another Sun, the chemical reaction rates must be charted, or the propulsion may fail to start or explode. In a different solar system, carbon may prove to be too agitated to sustain life forms, but silicon may be able to dampen the local sun's activity enough to allow metabolism. A creature coming from that solar system to our may require exaggerated amounts of metabolic stimulants to exist, while if we were to travel to that solar system, we would need to have our metabolism buffered to prevent us from igniting.

Today I listened to the king of a prominent country, discussing the troubled condition of his society's religious structures. He stated that in recent decades, his culture's most competent students have been channeled toward technical and political studies, leaving the religious studies to be developed by those in the society who were less qualified, with less funding and shrinking social support. The result has been that the spiritual values of his country are now diminished and are not keeping up with the social results of technical progress. The king lamented that technology has been creating social complexities too quickly for these religious leaders to resolve. Also, these lesser religious scholars had made judgmental errors, and since the more creative and thoughtful scholars were not qualified to respond, these errors were accepted into his culture, and the results had too often led to problems and strife. Outsiders had used this weakness to press their views and values onto the culture, and it had suffered from their oppression.

Hey, this is *Significant Moment Year 2005*, and here is a sovereign leader explaining a current cultural issue that initially sounds more typical of centuries ago. He is describing an entire society that is being misled and diminished through lack of spiritual leadership. He voiced to me the often-stated concept that a society without social conscience will not be saved by technology, and that technology may even hasten its downfall.

His partial solution was stated to provide greater prominence and support for religious activities in his culture. Consider how much time you spend on spiritual management. Remember how little effort you have taken to understand philosophy, morality, and social responsibility.

My viewpoint is, the more intelligent are you, the greater must be your efforts in the study of God. If not, while your head is focused high in clouds of the future, the worshippers of evil will sneak up and drag you down by the ass, taking you and all you hold valuable into the abyss. It happens to someone every day.

IV. Atomic Reactions - Fission

To better understand the Sun, I would like to start with the simplest, thermally coolest atomic explosions we humans have created. Uranium fission bombs were the first on Earth, and their material is the easiest to derive from natural sources, so they are historically the most studied. In fission, a uranium atom is 'split' into two separate and smaller atoms, with energy and excess neutrons expressed during the split. I wish for you to see that with less than 42 kilograms of Uranium, an explosion could be created, capable of melting almost anything made on Earth and of destroying a square kilometer or more of any topography, and of blasting hundreds of thousands of tons of material into motion. We rate the power of such bombs in equivalent amount of the chemical high explosive trinitrotoluene (TNT), and use an equivalent scale of tons of it. The term 'megaton' does not refer to mounds of pastry stuffing.

Early fission bombs were created by inserting the Uranium or other fissionable material, into a strengthened container, much like a muzzle-loaded cannon. A sliding plug is fitted into the barrel section, and outside of the plug is placed a great quantity of very highly explosive chemicals. The mouth of this cannon-like assembly is then closed with a stronger plug which caps the barrel. When the explosives are ignited, their pressure of detonation forces the plug down the barrel, compressing the Uranium. The barrel's sealing cap is strong enough to prevent the chemical explosive's pressure from release, slamming the plug into the Uranium. This plug has a hollow face, and its crushing of the

Uranium is strong enough to compress the Uranium to critical mass. If the casing is strong enough to keep it compressed for long enough, then the uranium will initiate a 'chain reaction' that spreads fast enough to cause a nuclear explosion. The nuclear detonation has the force to rupture the container, and the force of the bomb is released into the world.

There was this guy, named Dr. Harold Edgerton, who worked at MIT. In the twentieth century, he developed a class of photographic equipment and techniques that permit scientists to look at short duration *Significant Moments*. Among his other developments was a set of cameras designed to photograph atomic explosions, and the images from these cameras show some interesting features of the event. In one, typical sequence, in the first frame (*Significant Moment*), the image of the small metal shed enclosing the bomb is shown just before the detonation. There is no action. In subsequent *Significant Moments*, the image shows the dust from the shed being shaken into the air by the chemical explosion. What follows is a set of images that show radiation expressed by the chain reaction inside, called 'Cherenkov Radiation'. It is followed by the first portions of the atomic explosion, and you see the light area in the image expand as time continues. Finally the entire area around the shed is pure light, and then the shed and surrounding area are gone, washed in light that exceeds the film's ability to diminish.

Using simple deduction, observe that the atomic explosion, whose force is rated in megatons of TNT, is first physically expressed to a mass of Uranium and to a casing which weighs less than a thousand kilograms. If the bomb simply exploded, releasing all of its force when the uranium went to critical mass, these materials and the shed should simply disappear between the first and second *Significant Moments* after detonation, no matter how fast is the mechanical camera. Further *Significant Moments* caught by Dr. Edgerton's cameras show a long duration between the advent of Cherenkov Radiation and the actual explosion. The conclusion is that there are other things happening with the explosion event that elongate the moment.

The key to understanding the process is the fact that all bomb-grade Uranium must be extremely pure. If as much as one tenth of a percent of impurities is included, the power

of the bomb's explosion is diminished geometrically. A little more impurity means a lot less Boom, and with only a few percent of impurities, it won't Boom at all. This is true for all fission and fusion bombs, and is one of the reasons they are so expensive to build. The reason for the purity requirement is gravity. When fission is started, as the Uranium core is compressed by the chemical explosives, it is permitted the chance to define its own gravity: like the center of the Sun, the whole idea of a fission bomb is to create a small region in the universe that contains only uranium in chain reaction. The pressure and temperature in this region has reached the point to support the fission chain reaction, and as the reaction activity fills the region, the entire mass of Uranium collapses in on itself with a force that exceeds the local force of Earth's gravity. This creates, for a brief moment, a distinct universe of its own, where the only rules are of Uranium. There is no relationship between this universe and ours, and so it contains antimatter. Actually, antimatter can be defined as anything that doesn't fit in our universe. For the brief moments when this small universe is operating, the Uranium is separated from our universe by the same type of event horizon found in the Sun. This balloon of event horizon resonates with the Uranium's harmonics as opposed to the Sun's, and it remains intact until the quantity of active fission material is depleted below a certain value, called 'critical mass', shutting down the chain reaction. Since every bomb only has a small amount of fissionable material, soon the impurities of the original mass along with the byproducts of fission – not Uranium but new atoms harmonically linked to it, destroy the integrity of the Uranium core. The spherical event horizon weakens. Deterioration of the event horizon can take shorter *Significant Moments* than the original collapse of the core. In fact, the faster the event horizon collapse, the stronger is the blast, as our good old universe destroys this small, new, artificial one.

This synthetic Uranium event horizon and its internal gravity well is a different kind of antimatter than at the Sun's center – it is much cooler, and so the quantity of harmonics is smaller and at a lower frequency. There is less activity related to a much smaller mass. Like a stable nuclear reactor, the Sun is mechanically able to regulate its activity through a set of gravitational and spatial constants that act as do the control rods of the reactor.

The Uranium bomb is functioning on a small, finite amount of fissionable material, and worse, it is located within the Earth's disruptive gravity well and within the harmonics of a huge and very disruptive thermonuclear source (Sun). The quantity of Uranium atoms within the temporary event horizon is growing smaller, permitting less and less harmonic unity. As the atomic fuel is depleted, the impurities of reaction and the mechanical losses of trying to maintain a static center of gravity in the Sun's storm of higher frequencies and power, the event horizon is doomed to fail. When the reaction stops, the antimatter loses its spherical event horizon and the once-controlled relationship between the antimatter and our universe loses its integrity. This integrity loss requires a spatial expansion of every definition of the uranium event horizon, which creates a secondary problem – more exposure and connection with our universe. This expansion of the event horizon feeds on itself, permitting the space occupied by antimatter to expand as the Earth's gravity well and the Sun's harmonics storm both shred its surface. More surface area between our universe and the bomb's antimatter creates more friction between the harmonics of the two universes, and we see these harmonic distortions as radiation and heat. Occasionally, a subatomic particle gets mechanically pushed hard enough to be able to ride the waves out of the area around the event horizon, and we get protons and neutrons spitting out at just below the speed of light. As more antimatter is crushed by the inexhaustible presence of real matter, the set of harmonics lowers in frequency and their waves expand in real space.

Finally the primary frequencies related to the fission of Uranium are gone, and all that remains is the mass of the bomb, now formed as other elements from the atomic split. The potential energy of the conversion of all this matter's vibration from a totally different frequency than the matter around it, to a state where it matches the good old universe, is what we see as an explosion. Please understand that this matter has the ability to disrupt the state of motion of every atom it touches, and, similar to the particles in the Sun's surface, this matter has been given a very high vibrational energy. This new matter is entirely within our universe, and its vibrational dissonance makes it very hot. The material melts and burns its way into an expanding space. The vibrational energy of this sphere can shred every molecule in its path, and as these liberated atoms recombine chemically in the high temperature environment, their heat of combustion adds to the

aftermath of the explosion. The remainder of the event is expanding plasma with destruction at its edge, cooling until it becomes only incendiary, expanding further until it cools to become only a mechanical shock wave, and finally, at a long distance from the detonation, an audible Boom.

Imagine you are the oxygen atom of a water molecule in the air a few meters from the location of an exploding fission bomb. You live in a quiet neighborhood, have lots of friends and a solid place in your community. This molecule is casually reading an overdue library book about surfing when a noise erupts from over there somewhere. A wave of energy travels through the molecule, crushing the book (many suspect that librarians secretly use invisible atomic bombs to make us lose books, so they can fuss over us and be annoyed when we must pay for them), and the wave generally disturbs the zen.

A neutron blasts by, nearly spilling your glass of milk, and you look over your shoulder to find an expanding ball of blinding fire, coming right at you. When it arrives, your hydrogen atoms absorb some of the energy and begin to shake and dance in a way they have not since the water molecule was created. Then, you, the heavier oxygen atom starts to vibrate too, but this vibration is like nothing you can remember. It makes you shake differently than the normal neighborhood hum on its worst day, and it jostles the water atom until the hydrogen atoms separate from you, absorbing some of the readily available local energy to make their and your electrons stop screaming. Molecules that were closer to the blast have already broken down to atoms that are traveling outward.

Your three atoms are mechanically shoved outward as well, joining other atoms in a superheated bath of vibration, and all the atoms around you become excited to the point where they are constantly bonding with other atoms and expressing energy into the bath. These bonds are continually and immediately shredded, absorbing the same amount of energy they just expressed. You are aware that some of these bonds are with the most undesirable atoms you ever met, and you are certain that under normal circumstances they wouldn't give you the time of day. In this cramped, noisy, roasting space, these

relationships could not be avoided, and atoms have touched you in very rude manners, then, departed without even the time for apologies.

This continues for a staggeringly long period, and as it nears its end, the rate of chemical bond creation and destruction between you and the local, friendly atoms become separated by moments that grow longer as you are propelled through space in the expanding sphere. The level of vibration and noise is constantly diminishing, until you finally get to a point when the recombination of atoms has stopped, and you are bonded to a new, different pair of hydrogen atoms; you know this because they have matching tattoos that say, “Born to Blast” and each has two spare neutrons that press warmly into your sides. You are not in Kansas anymore... One Tritium atom smiles and hands you a pair of dark sunglasses.

The lotus plant is a beautiful gift that graces the waters of many ponds and rivers in the world. Other than its beauty, a noticeable feature is that daily, the blossom opens and closes. In the morning, the flower’s numerous petals spread back to display its heart. Every evening the blossom closes.

Its beauty and its wealth of distribution have allowed it to become a symbol for many social entities and causes, and it is the physical metaphor for many concepts. The most striking to me of the metaphors is that, in Chinese culture, those addicted to opium and heroin are referred to as the ‘lotus eaters’ – a label not meant to be a very nice. Opium/heroin slows or stops the functioning of the human, until after enough time, the human only does the things which will provide the opium, and does nothing else. The drug artificially creates a long-term psychological state that permits the addict to clearly see this condition in himself/herself, yet forces acceptance and satisfaction with the situation.

To match the lotus metaphor to the life of the opium/heroin addict, after a long duration of use, the ‘lotus eater’ wakes up every morning and watches the same lotus flower open to meet the day. The addict takes a petal off the flower and eats it, which is the only spiritual nutrition required for the day, then does nothing else

until the flower closes at nightfall. The following morning, the same blossom opens once again for the addict. The flower is the addict's own, personal blossom, is found in the same place every morning when the addict awakens, and the flower is found in the subconscious mind without effort. The opium blossom willingly gives up a petal to the addict every day, and the illusion is that since there are so very many petals in every lotus flower, there will always be another petal for the addict to eat. The addict is completely satisfied with the nutrition of the single petal, is required by the chemicals in the drug to make its use the only priority, while maintaining the delusion that this condition is valid, and can continue forever.

In my life, I have met only one person I knew to be a heroin addict, yet the 'lotus eaters' metaphor can be extended to other aspects of life for all of us. How much of your life is dedicated to arriving at work to see its blossom open for you. The same job every day, easy to find, and they usually pay you to be there. Most of us wake up in about the same conditions every morning and make a fuss over the weather to add diversity to our day. We go to bed in about the same conditions in which we woke up this morning. This type of 'eating' may be good for you and your goals, but the point I make is, "What are you doing now to accomplish goals outside the lotus blossom?" What parts of your world have you ignored and neglected because you didn't have the space within the hectic flower of every day life?

There are persons in this world who are spending time today in the planning and execution of murder and terrorism. There are persons who will decide to pollute, to deceive, burn, destroy, and others will decide to otherwise injure the world. These persons will wake up today and decide to do evil against the world or a selected group of its people.

At the far end of this thought are the extremists. In the *Significant Moment Year 2005*, young persons are stolen from society and pressed to service in hidden camps. There they learn how to create, carry, and detonate bombs they tie to themselves. The camps are organized to indoctrinate these suicide bombers with a sub-human viewpoint disguised as religion or social imperative. They are 'conditioned' to accept

the viewpoint as the only way to ultimate salvation, while we all know that God/Allah/Vishnu scoffs at them when they arrive. This is the lotus blossom of the suicide bomber. These camps are run by persons who know these suicide bombers will be forever cursed by God/Allah/Vishnu, and it is not important. The political goals of the organizers can be hidden within a twisted interpretation of religion or social dogma. This is the lotus blossom of the suicide bomber networks. Societal and government leaders can look upon the suicide bombers and justify their presence because the targeted victims are not supporters of the group or government. Though these leaders know it is wrong and a sin, they permit themselves to become sub-human in order to become more powerful on Earth. This is the lotus blossom of the leader who hides the camps. If these persons were to be able to set aside their earthly ambitions and begin to understand God/Allah/Vishnu, the suicide bombings in our world would virtually all stop at once.

Fortunately, this extreme of thought is only that – the earthly curse of a few, broken creatures. For most of us, the lotus petals we eat are not so damnable, and are thus easier for us to look at in ourselves.

Thinking outside the flower may be a path leading you toward God.

V. Atomic Reactions – Fusion/Thermonuclear

Instead of splitting atoms with fission, fusion pushes two atoms together until they become one atom. This is the primary atomic process within our Sun's surface region. Compared to fission and chemical reactions, fusion requires much higher levels of vibrational energy and greater local pressures to maintain a chain reaction – we refer to this as thermal energy. In order to create bombs that can fuse atoms, we first must heat the bomb's environment, hence the word 'thermonuclear' was coined. We label fission explosions as 'nuclear', and fusion explosions as 'thermonuclear'. The term 'atomic' can refer to both types of activities.

The exclusive type of fusion bomb humans have constructed uses an isotope of the element hydrogen. Fusion bombs contain Tritium, - the set of hydrogen atoms that was formed including two more neutrons than elemental hydrogen. Tritium chemically (low frequency harmonics) reacts exactly the same as hydrogen and Deuterium (only one extra neutron), but their physical harmonics are different at the higher frequency (fusion) ranges. Tritium has more neutrons to give up during fusion, whose knocking around helps to maintain the thermal requirement of fusion chain reaction. The process of collecting naturally existing Tritium is very expensive, but there are many billions of hydrogen atoms in the world, so the extraction process simply looks at as many hydrogen atoms it can, then identifies and captures as many of the Tritium atoms as possible.

The fusion bomb's model can resemble the fission, nuclear bomb model, with Tritium at the bottom of the cannon barrel, except that the sliding plug in the barrel is replaced with a complete fission bomb. The fission bomb is detonated, and its power and pressure is directed to the Tritium, exciting and placing it under tremendous mechanical pressure. The nuclear device also creates localized, very hot neutrons and harmonics.

Thermonuclear explosion of Tritium begins as atoms are forced into chain reaction, and the model of creating a momentary universe related to the harmonics of Tritium, of its event horizon, the depletion of the fuel, the crushing of the event horizon by the good old universe around it then the release of the antimatter, happens in nearly the same way as did the nuclear bomb. The harmonics frequency range however, is an order of magnitude higher than that of the fission bomb, and since the Sun's primary energy source exactly matches the secondary harmonics (simple hydrogen isotopes are the Sun's main fuel), the dissonance between this momentary universe's harmonics and that of the surrounding good old universe is slight. This relationship means the event horizon has a lot less work to do; the attempts to shred it are a whisper when compared to the trouble Uranium's event horizon has. The biggest, most important feature is its density.

Remember the model of gravity on Earth and our seismographs measurement of earthquakes? The maelstrom of mechanical activity at the Earth's core was so frenzied the low frequency seismic waves were disrupted as they traversed this region and were

blocked from passage. That model showed the failure of lower frequencies waves trying to traverse regions packed with harmonics at a much higher range. Like the Earth in the frequency range of earthquakes, the density of the momentary universe created by the fusion reaction far exceeds anything around it – including a very local fission explosion. Right next to this new Tritium universe, a nuclear bomb has just gone off. Its products, plasma, neutrons, secondary products, and material are hopping around trying to destroy everything, but the Tritium universe has a fundamental frequency so much higher than the Uranium bomb that, for the products of the uranium fission bomb's discharge, the Tritium universe looks absolutely solid. As the aftermath of the fission bomb washes over the Tritium universe, I imagine Tritium's event horizon as made of woven fabric. When the abuse of the nearby explosion contacts the surface, this fabric stretches, and the threads spread and also thicken in direct relation to the increase and decreasing gaps between the threads. The integrity of the event horizon is maintained by this fabric's use of thickness to separate antimatter from the universe as dissonant external harmonics attack the Tritium universe.

Locally, the Uranium fission bomb's event horizon has already collapsed, is expanding and crushing the neighboring space. Meanwhile, the Tritium universe is using its fuel. The event horizon is playing card games with the Sun while tapping its foot on the local disturbances (Earth) without much annoyance, and the Tritium universe has become a local gravity well. This takes some explaining, but the simple answer is that, in real space, gravity rules the universe, but VIBRATION is its local government. This Tritium source of nearly the highest harmonics found in the Solar System creates a local surrounding region bathed in frequencies that overpowers the Earth's ability to vibrate the particles with its feeble lower harmonics – they get lost around the Tritium gravitational horizon like the seismic waves in the Earth's center of gravity's corona region. Like the earthquake model, around the event horizon, the particles are no longer able to see the harmonics of gravity from the Earth as easily, so they begin to adjust their collisions and distribution to attune to the Tritium universe.

There is an old chestnut of wisdom that essentially states, "If you take a collection of balls of varying sizes, place them in a jar and shake them, when you open the jar, you

find the largest balls have ended up on top of the smaller balls”. This model infers those of us with the largest presence in a social or business situation will prevail as a natural law of science. Wisdom set aside, the reason this model works is that the smaller balls can fill any subspace in the jar more completely – making that subspace more densely filled with mass. As the jar is shaken, the smaller balls can express more work in relation to gravity in a space within the jar, so they work their way to the bottom. In the jar, the shaking is the model for the vibrations expressed by the Tritium universe, and the smallest balls model those particles of matter surrounding the event horizon whose ability to resonate with the tritium is easier. Larger balls model those particles that have more mechanical difficulty with Tritium’s harmonics, so move more slowly, remaining more responsive to the Earth.

As the Tritium event horizon continues, the particles of matter around it attempt to organize themselves in accordance with the expressed harmonics of the Tritium bomb. For all *Significant Moments* when the event horizon exists, this reorganization continues, creating a layer of dense particles moving inward toward the event horizon. Each particle’s acceleration is directly related to its relative density in the Tritium-generated harmonics field. The most important feature of this phenomenon is the acceleration’s ability to physically organize an ever-increasing set of particles that just happened to be in the neighborhood when somebody pressed the button down. Since the duration of the event horizon for human-made fusion bombs is short, any particle’s linear acceleration is slight, but they use the acceleration to jostle each other into organization. Since this jostling has a uniform fundamental frequency, the acceleration applied to every particle is in harmony with the vibration of all other particles nearby. The set of particles naturally becomes more dense and is more able to transmit the harmonics emanating from the event horizon. More efficiency means more particles to join the dance as the event horizon remains.

This is an important concept. The highest frequency harmonics in real space surrounding the Tritium universe is within the fabric of its actual event horizon: interior to the event horizon, the concept of spatial vibration is meaningless because there is no time. The local region of space and its included particles that surround the event horizon cannot

support the highest of these harmonics because the included matter, in the form of non-Tritium particles, cannot transmit Tritium vibration without dampening some hum. For every *Significant Moment*, as your model's shell is positioned farther away from the event horizon, its opportunity to receive the entire range of harmonics is less than the shells closer to the event horizon. For you the scientist, there is a *Significant Moment* whose duration and beginning instant is set in relation to detonation. Its beginning instant determines the status of the particles of the region surrounding the event horizon. The later is the beginning of your *Significant Moment*, the more time the Tritium universe had to organize the surrounding particles. The duration of your *Significant Moment* defines the range of harmonics to be studied, and a later beginning instant will also show that frequencies in the object range will be present within a larger, expanding shell.

Note: The Uranium fission bomb's synthetic universe could also do this to the particles around it, but at a hyperbolically (mathematically very much) smaller extent.

All of this organization of the particles surrounding the Tritium universe must come to an end. The event horizon has struck up quite a relationship with the Sun, and they have had the time to put in a few duets of Broadway show tunes, but lately, the event horizon has felt a bit empty inside. Outside, more and more particles join the singing and are trying to keep up, but can only sing the choruses. As the event horizon begins to lose its voice, fewer new particles join each successive refrain. Feeling a tap on his shoulder, the event horizon turns in to find a small group of Tritium atoms, with their 'Born to Blast' tattoos. A representative of the group says, "We're leaving now, and we are the last of the pack. Thanks for your help." They join hands and the group spins into a blur. The blur suddenly shrinks and a bunch of neutrons pop out and pass through the event horizon, blazing their way through the surrounding particles. The song of the last Tritium atoms in the critical mass is sung, and the event horizon sings with them, then is silent. The group of last atoms is now half in number to what it was, and they are all fat, silent and appear bored. Actually, they have become helium atoms. No tattoos. The antimatter librarians have mysteriously departed, and virtually no Tritium atoms remain. The space is filled with helium atoms arranging for lunch.

The Tritium event horizon tries to sing and has no voice. The Sun continues to sing, the Earth is still chanting its choruses, and so the event horizon excuses itself and vanishes. Where the nuclear Uranium bomb's event horizon is shredded to ruin by the Sun's storm, this thermonuclear one simply and instantly fades away in comparison. Contact between helium pushed out of a temporary universe, and the particles of the good old universe initiates. The temporary gravity well is gone, and these helium atoms are hotter than anything outside the Sun, with a few frequencies just below the fundamentals of Tritium fusion, and a lot of harmonics just below helium's fundamentals – much higher ranges than the Uranium fission bomb's atoms. Past efforts to organize the particles surrounding the temporary Tritium universe allow its aftermath harmonics to expand in a very organized and uniform manner, so, compared to its cousin the nuclear explosion, this expansion grows fantastically rapidly. The destructive force is hotter and moving faster. Its particles are smaller, more mobile, and helium is chemically more inert than almost every atom it will contact, so the spread of energy is not as slowed by chemical reaction. Needless to say, for comparable number of Uranium atoms in fission and Tritium atoms in fusion, the blast of Tritium is far more powerful. Helium atoms also have a higher fundamental frequency than do the products of nuclear explosions, so their ability to mix with the particles of matter is much greater and less work for them.

For the remainder of the example, this plasma expands and promotes the destruction of great volumes of material. The Tritium burned more efficiently than does Uranium, and the product Helium is not as radioactive as the products of fission. There is an interesting phenomenon at the end of a large thermonuclear explosion. As the super-heated plasma and its byproducts expand, the entire volume of space is forced to cool by the application of the plasma's kinetic energy to the mass in the good old universe. Shortly after the explosion, this cooling produces two distinct regions: on the wavefront of the expanding explosion, local pressures are high, while at the original center of explosion, there is now a very strong relative vacuum as every particle of material present has lost its high frequency resonances and now needs a lot less space. This vacuum is bounded on all sides by the expanding explosion, so when the energy of expansion is exhausted, vacuum pulls with such great force, the devastation of the neighborhood is nearly doubled as the

high velocity wind direction is reversed, pulling any particles with it. This feature is included in the model below (The Big Bang) of a much bigger explosion.

When I was very young, a group of us re-discovered a ‘cave’ on the ridge above our town. The feature was just a crevice in the rock face, and every generation had known about it, so it was noting more than a focal point of our interest – a remote, special place for boys to congregate and do boy things.

On a particular Saturday afternoon, the local theater was showing a feature I really wanted to see, so I joined a few pals and we spent the afternoon there. As we were going in, I remember hearing the fire stations’ sirens sound from at least a few in town, but thought nothing of it. I did not know that my other friends had set fire to the forest above my town.

When I got home, my Mother asked me very sternly where I had been, so I repeated telling her as I had done before walking down to the theater. She asked me who was with me before relating the tale of the fire. It turns out that other mothers who sons were not accounted for in the two hours since the fire began had talked to my Mother, who could comfort them by explaining that their sons were most probably with me at the movies.

The boys at the cave that day got into a lot of trouble. They had, as I recall, been smoking cigarettes and had set fire to the forest. In our society, this was doubly sinful, so their punishment was great.

The point is that, had it been a different Saturday, if the theater had been showing a dull feature, then I would have most probably been among the punishable. Though my Mother knew I often traveled to the cave, she did not feel my guilt by association was worth more than a severe lecture about fire and of cigarettes. It was sheer luck that I was not there. I later spent years fighting forest fires. I began working on the forest fire lines at the age of fifteen, years before the legal age, and I always thought of that Saturday.

There were other unfortunate times in the past when I was at some other ‘there’ when a bad thing happened. Car accidents, group mistakes, and personal failures of thought or ethics. As time has continued, these brushes with fate have diminished through wisdom, but have diminished more so from of a conscious effort to become more holy. I saw friends die in drunken driving accidents, so in my twenties, I stopped drinking alcohol entirely for over seven years. That alone probably kept me from much of harm’s way, but my entire life became more successful because I chose not to drink.

I consider the ethics of an action as well as its consequence, and as I grow even more wise, the motives behind actions take more of my attention than the acts themselves. By looking more closely at intentions, I grow closer to understanding Forgiveness and Redemption.

The best intentions followed by thoughtful action can fill your life with Joy. The best intentions can be the best ‘enabler’ you will ever find. God presents these intentions to you during all moments.

VI. Gravity – Advanced

Prehistoric humans knew something about stars that modern humans do not grasp. One night in the far distant past, a human walked into the night, looked up and saw very little light. This very wise human determined that, unlike the Sun, stars don’t give much light. I’m wiser; they don’t give us any light at all. This presentation began with the description of the *Significant Moment* of its writing, which is the year 2005. In the *Significant Moment* that is 2005, nearly every single human on this planet knows that light comes from stars, travels millions or billions of kilometers, and pops into our eyes and telescopes, makes artists weep and poets scribble. In less than ten minutes of reading, you will know it cannot true.

The real reason that starlight does not reach us is simple, but I am not going to talk about it. I will instead talk about why it is impossible for light to reach us from the stars, and why you are convinced that it does travel to us as light.

When ancient astronomers gazed at the night sky, they saw lights of stars on a black background. Like everything else in science, astronomy has been able to take advantage of technology, and we began to see more stars, discovered galaxies, and found a lot less background. Now there are few places we can gaze with our most advanced instruments, and see just blank, empty space – there is always a star nearby, and here lies the key to understanding why light doesn't come from stars to us.

This paragraph is hard to understand. There exists a set of stars that we can observe that are far away. There is a special subset of these far away stars, which shares the quality of location in the sky with a set of nearer stars. The special quality relating far to near is that in order for the light from the far star to travel to the Earth, it coincidentally must pass by one of the nearer stars. This nearer star has the opportunity to bend the light from the farther star as it passes by on its way to Earth. The nearer star happens to be almost exactly in line with the path from the far star to our eye. Chronologically, the nearer star was near the path of the light from the far star as it passed by.

If stars are anything, they are electromagnetically active. Every emission in the electromagnetic spectrum is subject to bending by the nearer star, and yet, we can photograph stars that appear to be next to each other in the sky. The bending process is related to the individual frequencies in the stream of emissions from the far star – lower frequencies get bent more than the higher frequencies – this causes rainbows. In a few paragraphs I will discuss interference, and it can also be demonstrated that the interference generated by the nearer star occupies the field through which the farther star's signal must travel. This would create gaps in the spectral detection of the farther star.

What you need to see, is that we can locate two stars right next to each other in the night sky. We can use our finely dividing instruments on each of them, and no matter how

closely they appear in the heavens, we can receive a full-spectrum, non-wavering, frequency survey for both the nearer star and the star which is farther away. This is impossible.

Considering the distances, if the nearer star were only able to bend the electromagnetic stream a billionth of an arc minute, by the time it arrived at Earth, the separation of bandwidths caused by the nearer star's electromagnetic bending would make the signal appearing here, as one true color only with a very narrow bandwidth. Since the travels of these two stars are not related, the bending of the emission would not be static. What we would get is a shift of this single frequency, related to how close the near star is to the path during the signal's transmission.

We can find lots of star pairs like this. The big demonstration of the problem is seen when we look at galaxies. This signal has been traveling for a *Significant Moment* that is beyond human understanding, yet we can photograph and record individual images of isolated stars after their light has traveled passed the nearer stars in that galaxy, but we can still get a full spectrum and points of light.

Again, this is not an explanation of why starlight does not travel from stars to us, just proof that it does not. The reason is simple, yet involves a long discussion of the fabric of space and time... boring stuff. The caveman was right, without all the science.

Consider the Sun as I have discussed it in Part II. It has antimatter at its center. Remember that antimatter is any stuff that does not share harmonics with the vibrations of our universe, but is in a separate harmonics universe of its own. The Sun's center does not operate in real time, but in imaginary time, controlled by activist librarians. It is separated from our universe by its event horizon, which is resonating with the material in the Sun's surface, and as a direct function of the level of activity of the center's antimatter. The only thing this central region of antimatter can relate to in the universe is the centers of other Suns, which have their own librarians. These Suns have been talking since they each initiated an event horizon around their antimatter billions of years ago.

The center of the Sun is not governed by time. Time does not pass there, time isn't even allowed to enter the building. The center of the Sun is, therefore, present for all *Significant Moments* when the event horizon is intact. Like gravity on Earth, the center of activity for antimatter in our Sun is located within the Sun's antimatter core region, so at any instant in real time, it can be a point. Since it is resident in the core for all real *Significant Moments*, it can be defined for any real *Significant Moment* as continuous, and as an arc within the Sun's center. Since it is always located in the center region of the Sun, surrounded by antimatter, the reader can justify its continuity in imaginary time as well. This center of antimatter can and has been talking to all other stars, and they talk back. The operational environment of this conversation is outside the good old universe, and is shared with us only as harmonics transmitted to us by the resonance of the Sun's antimatter event horizon.

Imagine any two normal, operating stars. Their connection is continuous in real time, is based in the star-transmission harmonics environment, and like gravity, their relationship is based on the two positions of the centers of antimatter for any *Imaginary Time Significant Moment*. The qualities of their relationship are modified by the distance between the stars' centers of antimatter at any instant. Like the Earth's gravity and the rock, both centers of gravity are constantly moving in real time, and it is easy to infer from the evidence that they move continuously in imaginary time as well. Like the rock and the Earth's center of gravity model. Imagine an elastic string connecting these two stars' centers of antimatter, and since the string moves in conjunction to the relative movement of the two centers of antimatter, it is always in motion.

Further, like the rock and the Earth's center of gravity model, for the matter and particles of the solar system, the Sun's center of antimatter, though defined instantaneously as a point in the real universe, appears to the Solar System for every *Significant Moment* related to the material of the Solar System, as a static, spheroid region, just behind its event horizon. The frequency ranges involved with antimatter appear solid to our universe's matter and energy. What the Solar System sees is a group of wavefront harmonics emanating outward from the balloon event horizon. When compared to the

fundamental frequencies of the Sun's antimatter core, these wavefront harmonics are in a very low frequency range, but to us they are beyond our ability to measure.

For every connection between any two stars in the real universe, the distances involved with this string are enormous. We are not talking about a walk around the block – even a city block. The distances are often beyond human comprehension without simplifying them to statements in mathematics. Imagine you can travel from one side of our galaxy to the other in less than a second. At that rate, a human would die of old age before reaching some of the real universe's distant stars that we can detect. But, since time is meaningless to antimatter, these connections exist for all stars.

For our example of two stars, view the center of antimatter as seen from the other star. It would be a disc bounded by the extreme travels of the distant star's center of antimatter during any surveyed moment in imaginary time or in real time. A larger star would have a larger disc at any set distance than would a smaller one. Consider the diameter of the disc for any surveyed imaginary moment, and compare it to the length of the string between the two stars' centers of antimatter. The string's angular rotations and twists in response to following that change of position are so insignificant they virtually do not exist. This is important. For the model, within any duration of imaginary time, the required adjustment of angular orientation for one star's center of antimatter to track any other star's center of antimatter approaches zero. It is also possible to model spatial relationships in imaginary time as not having meaningful rotational values, just distance in a straight line or slightly curved arc in the real universe.

The requirement of the two centers of antimatter to track the instantaneous variation of distance between each other is continuous and creates the process that permits us to detect stars. The string between them is constantly growing longer and shorter. These changes in distance are related to the moment-to-moment positions of the two stars, which is how each core of antimatter relates to all the other stars in the universe. This concept permits a relationship to be established in imaginary time, and distance permits the transmission of electromagnetic harmonics across any distance in real space. For the examples where our Sun is one of the stars, we get and can detect electromagnetic spectra

for each star as its antimatter relationship with our Sun is detected within real time. We get points of light, detailed spectral data about each star, and the weeping of artists.

Our Sun is performing two activities related to this discussion. It is continuously talking directly with another source of antimatter transmissions (star), and it is also continually creating a field of harmonics, radiating wavefronts throughout the Solar System. Though these two activities are related, they operate at totally separate ranges of frequency and produce two, very different results. The centers of antimatter are tracking each other between points in real and in imaginary space. These points independently move in real space at a very fast rate and share very high harmonic frequencies in real space. The Sun also is continuously producing harmonic waves, expanding outward, in real time only, from its antimatter event horizon. When compared to the tracking of the centers between the two stars, the frequency range of the event horizon emissions is very low. More specifically, the event horizon virtually does not move when compared to the antimatter center tracking. You are asked to see that, for conditions where the two activities are joined to produce a result, the event horizon emissions are motionless when compared to the centers of antimatter tracking.

We are not standing on the Sun's surface, and we can clearly see the stars and galaxies as the points of spectral light that our Sun expects to see. The fundamental conclusion is that the harmonic products of our Sun's relatively stationary antimatter event horizon include the ability to create interference patterns with the arriving star signal. These interference patterns can be viewed from any location within the solar system. Since the balloon model of the event horizon radiates the Sun's harmonics equally in all directions, and since the star signal arrives on a single vector, the arriving signal is 'demodulated' as it enters the Solar System's harmonics field to permit the expression of the much-lower-ranged electromagnetic spectra. From any position in the Solar System, the interference between the star's signal and the Sun's emissions would produce a Gaussian Theta angle and with an incoming E centered on the star's position in the sky in relation to the surface of the expanding wavefront of the Sun's harmonics. Every Sun-generated wavefront of a different harmonic provides an opportunity for the star's signal to demodulate, creating local interference patterns that can be detected in the electromagnetic spectrum – we see a

star. By changing the instrument qualities, we can receive a separate set of demodulated harmonics. If the distance between the Sun and the star is increasing during a *Significant Moment*, then there would be a Doppler-style shift in the star's frequencies as they are demodulated. The Doppler shift would also be different for each observed star because its transmission to our Sun is based on its contents.

This phenomenon of electromagnetic reception of starlight is seamless to our instruments. The higher frequency, 'carrier' wave set arriving at our solar system is being demodulated, not the electromagnetic spectra which is the product. We are looking at the harmonics of interference occurring during extremely small *Significant Moments* below the perception of our devices. Since the distant source is a singularity and our Sun is also a singularity, randomness is minimal.

The best evidence of this transmission system is the announcement recently of our discovery of evidence that a planet is orbiting a star physically nearby to our Sun. The astronomers describe not 'seeing' or observing the planet directly, but they have identified a bulge in the star's electromagnetic emissions. This bulge has been shown to rotate as if it were tracking a planet in the star's solar system. This observation demonstrates that what we see from that star is not its light, but how its event horizon of antimatter is modified by its own real time physical solar system and planets. It has a bulge, much like our ocean tides that follow Earth's moon. This bulge appears to the astronomer's instruments as a cyclical distortion of the star's disc. Consider that our instruments can see far into the cosmos, and photograph stars in the middle of galaxies. A planet orbiting one of our nearest stars should be optically huge and bright in comparison to a star at such a distance. This recent announcement was clear in its description of the bulge rather than image.

Another key piece of evidence is the recent detection of particles which seem to travel faster than the speed of light. A bunch of mathematicians have modeled the activity of supernova star explosions, and stated there appeared to be the mathematical need for a type of particle that travels faster than the speed of light. A scientist configured a detection system for these particles, and waited for a new supernova's emissions to reach

Earth. This happened a few years ago, and his detection system found the particles, which appeared to show up a full four seconds before the electromagnetic emissions reached the Earth.

What traditional thinkers were expected to believe was that, after traveling for billions of years at light speed (or just slightly above), these particles had reached a full four second of lead on the light, and the thinkers didn't buy it. The data and the model become significantly improved if you instead consider that the four second advantage was reached in the few hours the particles and electromagnetic emissions traveled in from the edge of our solar system. More significant is if these entities traveled to Earth at the same velocity, but the particles left four seconds before the star's supernova explosion dropped its control of the harmonics in the electromagnetic range of vibration, which then released these frequencies.

In the early 1980's, I remember taking afternoon break in the parking lot of TRE Semiconductor Equipment, Incorporated, along with about twelve co-workers. We designed, constructed and installed state-of-the-art photography systems to create the circuitry on microchips. The night before, I had completed the major portions of my model and I announced to this group that, "Starlight is not starlight... it is gravity." By the looks on their faces, they weren't ready for the concept. My grandfather tried to explain bacteria to a community of farmers, with resistance. Thus, I have an imaginary box in my hand that is slightly larger than my hand, and I call it a 'radio'. There is a man's voice coming from an opening on the radio's front, and I am going to try to convince you there is not a very small man and his full orchestra inside the box. Not only that, but I can turn this dial and tell the man to grow louder or more quiet. I can also turn this other dial and the man becomes silent and another group of musicians takes his place. I explain that the man and the orchestra, and all the others whose sounds and voice come out of the box are not actually inside the box. A signal is being sent from a remote transmitting device, and this signal contains harmonics that include the man's voice and every sound coming out of the box. The radio receives the transmission and separates the audio for you to hear. I can adjust the radio to look at different sources of transmission, which produces a different output from the radio box. Since this is the *Significant*

Moment year 2005, most humans are so conditioned by learned history, they do not have the capacity to understand that a gravity carrier wave has transported the image of a star to their eye, and so, they want to see the little men and women inside the box.

In space, a group of interstellar taxicabs are orbiting Jupiter with their 'Not In Service' markers lit. The pilots are momentarily relaxing between fares, and hang out here to drop antigravity spheres into the soup of Jupiter's atmosphere and gamble on where they will emerge. As they wait for the spheres to rebound, the extraterrestrials are pounding their dashboards, saying, "Squishel dot dot data whoop", which translates to English as, "About time the Earthlings got it right", and then they return to their racing forms.

Human life will go on after you are dead. This is good news for our children. Your memory will linger, depending on how much goodness you have done in this world. How do you want to be remembered? If your intention is to be evil, then your memorial will be short. This is the most sublime definition of evil – to be among those who history will actively forget. There have always been supporters of evil... do you remember that dictator of Germany during World War Two – what was his name? I just remember reading about a bad guy, hopped-up on amphetamines, displaying paranoid and psychotic behavior. A Jew by birth who hated himself so much he persecuted the entire religion. Decided to shoot himself rather than to face the world and to account to humans for his actions. We now use him to exemplify a bad human. Statues of him are destroyed or hidden, his worshipers diminish by the day, and soon enough, he will be referred to only after consulting a history book. Gone.

A man in the United States was so afraid of his government that he exploded a bomb in front of a government building in Oklahoma City which killed many dozens of people, including many children. What was his name? It doesn't matter, until you absolutely need a bad example of a human.

By learning what is good and what is holy, you can improve the memories of you, and your spark of life will linger stronger and brighter until the end of the age. Start now.

VII: Gravity – the Big Bang

In a prior section, I tried to express the difficulty humans in *Significant Moment* year 2005 have in understanding distances in the universe, and of very short moments. We have no frame of reference for the really great distances of the universe, and no concept of the amount of time remaining in the universe as we know it – before the next Big Bang.

Think of the span of the universe as it is today. I think the universe will expand to over one hundred times its present size before it again collapses. Of the jewels of wisdom provided by humans, the references to dust as the final state of the individual are well beyond merit. That is what the whole universe becomes - dust.

Basically antimatter virtually disappears. As stars run out of fuel, their furnaces will diminish in power, and their fuel source will climb quickly up from hydrogen and into the remaining elements, until finally there are no more atoms. Actually, there will be lots of atoms, but not in any usable concentration inside the stars. When the fusion and fission of the stars shuts down, there will be fewer sources of antimatter, until there is no imaginary space, no antimatter, and the activist librarians of antimatter will reach their ultimate reward – dust.

The universe will grow colder as it expands, until there is not enough activity to note the concept of activity. As gravity centers grow smaller and fewer, the matter of the universe will be permitted expanding opportunity to drift and scatter. Individual solar systems will become puffs of dust clouds. Suns will become solid balls of eroding dust to feed each system's cloud.

Finally, with all the portions of the universe dropped into real time and space, there is no light, no heat generated, no harmonics created, and actually no motivation for atoms to associate with other atoms. Specifically, the forces which maintain chemical bonds will be so weak that no two atoms can survive in the empty energy of space. They separate at absolute zero, never to bond again in this universe. Each particle is remote from all others, moving away from the source of the original Big Bang with whatever speed it was originally given and of yet has not converted into something else.

It all sounds so bleak, but cheer up! There is still something hanging around that can pull things together – gravity. Remember the thermonuclear explosion created an attempt to unify the matter around the explosion into some harmonic form? Well, the Big Bang that was the beginning instant for this universe also provided the same kind of harmonic unity. Since it was the initial condition for the universe, it remains the primary mechanical force for the entire remainder of the universe. No matter how far each particle travels and for no matter how long a duration of the universe, the fundamental harmonics of the Big Bang are maintained by every particle and for every system of particles.

As each particle traveled away from the Big Bang, it carried the harmonics. It formed with other particles to create systems, suns, planets, nebulae, and antimatter. Each time it formed these relationships, it also provided its harmonics from the Big Bang. The other particles also had their contribution, which typically matches exactly – they all have the same source of their vibrations.

At the end, every component of the universe has been removed from any imaginary time, from any temporary universes, and is reduced to fundamental particles without much interest in joining hands. Therefore, each and every particle is subject to Sir Isaac Newton, and his law of universal gravitation. The dispersion of the particles within the universe produces no dominant gravitational center, in fact, that is the primary definition of this universe in its final state – no centers of gravity exceeding the size of a fundamental particle. There exists no mass large enough to consolidate gravitational lines of force. The particles are so scattered, they cannot affect each other. The only force that remains in the universe is gravity. As time has passed since the Big Bang, the universe's

center of gravity has been losing its concentration of mass and gravity, eroded by the expanding dispersal of mass as time permits the expanding universe. It has, however, not moved very much. Our friend Newton with his shell model of gravity explains that though the gravitational center is dispersed, the entire universe is still pulling at each particle from the very same vector it has maintained from the initial blast. The dust from the other end of the universe is pulling the dust local to you, and the vector of attraction travels through the center of the universe.

The only unifying factor of the universe that remains is the fundamental frequency of the Big Bang, as it was originally conveyed to the universe. As all other types of energy and force are extinguished by time and distance, this frequency remains to become the only force left. The instant when the fundamental frequency of the Big Bang is the only remaining unifying feature, the universe comes to an end- the *Significant Moment* that was this universe will have reached its ending instant.

Imagine the universe, a huge space full of particles each with a universal attraction to every other particle. The net effect of gravity on a particle in the farthest reaches of the universe is the ‘sigma sum’ of its attraction by the remaining particles in the universe. There are far more particles located in the direction of the center of the universe than are pulling the particle the opposite direction, and in reviewing the real time span of this universe, the velocity of the particle as it is vectored away from the Big Bang has been continuously reduced by this net gravity from the center of the universe. No matter at what velocity the particle left the Big Bang, it must eventually be slowed to a full stop, and then begin its return to the center. Everything in the universe is headed home. Considering the distances, acceleration of the farthest particles is slight, but they start moving. This universe has expanded quite a bit when compared to today’s but it is easy to see that if there are no forces other than gravity, eventually the matter will be returned to its origins, which it does. The collapse of the universe simply takes much less time that you would expect.

The difference in concept between this model and Newton’s is that there is no official center of gravity for the universe – there is no gravity well, just particles spread across

the universe. Since there is no center of gravity in any real sense, many of the classical rules of gravity do not function. All that remains is the attraction of every small particle in the universe to every other particle.

Einstein created a concept, labeled 'Einstein's Theory of Special Relativity'. It linked the concept of observing things at the speed of light, and how relative time between the observer and the moving object can be different. This is a complex idea, and produced many specific rules about the velocity of matter, the speed of light, and of dimensional integrity. As these farthest-most particles begin to fall toward the center, their velocity increases. Eventually their speed shall approach that of light.

Think about what is happening. The acceleration of the farthest particle would have turned inward before the average particle closer to the center. Their exposure to other forces would have diminished first, and they would have begun their plunge as others were still moving outward. In turn, the outward traveling particles would encounter a situation where there suddenly were no particles in front of them and the mass of the entire universe is behind them, slowing their dispersion until they also begin the return to center. This process continues as each particle reaches the frontier of particles, is slowed, stopped and its travel reverses to go toward the body of particles. Since the set of particles that have already begun their return have a body of nearby particles behind them, their acceleration is slightly slowed by acceleration toward the outlying particles, just as the moon pulls the oceans out from the Earth.

This model is meant to provide an average description. What happens is that, as the particles begin their movement from the farthest regions of the universe, they encourage other, nearer particles to reverse direction and join them. As this phenomenon continues, this set of particles slowly becomes a region of increased density of mass, with all the particles continuously moderating the speed of all adjacent particles. The result is a spherical region, filled with an ever-increasing population of particles moving with it. The velocity of this region is also increasing. The amount of the universe's mass outside the spherical region virtually does not exist – outside of this region the universe is a true vacuum.

This is where Einstein's curved universe comes into its greatest form. As the particles' velocity approaches the speed of light, the resistance to greater speed is limited to collisions with slower particles. There comes a time in this process when the majority of particles are moving at light speed, and acceleration of gravity is pushing the particles over the threshold of light speed. In this condition, if enough matter is trying to travel faster, and insufficient matter is moving more slowly, the extremely small relative amount of slow matter cannot stop the imploding sphere of particles from exceeding the speed of light. The smaller quantity must, according to Einstein, be mechanically picked up by the much larger quantity faster-moving particles and be accelerated to faster than light velocity. Imagine a particle accelerating toward the universe's center of gravity that has reached three quarters of light speed. Suddenly, a particle blasts by at above the speed of light. The proximity of the faster particle's path to the slower particle permits gravity to perform work on both, dropping the faster particle below light speed and accelerating the slower to near light speed. There are classic exchanges of energy as the faster particle drops below light speed, but in this universe devoid of energy, it is absorbed by every local particle.

A third, fourth and fifth particle set streaks by both of these particles and the net effect of their gravitational connect to the two slow particles leaves all five moving faster than light. Gravitational acceleration continues for the particles, so their ability to pull slow particle along increases for all *Significant Moment*. The curve in Einstein's universe relates the movement of particles to the relative speed of those around them. If all of your neighbors are traveling along the same vector and at beyond the speed of light, then you are the particle out of step. With the same power expected to slow any particle traveling faster than light speed in our Solar System, the slower particle in this future collapsing universe is motivated to move trans-light.

As the set of particles which started as the farthest from the universe's center of gravity move closer to its center, they accelerate directly over time and inversely to the amount of particles they pass. The limits to acceleration of the initial particles are time and the amount of mass the particles directly influence during travel. Thus, as the spherical

region of particles shrinks toward the center of the universe, during any *Significant Moment*, the mass of particles in the region and at trans-light speed grows larger in comparison to those particles in the region they encounter at slower speeds. This means, as the universe collapses, there are more and more particles traveling at trans-light velocity, and relatively fewer particles to slow them down as the slow particles get accelerated to satisfy Einstein. As the spherical region shrinks, the average particle's linear velocity on the vector toward the center of the universe increases. The closer to the center, the larger grows the group of particles and the faster the set of particles is moving.

This concept also includes those particles missed or deflected as the region continues inward. Einstein's relativity statement shows them as accelerating two-fold in relation to the region, in order to satisfy the relativity requirement. These particles join the region and it is presumed that virtually zero mass exists in the space of the universe outside the region of particles as it collapses. As the shell of particles shrinks in diameter and grows in speed, Einstein's mathematics suggest that it grows thinner, with the set of particles moving more uniformly. Since the only force in the universe is gravity, and the only energy in the universe maintains the fundamental frequency of the previous Big Bang, harmonics within the shell are not chaotic. This improves the efficiency of the ever-increasing particle density within the shell, integration of new particles, and set initial conditions for the next Big Bang.

This interpretation of Einstein also eliminates a maximum velocity for the particles. There are mechanical ratios between the mass of the trans-light particles and the sub-light group. Those readers who like science fiction can imagine how much space can be covered by something traveling at twelve, or twelve thousand, or twelve million times the speed of light. If you accept that the sub-light particles in that distance of space are uniformly, evenly spaced, it becomes clearer that acceleration has limits as this material is first accelerated trans-light by the total set of already trans-light particles, and must then be accelerated further to match the average of the entire set of trans-light particles. A practical limit exists for acceleration, but there is still nothing to suggest a maximum speed, except the speed of gravity. How fast is gravity? Einstein's Theory of Special Relativity also tells us that we don't know. For humans in *Significant Moment* year 2005,

nothing moves faster than gravity, so we cannot say for certain how fast it travels, even if the idea of speed relates to fundamental gravity at all.

The interesting part is that for any surveyed *Significant Moment*, if a practical maximum speed for the front of the spherical region exists, and the maximum speed for individual particles is faster, then, for virtually all the particles in the universe, the set of particles would arrive at the center at virtually the same time. Those particles behind the region could catch up as the front of the region plowed ahead more slowly. More accurate would be to suggest the entire set of particles would arrive at the center within very small *Significant Moment*, and as a continuous pack.

Rather than taking billions and billions of years for the travel of the most remote particle of the universe back to its center, the trip could take only millions of years. In the final moments of collapse, the region of particles has accelerated to its maximum speed and contains virtually all of the particles in the universe in a thin, shrinking shell of mass. These particles converge at a point in space, and within a cosmically short duration moment, collide and totally collapse under their own gravity into antimatter. As the event horizon of the universe's core of antimatter expands, since time inside the event horizon does not exist, the linear velocity of matter that reaches the event horizon has no meaning, so the matter is simply absorbed by the antimatter as the *Significant Moment* continues. The bombardment of this event horizon by particles traveling at what might be thousands of times light-speed, mechanically contains the event horizon, just as the balon of the Sun contains its antimatter. This *Significant Moment* could require fifteen years of duration to permit all of the universe's matter to be delivered to the event horizon. It could take fifteen hundred years. In cosmic terms, both fifteen minutes and fifteen hundred years are virtually the same, and too brief to consider any differences. Within the *Significant Moment* year 2005, when individuals model the explosion of the Big Bang and quibble over its duration in microseconds, it is high comedy in physics.

As all matter in the universe continues to cross into antimatter, fewer particles are left to contain the event horizon, and when virtually all the mass of the universe resides inside the event horizon, there is no inward pressure provided by the arriving particles – no

matter how fast they are traveling. The pressure inside the event horizon exceeds the pressure outside, with a differential pressure related to time. Within a very, very short cosmic *Significant Moment*, virtually all of the mass and energy of the universe is collected in one, very small volume of space. The gravity forces matter to be converted into antimatter, A new, miniature universe is created to contain all of the universe's antimatter, which immediately loses all of its containment forces of the collapsing sphere of particles. Then, this miniature antimatter universe expands, and all of the antimatter is reconstituted as matter and energy.

If you were watching this event in imaginary time, as the good old universe reached it final instant, there would be no features: all sources of antimatter have been extinguished. This condition would continue as the particles of the real time universe begin their travel toward the center, and continue until some particles begin to move faster than light. As collisions between trans-light and sub-light particles become more common, features (sparks) would begin to appear, as antimatter is generated by the transfer of kinetic energy moving through light speed.

If the observer were at the center of the universe, as the collapse continues, the number of features would increase in size and number until their presence was continuous, finally filling the sky with ever-increasing numbers of events. As the collapse of the real universe nears completion, the amount of antimatter grows at and around the center, and the collapsing shell of mass is filled with collisions of particles moving at incredible speeds, which produces a sky completely filled with antimatter features. When the collapse is complete, there is a sphere of antimatter at the center of the universe. All other places are dark, with no features. Immediately, the sphere begins to expand without features as a smooth ball, which, over time, loses its smoothness, shreds, and atomizes as antimatter converts to matter and energy.

If you were watching the expansion in real time, you might first observe the implosion of the present physical universe's mass. This implosion would be illuminated by the energy created by collisions between particles as the mass moves inward. When all of the mass has reached the center of the universe, the collapse is followed by a total blackout of all

energy, as the core converts to antimatter and resides in imaginary time. Since you, the observer, are in real time, activities in imaginary time are not observed. First you would observe subtle signs of expansion of the universe, but no matter. As the expansion continues, bursts of energy plasma can be seen, as the localized harmonics of antimatter drop into the real universe. As real time continues, more harmonics appear as the antimatter expands and cools, until matter begins to “condense” into empty space. The expansion of the antimatter core could have utilized so much imaginary time, the new universe already is a significant percentage of its current size again when matter begins to appear. When the primary antimatter event horizon vanishes, there is nothing in the universe to stop the expansion of the antimatter into real time. The antimatter core expands in imaginary time until it reaches a diameter where the pressure drops to permit conversion to energy, then matter. The antimatter then immediately cools to permit the formation of matter, which then explodes in real space to begin the next cycle. It has specific frequencies and harmonics.

Bang.

If you have read much of this, you may conclude that I am at least somewhat intelligent, that I have some minor command of at least one portion of one subject, and that I enjoy looking at it and explaining it to others.

My experience is that God has more than proven to me that there is a place for me in this universe, and that God has a path for me. I believe that God has a path for you. I believe that persons and forces exist to try to move me from the path. Whenever they succeed for a moment, I do my best to assure that it is smaller than a *Significant Moment*.