

Quantum Physics and the Time Machine of Consciousness:

Past Present Future Exist Simultaneously.

Entanglement, Tachyons, Relative Time, Circle of Time, Quantum Time, Dream Time, PreCognition, Retrocausation, Deja Vu, and Premonitions

Rhawn Gabriel Joseph

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Abstract:

There is no “universal now.” The distinctions between past present and future are illusions. As predicted by Einstein’s field equations space-time may be a circle such that the future leads to the present and then the past which leads to the future, thereby creating multiple futures and pasts and which allows information from the future to effect the present. Causes may cause themselves. Coupled with evidence from entanglement where choices made in the future effect measurements made in the present and theoretical tachyons which travel at superluminal speeds from the future to the present and then the past, this may account for precognition, deja vu, and premonitions. In quantum mechanics, where reality and the quantum continuum are a unity, time is also a unity such that the *future present past* are a continuum which are linked and the same could be said of consciousness which exists in the *future* and in the *present* and *past*. If considered as a “world line” and in space-like instead of time-like intervals, then consciousness from birth to death would be linked as a basic unity extending not in time but in space and the same could be said of time. Time-space and consciousness are also linked and interact via the wave function and as demonstrated by entanglement and the Uncertainty Principle. Evidence from space-time contraction, atomic clocks and the twin paradox as functions of gravity and acceleration also demonstrate that the future already exists before it is experienced by consciousness in the present. Likewise, under conditions of accelerated consciousness (such as in reaction to terror) and dream states where various brain structures are in a heightened state of activity, space-time may also contract, such that time may slow down and consciousness may be given *glimpses* of the future in advance of other conscious minds thereby providing again for experiences such as precognition, premonitions, and deja vu. Closed time curves, conscious time, relative time, dream time, and quantum time are also discussed.

Keywords: Consciousness, retrocausation, Time Travel, Space-Time, Relativity, Quantum Physics, deja vu, premonitions, precognition, Length Contraction, twin paradox, atomic clocks, dreaming, tachyons, entanglement, Uncertainty Principle, Wave function, Everett Multiple Worlds, rotating universe, closed time curves, violations of causality.

Relativity: The Future is the Past. The Past is the Future

Time is relative to the observer (Einstein 1961). Since there are innumerable observers, due to gravity, velocity and other variables, there is no universal “past, present, future” (Einstein 1905a,b, 1906, 1915a, 1961) all of which overlap and are infinite in number and yet interconnected and entangled in the basic oneness of the spacetime quantum continuum. It is the unity and relativity of time which makes time travel possible as well as some of the unique features of consciousness such as “premonition” and *deja vu* during which an observer experiences or is effected by the future before it becomes the present.

Because time is relative, and due to entanglement (Lee et al. 2011; Matson 2012; Olaf et al. 2003), the future can effect the past and may be experienced in the present depending on the observer’s frame of reference. Consider, for example, the moon, the sun, and the stars up above. From a vantage point on Earth, the moon we see is actually the moon from 1 second ago; the moon we see in the *present* is from the past. The sun we observe is a sun from 8 seconds in the past. Upon gazing at the nearest star, Alpha Centauri, the star we see is from years ago since it takes 4.3 light years for its light image to reach Earth. If you stand in front of a full length mirror, just 3 feet away, and since light travels at 1 foot per nanosecond, you see yourself as you looked 6 nanoseconds ago. You are staring into the past. You are always younger in a mirror because what you see is the “you” from moments before. Mirrors are gateways to the past even though the past image you see is experienced in the “present.” However, although from the past, the images are in the future until they arrive in the present relative to an observer. Before the image from the past arrives it is still in the future, relative to the observer. A stream of photons which just left the surface of the sun will not arrive on Earth until the future, 8 seconds from now. Until the splash of light arrives, it is in the future, relative to those on Earth but in the past relative to the sun.

If an alien observer living on a planet in Alpha Centauri was gazing at Earth, then the present on Alpha Centauri overlaps with the past on Earth. The alien sees an Earth from 4.3 light years ago. The reverse is true for an observer on Earth gazing at this distant star. However, until those images from the past reach the observer, they are in the future relative to that observer and overlap and exist simultaneously. The past can be the future and both may exist before they arrive in the present only to again become the past thereby creating a circle of time. Innumerable futures, presents, and pasts exist simultaneously albeit in different locations within space-time all of which are in motion. Observers located in New York, Shanghai, Tokyo, Paris, Mexico City, and on other planets in distant galaxies, are also in motion, as planets spin and orbit the sun, the sun orbits the galaxy, and galaxies move about in the universe. Observers, regardless of what planet, solar system, or in what galaxy they reside, are continually moving though space-time, often at different velocities and effected by varying degrees of gravity, and all are continually coming into contact with different times which are effect by velocity as well as the consciousness and emotional state of the observer.

Contraction of Time: The Future and Present Come Closer Together

As predicted by relativity and quantum mechanics, the experience of time and the distinctions between the past, future and the “present” are shaped and affected by distance, gravity, acceleration, consciousness, and our emotions, contracting and speeding up under conditions of pleasure and slowing down and sometimes splitting apart or even running backwards under

conditions of fear and terror (Joseph 1996, 2010a). Acceleration contracts space-time thereby decreasing the distance between the future and the *now*, albeit depending on the location and frame of reference of the observers (Einstein 1905c, 1961; Einstein et al. 1923; Lorentz 1892, 1905). When time-space contracts, more time is squeezed into a smaller space such that it may take one consciousness less time to reach the future (vs the consciousness of a second observer) if that consciousness experiences time contraction. Two observers, with two different inertial frames of reference, may experience *time* as slowing down or speeding up. Consciousness can also accelerate and contract the space-time continuum, particularly during dream states, or under conditions of terror in which case, time may speed up or slow down and there may be a splitting of consciousness (Joseph 1996, 2010a). Likewise, emotions such as pleasure can also speed up the experience of time; a phenomenon observed by Einstein nearly 100 years ago:

“Put your hand on a hot stove for a minute, and it seems like an hour. Sit with a pretty girl for an hour, and it seems like a minute. THAT’S relativity.” -Einstein

Time is a dimension, not in Euclidian space, but in “Minkowski space” (Minkowski 1909). Euclidian space consists of 4 spatial dimensions which include movement and geometric space; but none of which encompass time. By contrast, in “Minkowski space” which is incorporated within Einstein’s special relativity, time is the 4th dimension (Einstein 1961). More specifically, 3 of the Euclidian dimensions of space are combined with a dimension of time thereby creating a four-dimensional manifold known as “space-time.” Space-time, however, is effected by gravity and acceleration, and can shrink and contract as gravity and velocity increase and in response to alterations in cerebral activity and thus, consciousness. As demonstrated in quantum mechanics, consciousness and the act of perceptual (or mechanical) registration directly impacts the quantum continuum through interactions via the wave function and through entanglement.

The relationship between time dilation and the contraction of the length of space-time can be determined by a formula devised by Hendrik Lorentz in 1895. As specified by the Lorentz factor, γ (gamma) is given by the equation $\gamma = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}$, such that the dilation-contraction effect increases exponentially as the time traveler’s velocity (v) approaches the speed of light c .

When time-space contracts more time is compacted into smaller spaces and it takes less time to reach the future which is squeezed closer to the present, whereas from the perspective of a dissociated consciousness, time may appear to slow down, thus paralleling some of the paradoxes of time travel: the time traveling consciousness experiences the future more quickly, and in less time, thereby providing the foundations of *deja vu*, premonitions, anticipation, and the ability to make accurate predictions and to plan for the future.

Not just space-time, but the time machine, the time traveler, and any ticking clocks inside also shrink with increased gravity and velocity such that the passage of time inside the time machine shrinks relative to time and any observer located outside and is looking inside the time machine. For those inside the time machine, time appears to pass at the same rate inside, and this is because everything inside the time machine has shrunk to the same degree. According to Einstein (1961), an observer inside the moving object or traveling alongside at the same speed would not notice this contraction. It is only apparent to an outside observer with a separate frame of reference; and the same appears to be true of dissociated consciousness under conditions of terror (Joseph 1996,

REF). Time is relative and it is only an outside observer at a safe distance from the time machine (or the accelerated consciousness) who will perceive the contraction of time-space surrounding the time traveler and that the time traveler's clock has slowed. By contrast, if the time traveler were to look outside the time machine it would seem that the outside observer's clock is ticking faster. Thus as predicted by Einstein, clocks run more slowly (time contraction) as velocity and acceleration increase and a time traveler in a time machine would appear to be slowing down from the perspective of an outside observer, whereas from the perspective of the time traveler the outside observer would be speeding up.

This concept is brilliantly anticipated by H.G. Wells in "The Time Machine." Well's Time Traveler and his time machine began the voyage through time in his laboratory and looking outside the time machine he could see celestial events, people, and even a snail whiz by: "The laboratory got hazy and went dark. Mrs. Watchett came in and walked, apparently without seeing me, towards the garden door. I suppose it took her a minute or so to traverse the place, but to me she seemed to shoot across the room like a rocket." Well's Time Traveler also kept his eye on the laboratory clock and noted "a moment before it had stood at a minute or so past ten; now it was nearly half-past three!" A clock outside the time machine was therefore ticking away rapidly (relative to his clock inside the time machine), whereas his clock inside the time machine, from the perspective of Mrs. Watchett would run very slowly; exactly as predicted by Einstein's theories of relativity (Einstein 1914, 1915a,b, 1961). Although the laboratory clock sped up and Mrs. Watchett, the housekeeper, from the perspective of the Time Traveler, seemed to race across the room, from Mrs. Watchett's perspective the Time Traveler would appear to be frozen in time or moving exceedingly slowly. Likewise, victims subject to extreme terror may experience accelerated consciousness and from the perspective of an outside observer they may appear catatonic and frozen in time (Joseph 1996).

Twin Paradox

The shrinkage of space-time under accelerated conditions has given rise to the famous "twin paradox," a thought experiment based on special relativity (Langevin 1911; von Laue 1913). Because clocks inside the time machine run more slowly whereas the distance between the *now* and the future decreases, a time traveling twin will arrive more quickly in the future (since velocity does not shrink) and will age more slowly than her twin back on Earth. Consider for example, 30 feet of space which contracts to 10 feet. Those inside the time machine need only walk 10 feet whereas those outside the time machine must walk 30 feet. Likewise because the time traveler's clock runs more slowly, and since more time is contracted into a smaller space, it might take him 10 minutes to get 30 minutes into the future. Thus, the Earth-bound twin will be much older (as more time has passed) and may have already turned to dust if the time traveler arrived hundreds of years into the future. As summed up by Einstein (1911; see also Langevin 1911):

"If we placed a living organism in a box ... one could arrange that the organism, after any arbitrary lengthy flight, could be returned to its original spot in a scarcely altered condition, while corresponding organisms which had remained in their original positions had already long since given way to new generations. For the moving organism, the lengthy time of the journey was a mere instant, provided the motion took place with approximately the speed of light."

If one twin leaves Earth and accelerates toward light speed, that twin will arrive in the future in less time than the twin left behind on Earth (since more time passed for that twin whose clock ran faster). By contrast, because it took less time for the time traveling twin she does not age as much (since her clock ticked slower) whereas the twin left on Earth ages at the normal rate. Hence, the time traveling twin will be younger: it took her less time (clock ticks slower) whereas the twin on Earth took more time (clock ticks faster) to reach the same destination in the future. The time traveling twin arrives in the future more quickly--and the same can be said of accelerated and dissociated consciousness thereby providing the foundations of *deja vu* and premonitions.

Because of time dilation and the contraction of space, once the time traveler lands on Earth, and depending on how fast and far into the future she is propelled, all her friends and relatives back on Earth may have died and a completely new generation of Earthlings may greet the time traveler upon her return. By contrast, since time slows down and time-space become squeezed together, the time traveler who arrives in the future may not have aged appreciably.

For example, say the time traveler is born in the year 2100, had a life expectancy of 80 years and would have died in the year 2180 if she had never left on her journey into the future. If she began her journey at age 20 in the year 2120, achieved 0.9999999999999999 light speed and arrived in the future date of 2180, she would still have a life expectancy of 60 years (minus the 20 she already lived and time spent in the time machine). Upon arriving in the year 2180, she would still be 20 years old instead of 80 and could now expect to live another 60 years until the year 2240 (vs the year 2180 if she had never left home).

This premise is based on achieving near light speeds almost instantaneously and is supported by experiments with non-living, ultra-short-lived particles. For example, the muon particle is given a new lease on life when accelerated to a velocity of 99.92% light speed and its life span is nearly 25 times longer (Houellebecq 2001; Knecht, 2003). The muon particle not only lives longer but travels 25 times further thanks to its expanded life span. Particles, including phi mesons, which have been accelerated to velocities of 99.9% light speed also achieve significant life span extensions with a γ factor of around 5,000 (Houellebecq 2001). Presumably particles live longer because they have arrived in the future more quickly vs their counterparts traveling at their normal, slower speeds. Therefore, it could be predicted that a time traveler who journeys at near light speeds should also live longer compared to friends and relatives left back on Earth; and this is because the contraction of time space enabled them to reach the future before those back on Earth. Premonitions and *deja vu*, work on the same principles.

A time traveling consciousness will also experience time as speeding up or slowing down depending not just on acceleration and gravity, but emotion and neural activity. The distance between the “present” and the future decrease because of the shrinkage of space. In consequence the time traveling consciousness gains access to information in the future more quickly than other observers.

These same principles can be applied when traveling great distances across space to other stars and planets. If the journey takes place at near lights speeds, the space-time traveler may visit a distant star and then return home still fresh and young whereas her relatives and friends will have grown old and infirm and may have already died.

For example, if Gaia stays on Earth and her twin, Aurora travels at 80% the speed of light to Proxima Centauri which is 4.2 light years away, then Aurora's trip will take 5.25 Earth years ($4.2/0.8 = 5.25$). One day in the time machine at 80% light speed is equal to 1.67 days on Earth. Thus 1,916.25 days in the time machine (5.25 years) is equal to 3,200 days on Earth (8.76 years). Hence, Aurora's clock will tick 0.599% more slowly than Gaia's clock on Earth ($5.25/8.76$) and Aurora will age only 3.15 years during the journey ($0.599 \times 5.25 = 3.146$) whereas Gaia will age 5.25 years. If Aurora immediately returns to Earth at 80% light speed she will be 6.3 years older and her twin will be 10.5 years older.

Atomic Clocks

Alterations in consciousness, gravity, and velocity can shrink or stretch space-time. Therefore, time-space is also warped, shrunk, stretched, and may even curl up and fold upon and over itself depending on local conditions. Time is asymmetric. Like the weather, time is not the same everywhere, even when measured by atomic clocks.

Atomic clocks tick off time as measured by the vibrations of light waves emitted by atoms of the element cesium and with accuracies of billionths of a second (Essen & Parry, 1955). However, these clocks are also effected by their surroundings and run slower under conditions of increased gravity or acceleration (Ashby 2003; Hafele & Keating 1972a,b). In 1971 Joe Hafele and Richard Keating placed atomic clocks on airplanes traveling in the same direction of Earth's rotation thereby combining the velocity of Earth with the velocity of the planes (Hafele & Keating 1972a,b). All clocks slowed on average by 59 nanoseconds compared to atomic clocks on Earth. These clocks arrived in the future in less than than their counterparts.

It has also been demonstrated that atomic clocks at differing altitudes will show different times; a function of gravitational effects on time. The lower the altitude the slower the clock, whereas clocks speed up as altitude increases; albeit the differences consisting of increases of only a few nanoseconds (Chou et al. 2010; Hafele & Keating, 1972; Vessot et al. 1980). "For example, if two identical clocks are separated vertically by 1 km above the surface of Earth, the higher clock gains the equivalent of 3 extra seconds for each million years (Chou et al., 2010). The speeding up of atomic clocks at increasingly higher altitudes has been attributed to a reduction in gravitational potential which contributes to differential gravitational time dilation.

Accelerated Consciousness: Dissociative Mind And The Slowing Of Time

Evidence from relativity, quantum mechanics, atomic clocks, and space-time contraction, demonstrates that the future, or at least, "a" future must have existed so this future could contract closer to the present experienced by the time traveler;. This is also proved by experiments in entanglement (REF), and Einstein's field equations which demonstrate that time is a circle (REF) where the present leads to a future which already exists and that this future leads to the present and then the past. That is, instead of the present moving toward a future which does not yet exist, the future already exists and streams toward consciousness, becoming the present, and then continues into the past relative to that observing consciousness. However, consciousness may also accelerate as reflected by increased brain activity, and this too would contract space-time. Buried deep within the brain are a series of structures referred to collectively as the limbic system, and which includes

the amygdala, hippocampus, and hypothalamus. The limbic system governs all aspects of sexual behavior and emotion, including emotional and non-emotional memory as well as anxiety, fear, and the ability to visualize one's self (Joseph, 1992, 2011). Limbic system structures, such as the amygdala are able to receive sensory information from multiple modalities at the same time and excessive activity in these areas, as reflected by increased EEG activity, are associated with the the reception of information which is normally inhibited and filtered, including the experience of *deja vu* and other precognitive phenomenon (Daly, 1958; Halgren 1990, Gloor, 1990; Joseph, 1996, 2011; Penfield, 1952; Penfield & Perot 1963; Williams, 1956), such as a splitting of consciousness where time slow down and the dissociated consciousness can observe itself as if up in the air looking down.

“I had a clear image of myself... as though watching it on a television screen.” “The next thing I knew...I was looking down from 50 to 100 feet in the air...I had a sensation of floating. It was almost like stepping out of reality. I seemed to step out of this world” (Noyes and Kletti 1977).

Electrode stimulation, or other forms of heightened activity within limbic system structures such as the amygdala, hippocampus and overlying temporal lobe can also cause time to speed up or slow down (Joseph, 1998, 1999b, 2001). Likewise, in response to extreme trauma, stress and fear, the amygdala, hippocampus and temporal lobe become hyper activated resulting not only in a “splitting of consciousness” but the sensation that time has slowed down while the dissociated consciousness seems to speed up (Courtois, 2009; Grinker & Spiegel, 1945; Noyes & Kletti, 1977; van der Kolk 1987).

One individual, after losing control of his Mustang convertible while during over 100 miles per hour on a rain soaked freeway, reported that:

“time seemed to slow down and then... part of my mind was a few feet outside the car zooming above it and then beside it and behind it and in front of it, looking at and analyzing the respective positions of my spinning Mustang and the cars surrounding me. Simultaneously I was inside trying to steer and control it in accordance with the multiple perspectives I was given by that part of my mind that was outside. It was like my mind split and one consciousness was inside the car, while the other was zooming all around outside and giving me visual feedback that enabled me to avoid hitting anyone or destroying my Mustang.”

“Tiffany” describes her experience as follows:

“I was a passenger in my boyfriend's sports car and we were laughing and racing along highway 17, going 80, 90 mph. I remember he reached his cigarettes when we were going around a corner and then the car began to slide sideways toward the embankment and all the trees. Everything just suddenly slowed down, like in slow motion, and I could see the car sliding very slowly toward the trees, and I turned and looked at my boyfriend and he had this look of fear and determination on his face. He was gritting his teeth which were very white. I remember looking at his hands tightly gripped on the steering wheel, and I could see the ring I gave him. And outside the car there were other cars and they were also moving in slow motion. We were still sliding, and I turned my head and I could see we

were going to slide right into this big tree, and everything was still so slow, and I could see the trunk and bark of the tree, the tree limbs, coming closer and I could see this bird flying out of the tree flapping its wings real slow, then we hit the tree with the back of the car which made the car spin around the tree, but it was all in slow motion, and all this glass blew out the side and back window and I could see little pieces of glass going everywhere moving very slowly through the air. I was wearing my seat belt and was spun toward my boyfriend but he wasn't there. Instead, the driver's side door was open and the car was turning upside down and I could see my purse falling upward and my wallet and phone and eyeliner and lipstick and a pencil were all falling out but going upward very slowly, like floating right in front of me, and I remember thinking that I hoped that pencil did not stick me in the eye, and then the air bags popped out and it was also going in slow motion billowing out toward me and I could see the trees down below because we were falling over and down the embankment and everything was upside down and going sideways and then the airbag hit me in the chest and time suddenly sped up and the car landed upside down and slid down the embankment and hit some trees.”

The slowing down of time and the splitting of consciousness, creating twin consciousnesses, are not uncommon under conditions of terror. Terror can accelerate the mind and brain by releasing a cascade of “fight or flight” neurochemicals such as norepinephrine (Joseph 1992, 1994, 1996, 2001). When the brain and mind are accelerated under these conditions one aspect of consciousness may split off and observe itself and the body which houses it. Under certain accelerated conditions, time will also slow down for the dissociated consciousness which has split off and is observing (Joseph 1996, 2000); exactly as predicted by relativity and the twin paradox: acceleration slows time for one observer and speeds it up for the other (Einstein et al. 1927; Einstein 1961).

In fact, time slows down under conditions of terror and accelerated, hyper-brain activity to such a degree that seconds may last minutes, and minutes hours (Joseph 1996). Individuals may become completely motionless, almost catatonic from the perspective of outside observers and may fail to make any effort to save their lives or to respond to assistance such as attempting to evacuate a burning plane or sinking ship even though they have been uninjured (Courtois, 1995; Galliano et al., 1993; Miller, 1951; Nijenhuis et al., 1998). From the perspective of outside observers, those so afflicted appear to be frozen in time; which is exactly how a time traveler accelerating toward light speed would appear to those outside the time machine. Likewise, from the perspective of the dissociated consciousness time also appear to slow down and to contract which gives that dissociated consciousness more time in less space to observe its surroundings; and this too is predicted by relativity and the Lorentz transformations of length and space-time contraction. Under accelerated conditions space-time shrinks and more time is compacted into less space.

“I began moving at a tremendous speed... and I was aware of trees rushing below me. I just thought of home and knew I was going there... I saw my husband sitting in his favorite armchair reading the newspaper. I saw my children running up and down the stairs... I was drawn back to the hospital, but I don't remember the trip; it seemed to happen instantaneously” (Eadie & Taylor 1992).

Thus time slows down for the consciousness attached to the body, but may speed up for the dissociated consciousness. However, this multiplicity of mind, although dissociated, is still entangled, and as such, time may speed up and slow down simultaneously.

In fact, under conditions of extreme fear and terror and accelerated consciousness, time slows to such a degree and corresponding movements becomes slowed to such a degree that to outside observers the person may appear to be dead: “Far down below I could see houses and towns and green land and streams... I was very happy now. I kept on going very fast... then I started back, going very fast...Then I was lying on my back in bed and the girl and her father and a doctor were looking at me in a queer way...I had been dead three days (they told him)...and they were getting ready to buy my coffin” (Neihardt 1989).

Consider the case of Lisa, a wild blonde 22 year old beauty, a passenger in a sport’s car with the top down that struck a telephone pole:

“It felt like a movie in slow motion and everything slowed down just before we crashed. I had a seat belt and my arms and hands stretched out in front on the dashboard... and the windshield shattered and I could see all these cracks forming in the glass in slow motion. Everything was slowed down and the windshield just broken in half and it fell toward me all in slow motion and cut off my arm...I could see it cutting the skin and droplets of blood and then all this blood and my arm falling slowly to the floor of the car. Everything was so slow... and I got out of the car and my arm was spraying blood everywhere. I walked only a few feet and in slow motion fell down.... Then I was in the air, watching everything. Part of the time I was on the ground looking up and at the same time I was in the air looking down at me. I could see people getting out of their cars. They were all around me and I could see them while I was on the ground and at the same time I could see them like I was 50 feet in the air looking down at them. Then the ambulance came and they put a tourniquet on my arm and put me inside... and then everything started going real fast. I was outside the ambulance, like I was inside sticking out and my mind was racing up and down the streets, like I was running very fast alongside.... then I was in the hospital. But I was no longer part of my body. I was racing along, tripping out, bobbing up and down the halls, just checking everything out and everything was going very fast. Then I saw all these doctors and nurses working on this body of a girl. I peaked over their shoulders and then I realized it was me, that girl was me and I could see that my hair was all bloody and this bothered me. It needed to be washed. But I wasn’t moving. I looked dead.... The doctors also thought I was dead.... and that’s when I fell back into my body with this thump and I started moving and that’s when the doctors and nurses realized I was still alive.”

Of course, time can also slow down under conditions of extreme boredom. However, boredom does not induce a splitting of the mind or dissociated states of consciousness. Instead of more time in less space, there is less time in more space. The clock ticks more slowly for the consciousness of the observer and more slowly external to that observer. Conversely, under conditions of pleasure, time speeds up and passes more quickly as so eloquently summed up by Einstein.

Time is entangled with and relative to consciousness and the multiplicity of mind.

The Event Horizon of Consciousness: The Eternal Now

As a thought experiment Einstein imagined that if he flew away from a big clock in the town square precisely at 12 noon, and traveled at the speed of light, the clock would appear to stop and would remain 12 noon forever--and this is because Einstein would be traveling at the same rate of speed as the light coming from the clock, in tandem and in parallel with it. Time would also essentially stop for Einstein, for if he were looking at the light beams on either side of him, they would look like stationary waves of electromagnetic activity consisting of crests and valleys--and this is because he would be moving in tandem and relative to these light beams; like two trains traveling at exactly the same speed, side by side and the only view is of the other train. At light speed Einstein would be captured in an “eternal now” with the future on one side and the past on the other.

All observers in uniform motion (like two trains traveling side by side) view themselves as at rest (so long as they can only see the two trains). If traveling at the speed of light, a light from a flashlight held in that time traveler’s hand will never escape from the flashlight. The light from the flashlight will be frozen in place, in an eternal now.

If a star, astronaut, or space-time machine were to approach a supermassive black hole at the center of this galaxy, they would accelerate toward the “event horizon” at light speed (Dieter 2012; McClintock, 2004)--the “event horizon” being the point of no-return, the vortex forming the *mouth* of the hole. The Time Traveler’s clock would tick increasingly slower and light trailing behind would become redder (red shifted) as the event horizon is approached. However, for the time traveler, time continues as before.

Once caught by the gravitational grip of the vortex spinning round the event horizon, the star, astronaut, or space-time machine would have a velocity of light speed (Dieter 2012). Time stops. They would be captured and held in the grip of what could best be described as an “eternal now.” Light could not escape, and the outside of the hole would appear black, whereas the event horizon would be blazing brightly illuminated with light.

Just as a star will accelerate toward light speed as it approaches the event horizon of a black hole (Bethe et al. 2003; Dieter 2012; McClintock, 2004), the multiple futures flowing toward the event horizon of consciousness may also accelerate toward light speed. Once captured by the event horizon of consciousness these futures have a velocity of light speed becoming the “eternal now.” Consciousness of the “present” could be likened to an event horizon illuminated with light. The present, the “eternal now” is the illumination of the event horizon of consciousness at light speed. On one side of the event horizon of “now” would be the future, and on the other, the past.

Predicting A Future Which Exists Before It Is Experienced

Relativity and quantum physics both predict the future exists before it is experienced. However, due to the fact that time is entangled in the frenzied activity of the quantum continuum, the future, or rather “a” future may continually change until the moment it is perceived by consciousness.

Since futures and pasts overlaps and as time-space is coextensive, then time, including local time relative to a single observer, is entangled. The past may effect the future, the future can effect the past, time effects consciousness and alterations in consciousness effect the passage of time.

As a “future” flows toward Earth it can also be effected by whatever it encounters on the way to the consciousness of “now,” relative to an observer on Earth--exactly as befalls light. All futures are also entangled with space-time, the quantum continuum, and subject to the Uncertainty Principle. Therefore, future time may be continually altered until perhaps just moments before these futures are experienced by observers who are also entangled with what they experience. Hence, although one may anticipate and predict the future, just like they may predict the weather, the ability to accurately anticipate and predict the future, like predicting future weather, may increase the closer that future is to the *present*. Planning skills, goal formation, strategy, long term investments, concern for consequences, and even the most basic of calendars, all rest upon the ability to make predictions about the future.

The future is like the weather, with the ability to forecast the weather decreasing in accuracy as time and distance from the present increases. In other words, and because of entanglement and classic concepts governing “cause and effect”, the future is not already determined but is in flux and subject to continual alteration. The act of observing and other forces related to cause and affect alter the quantum continuum and continually change the future as it approaches. The future may not become fixed until the moment it is perceived by an observer relative to that observer, at which point it is in the present. Hence, predictions about the future will seldom be completely accurate, and become less accurate regarding increasingly distant events in the future, but more accurate but not completely accurate regarding events in the immediate future; a consequence of entanglement and the Uncertainty Principle.

Since the past is also relative and can exist in the future for some observers and in the present for others, and as the past is entangled with the quantum continuum, then the past is also subject to change after it has been experienced and before it is experienced by another observer at a downstream location in space-time. Two historians writing about history interpret and *experience* the past differently. A husband and wife discussing what happened at a party the night before, disagree. Eye-witness accounts differ among eye-witnesses (REF). A peasant living in a small village in western China in 1963 may have never heard of the assassination of president John F. Kennedy. The past is relative. There is no universal “past.”

Time is entangled and is affected by consciousness and relative to and effected by the act of observation and measurement--as predicted by quantum mechanics (Bohr, 1958, 1963; Dirac, 1966a,b; Planck 1931, 1932, Heisenberg 1927, 1958; Neumann 1937, 1955).

Causes and Effects Are Relative To Consciousness

Every particle, person, planet, star, galaxy, has a wave function. The brain and consciousness have a wave function (Penrose & Hameroff 2011). Reality, including the reality of time, is a manifestation of wave functions and alterations in patterns of activity within the quantum continuum which are perceived as discontinuous (Bohr, 1958, 1963; Planck 1931; Heisenberg, 1958). This also gives rise to the perception of temporal order and what comes first, second, third,

and what is in the present and in the past. The perception of temporal order, and structural units of information are not just perceived, but inserted into the quantum state which causes the reduction of the wave-packet and collapse of the wave function.

The brain and mind of a time traveler also has a wave function. As predicted by Einstein's field equations, consciousness can be accelerated into the future, and from the future, into the past. The Time traveler, upon observing his surroundings causes a collapse of the wave function, as predicted by the Copenhagen school of quantum physics: "The discontinuous change in the probability function takes place with the act of registration...in the mind of the observer" (Heisenberg, 1958).

The loss of coherence, the creation of discontinuous states in the quantum continuum is the result of entangled interactions within the environment which results in an exchange of energy and information: quantum entanglements. These entanglements, or blemishes in the quantum continuum, may be observed as shape, form, cause, effect, past, present, future, first, second, last, and so on, all of which are the result of a decoupling of quanta from the quantum (coherent) continuum which leaks out and then couples together in a form of knot which is observed as a wave form collapse. Every moment in time, is a wave form collapse of space-time at the moment of observation (Bohr, 1958, 1963; Heisenberg 1958; Von Neumann 1932, 1937).

However, in the Copenhagen model, the observer is external to the quantum state and is not part of the collapse function but a witness to it (Bohr, 1958, 1963; Heisenberg 1958). The observer is not the creator of reality but registers the transition of the possible to the actual: "The introduction of the observer must not be misunderstood to imply that some kind of subjective features are to be brought into the description of nature. The observer has, rather, only the function of registering decisions, i.e., processes in space and time, and it does not matter whether the observer is an apparatus or a human being; but the registration, i.e., the transition from the possible to the actual, is absolutely necessary here and cannot be omitted from the interpretation of quantum theory" (Heisenberg 1958).

As summed up by Von Neumann (1932), the "experiential increments in a person's knowledge" and "reductions of the quantum mechanical state of that person's brain" corresponds to the elimination of all those perceptual functions that are not necessary or irrelevant to the knowing of the event. Consciousness, therefore, could be viewed as a filter, which selectively attends to fragments of the quantum continuum which are perceived as real: the transition from the possible to the actual.

Therefore, according to the Copenhagen interpretation, the observing consciousness is external and separate from (albeit entangled with) what is observed and external to the ensuing collapse of the wave function which is collapsed by being measured and observed and this includes the observation and experience of time. However, consciousness can also be conscious of consciousness and thus consciousness can be subject to wave form collapse when observed by consciousness (Joseph 2011).

The Future Already Exists P> In a quantum universe all of existence, including consciousness, consists of a frenzy of subatomic activity which can be characterized as possessing pure

potentiality and all of which are linked and entangled as a basic oneness which extends in all directions and encompasses all dimensions including time (Bohr, 1958, 1963; Dirac, 1966a,b; Planck 1931, 1932, Heisenberg 1955, 1958; von Neumann 1937, 1955). Hence, consciousness and the act of observation be it visual, auditory, tactile, mechanical, digital, are entangled with the quantum continuum and creates a static and series of impressions of just a fragment of that quantum frenzy that is registered in the mind of the observer as length, width, height, seconds, minutes, hours, days, weeks, months, first, second, third, and so on; like taking a series of pictures of continual motion and transformation and then believing it consists of temporal sequences when in fact, the conscious mind imposes temporal order (Joseph 1982, 1996, 2010). Just as, according to the quantum physics, the observing mind interacts with the quantum continuum and makes it possible to perceive shape and form, the conscious mind (and the dreaming mind) can perceive temporal sequences where there is none (Joseph 1982, 1986, 2010a); and those sequences include the illusion of future and past. That is, the act of sensory registration, be it a function of a single cell, or the conscious mind of a woman or man, selects a fragment of the infinite quantum possibilities and experiences it as real, and it is *real* but only to that mind or that cell at the moment of registration (Heisenberg 1955, 1958). Hence, “past present future” are a manifestation of consciousness which is entangled with time-space and the quantum continuum.

“I regard consciousness as fundamental. I regard matter as derivative from consciousness”
(Max Planck, 1931).

As demonstrated by quantum mechanics and formalized by the Uncertainty Principle (Heisenberg 1925, 1927), what is known, is imprecise (Bohr, 1958, 1963; Dirac, 1966a,b; Planck 1931, 1932, Heisenberg 1955, 1958; Neumann 1937, 1955) and this includes *time*. To know something in its totality, would require a multi-dimensional all encompassing infinite “god’s eye” view.

It could be said that consciousness is consciousness of something other than consciousness (Joseph 1982, 2011). Consciousness and knowledge of an object, such as a chair, are also distinct and separate. Consciousness is not the chair. The chair is not consciousness. The chair is an object of consciousness, and thus become discontinuous from the quantum state and entangled with consciousness.

Consciousness is consciousness of something and consciousness can be conscious of not being that object that it is conscious of. By knowing what it isn’t, consciousness may know what is not, which helps define what is. This consciousness of not being the object can be considered the “collapse function” which results in discontinuity within the continuum: consciousness of consciousness being conscious.

Moreover, as demonstrated by neuroscience, the mind is not a singularity, but a multiplicity with different aspects of consciousness and awareness directly associated with specific regions of the brain (Joseph, 1992, 1996, 2011). These different mental realms and brain areas can perceive time and the quantum continuum differently. Time may be perceived by one brain region as lacking temporal order but as a continuum or gestalt. The mind is a multiplicity, which can become a duality, and which is often experienced as a singularity referred to as consciousness.

Further, it could be said that consciousness of consciousness, that is, self-consciousness, also imparts a duality, a separation, into the fabric of the quantum continuum. Hence, this

consciousness that is the object of consciousness, becomes an abstraction, and may create a collapse function in the quantum continuum (Heisenberg, 1958; Joseph 2011; von Neumann 1955, 2001). Consciousness may cause itself. That is, continuum which is consciousness, and which exists as entangled in the quantum continuum which includes time, may cause itself to experience the “eternal now” which is simply a collapse of the wave function of time.

Entanglement: The Future Causes the Past

Time, the fragmentation of time into temporal sequential units and where “causes” precede “effects,” are also a “derivative of consciousness.” If time is a feature of the quantum continuum, and if considered independent of “consciousness” then causes and effects may be one and the same, a unity and simultaneity, such that causes may cause themselves, or effects may be responsible for the causes.

Sometimes the association between and the classification of one event as coming first or second, or as a “cause” and the other an “effect” are also little more than illusion, as demonstrated by quantum entanglement and “spooky action at a distance” (Francis 2012; Lee et al. 2011; Matson 2012; Olaf et al. 2003; Plenio 2007; Juan et al. 2013). If time is a circle and due to entanglement, there are “effects” without any apparent “cause;” a possible consequence of the future effecting the present and the consciousness mind which experiences a premonition (Aharonov et al. 1988; Bem 2011; Radin 2006; Cho 2011). If time has a wave function and is an integral aspect of the quantum continuum which extends in all direction, not only would the future be linked to the past as a unity, but the conscious mind (with its own wave function) would be linked to the future and the past, thereby accounting for premonitions as well as anticipation of what is going to take place; and this is because what will take place has already taken place. The future is entangled with and causes the premonition. And just as likely, the premonition may cause the future due to entanglement.

However, typically, these “effects” (or premonitions) are written off as “mistakes” or due to “coincidence.” Nevertheless, in an entangled universe the wave function of time representing the future can be predicted to interact with the wave function of the present (and vice versa) thereby inducing a causality-violating reduction of the wave form as perceived by the conscious mind.

If the future already exists, and if superluminal particles or information can arrive in the present from the future before they are perceived, this, coupled with entanglement (Plenio 2007; Juan et al. 2013; Francis 2012), may result in causes becoming confused with effects, whereas it is the future which is causing and effecting the present (Bem 2011; Radin 2006).

Consciousness is entangled with the space-time continuum which includes the future. Conscious observers can also engage in “mental time travel” (Suddendorf & Corballis 2007). Upon anticipating or looking into the future the observing consciousness can then engage in behaviors that are shaped and directed by that future. What constitutes a cause and what constitutes an effect, are relative and not uncommonly it is the anticipation of the future which causes the cause in the present.

A man buys a beautiful woman flowers, candy, jewelry, and an expensive dinner at a five star restaurant. He doesn't lavish these gifts upon the lucky maiden because he loves her, but because he is hoping she will reciprocate, after the date, by giving him sex. The expectation of sex in the future, and thus an event in the future, is the cause of his behavior in the present. The future is the cause which effects and causes his behavior in the present.

Before he bought her these gifts the man may have fantasized about the date, how he would take her to his home, what he would say, what he would do, how she would respond. This could be described as "mental time travel; rehearsing and practicing for a future event before it occurs. As demonstrated by Bem (2011), future practice can effect performance in the present before the practice occurs.

Time is also relative. Hence, when the beautiful woman received these gifts she decided to reward him. Therefore, relative to and from the perspective of the lucky maiden, the effect (sex) is a direct consequence of the cause (his gifts). On the other hand, she also knew that she could cause him to give her gifts by giving him sex in the future. Future sex caused his behavior.

Consciousness is also part of the quantum continuum and so too is the future, present, and past. Thus, consciousness, like gravity and electromagnetic waves, is relative and can affect distant objects and events, including, perhaps, those in the future and the past (Planck 1931, 1932). Moreover, all have a wave function, and time and consciousness are entangled. However, since consciousness is also entangled, then consciousness may also perceive a future event before it occur; a phenomenon known as "precognition"

Precognition: Experimental Proof

Precognition is a form of conscious cognitive awareness which involves the acquisition of future knowledge just prior to its occurrence. Premonitions are a form of presentiment or an emotional feeling that something may happen in the near future, but without conscious knowledge of exactly what it is that is going to happen. Both can be considered forms of quantum entanglement (Radin 2006; Bem, 2011) where some near future event exerts and makes an impression on consciousness before the event occurs even when there is absolutely no way the future event could be inferred as about to happen.

Various surveys have indicated that over 50% of adults have experienced premonitions or phenomenon which could be classified as precognition (Kennedy et al., 1994; Radin 2006). Moreover, numerous rigorous, scientifically controlled experiments and meta-analyses of these experiments have demonstrated statistically significant evidence for precognition and premonitions (Honorton & Ferrari 1989; Radin 2006). For example Honorton and Ferrari (1989) performed a meta-analysis of 309 forced-choice precognition experiments involving over 50,000 subjects, and which had been published in scientific journals between 1936 and 1997. They found a consistent, statistically significant hit rate, meaning that the results could not be due to chance.

As with *deja vu*, increased brain activity or arousal contributes to precognitive activity (Bem, 2011; Radin 1997, 2006; Spottiswoode & May, 2003). Presentiment effect has also been directly related to increased brain activity as demonstrated in fMRI experiments (Bierman & Scholte, 2002) and

with other physiological indices of participants' emotional arousal in which case they become aroused before they see the stimulus (Radin 1997). For example, when participants viewed a series emotionally neutral or emotionally arousing pictures on a computer screen, strong emotional arousal occurred a few seconds before the picture appeared, even before the computer had selected which emotional picture was to be displayed (Radin 1997, 2006).

In 2011, a well respected scientist, Daryl Bem published extensive statistically significant evidence for the effects of future events on cognition and emotion, demonstrating that the effect is in the present whereas the cause can still be in the future. For example, Bem had subjects perform a memory test which required that each subject look at a long list of words and to remember as many as possible. After completing the memory test he had the subjects type various words from that list which were randomly selected. Subjects showed statistically superior memory for the words which they were later asked to type. That is, the practice effect was retrocausal. The practice which was to take place in the future (the typing of words they had already seen) improved their memory of those words before they typed them. Thus, rehearsing a set of words makes them easier to recall even when the rehearsal occurs in the future and after subjects recall the words.

In another set of experiments Bem (2011), allowed a computer to control the entire procedure which involved showing each subject "explicit erotic images." The instructions were as follows: "on each trial of the experiment, pictures of two curtains will appear on the screen side by side. One of them has a picture behind it; the other has a blank wall behind it. Your task is to click on the curtain that you feel has the picture behind it." Statistical analysis of the results demonstrated that based on "feelings" subjects picked the location of the pornographic image at well above chance (even though they couldn't see it), whereas the location of the non-erotic neutral pictures were chosen at the rate of chance, i.e. 49.8% of the time.

Bem (2011) performed nine rigorously controlled experiments involving over 1000 subjects involving erotic stimuli, the avoidance of negative stimuli, and retroactive priming effects on memory and recall. Eight of the nine experiments yielded statistically significant results, and thus evidence for precognition and premonition.

Criticism of Precognition Experimental Results: The Baseball Analogy

A common criticism regarding the validity of research on premonitions and precognition is: if it exists, why doesn't it happen all the time? Why doesn't everyone have these experiences?

Consider major league baseball. In 2013, Miguel Cabrera had a batting average of .348 which was the best of all major league players. Although he is the best hitter in major league baseball, he hit the ball less than 50% of the time when he was at bat, and was able to get a "base hit" less than 35% of the time. Out of 750 major league players, 726 of them got a base hit less than 30% of the time in 2013 during regular season play (<http://espn.go.com/mlb/stats/batting>). Given that these players had up to 5 opportunities to hit the ball each time at bat, and 3 opportunities to swing, it can be said that professional baseball players actually hit the ball less than 30% of the time. Bem (2011), Raden (1996, 2006) Bonorton and Ferrari (1989) and others have shown a precognition hit rate above 50%. But unlike major league baseball players, those displaying precognition get their hits before they see what is being thrown at them.

Precognition should be treated like all other measures of ability. We should not be surprised that there is variation (Carpenter 2004, 2005; Schmeidler, 1988). Indeed, the same complaints can be made about memory and past events: If it really happened, why does everyone remember it differently. Why do some people have a great memory and others are more forgetful? Why do different eye-witnesses remember the same event differently?

Even highly arousing and emotionally significant “flashbulb memories” are subject to considerable forgetting. For example, Neisser and Harsch (1992) had subjects fill out a questionnaire regarding where they were and how they heard about the Challenger space craft explosion soon after this national tragedy occurred in 1986. When these subjects were questioned again 32-34 months later, 75% could not recall filling out the questionnaire. Many of the subjects in fact had forgotten considerable detail regarding the Challenger explosion and where they were when they heard about it. According to Neisser and Harsch (1992), “As far as we can tell, the original memories are just gone.”

Memory is poor. Batting averages are dismal. Should it be any surprise that premonitions and the experience of precognition is also variable?

The Quantum Physics of Premonition and Retrocausation

The phenomenon of premonition must be considered from the perspective of quantum physics not Newtonian physics or Einstein’s theories of relativity. As summarized by John Stewart Bell in his 1964 ground breaking paper (“On the Einstein Podolsky Rosen paradox”) “any physical theory that incorporates local realism, favoured by Einstein cannot reproduce all the predictions of quantum mechanical theory.”

In 2006, the American Association for the Advancement of Science organized an interdisciplinary conference of research scientists and physicists to discuss evidence for retrocausation as related to quantum physics, the conclusions of which were published in 2006: “it seems untenable to assert that time-reverse causation (retrocausation) cannot occur, even though it temporarily runs counter to the macro-scopic arrow of time” (Sheehan, 2006, p vii).

As demonstrated by quantum physics and entanglement, the future may effect and even direct the past or the present. Consider again entanglement between photons. In delayed choice experiments, entanglement was demonstrated among photons even before there was a decision to make a choice regarding these photons, that is, before it was decided to do a measurement (Ma et al., 2012; Peres 2000). Entanglement has also been demonstrated among photons which do not yet exist, where the choice has not even been made to create or measure future photons. Nevertheless, decisions which will be made in the future effect the measurement of photons in the present (Megidish et al 2013). The same principles can be applied to precognition. Information in the future, information which does not yet exist in the present, can effect and is entangled with the consciousness which will directly perceive that information even before it arrives in the present.

The future, past, present, and consciousness are entangled within the quantum continuum. The future exists before it arrives and some people consciously perceive a future before it becomes the present; phenomenon which can be classified as evidence of entanglement and which are variably

experienced as déjà vu, premonitions, and precognition and which would only be possible if the future already exists, and if time is a circle.

The Circle of Time: The Future Leads to the Past

Einstein (1915a,b, 1961) theorized that time and space can be unified in the 4th dimension. Like the unification of mass and energy, space-time are two aspects of the same quantity, such that space can be converted into time, and time into space in the 4th dimension. Space-time and time, therefore, have energy, and can be experienced and perceived, and in this respect, time also shares characteristics with light and may have a particle wave duality.

A fundamental principle of physics is that a beam of light takes the shortest path between two points which is a straight line (Fermat's least time principle). However, light bends due to the influence of gravity (Einstein 1911), which means the path is not straight, but curved. Likewise, according to Einstein (1914, 1915a, 1961), space is curved. That curvature would not be a round circle, however,, but would have different geometric characteristics depending on and due to differences in gravity in various regions of the cosmos.

Einstein's curved universe could not be a perfect circle, as galaxy distribution is asymmetry and includes great "walls" of galaxies throughout the cosmos which have clustered together. It is this clustering, and these galactic walls which contribute to the unequal distribution of gravity, which causes space-time not just to curve, but to fold and curl up and to asymmetrically effect the flow of time.

Gravity is always strongest at the center of gravity where its most concentrated. Time-space is also pulled toward the center of gravity, which is why Einstein proposed his "Cosmological constant" a repulsive force which would prevent the universe from collapsing. Einstein later rejected his "cosmological constant" calling it "the biggest blunder" of his life, when in 1929 Hubble reported the universe was expanding. Einstein believed that if not for his "cosmological constant" he could have predicted an expanding universe. Instead, the prediction was made by Alexander Friedmann in papers published in 1922 and 1924.

However, as pointed out by Gödel (1949a,b), Einstein's equations do not predict an expanding universe, but a rotating universe; a conclusion that Gamov (1946) also arrived at years before based in part of his observations of rotational patterns throughout the cosmos.

Earth orbits around the sun in a curve. This solar system has curvature and its motion follows a curving path as it orbits this galaxy. Likewise, space-time is curved and light and time follow that curvature (Einstein 1915a,b, 1961; Gödel 1949a,b). All is in motion and has velocity, but because of this curvature, one may travel in a circle and arrive where they began; and the same is true of time. Time is a circle (Gödel 1949a,b). The past leads to the future and the future can lead to the past.

If the entire universe is curved, as predicted by Einstein's theories, then just as traveling in a straight line on Earth will bring the traveler full circle to his starting point, the same could be applied to a curved universe as well as to the trajectory of light and time. Time, like time-space,

has curvature; and just as a journey in a “straight” line will bring a voyager full circle around the globe, the same could be said of a journey across space-time. Time may be a circle; a cosmic clock which ticks at different speeds depending on gravity and the geometry of space-time relative to an observer’s velocity and frame of reference. However, what this also implies is that a journey across time will bring the voyager full circle, such that the present leads to the future, and the future leads to present and then the past.

Because gravitational influences vary throughout the cosmos, then every infinitesimal region of space-time may have its own proper time relative to observers in different locations. The present on a distant galaxy, as conveyed by images of time-light, does not arrive on Earth until the future, such that the future and the past overlap in time-space. A logical corollary is that there is no universal “now” past or present, and that “absolute time” does not exist (Gödel 1949a,b).

Beginning in 1949, Kurt Gödel, in a series of papers based on Einstein’s field equations of gravity, rejected the Newtonian conception of time and the belief that the “present” consists of infinite layers of ‘now’ coming into existence in continual successive and immediate sequences. According to Gödel (1949a,b, 1995) if space-time is curved, then the experience of time could be considered a consequence of that curvature.

As based on Einstein’s field equations, Gödel (1949a,b) discovered that a particle traveling through space would circle round from the present to the future and then continue to circle around and meet itself in the past; and from the past that particle would circle round and meet itself in the future and from the future it would again travel round and meet itself in the past; an infinitely repeating pattern. Gödel argued, since space-time is curved, then the future and past may also be curved and circle round thereby completing the circle which then continues in an endless loop. Time is a circle.

According to Gödel, because of the curvature of time and space it is possible to travel through time: “By making a round trip on a rocket ship in a sufficiently wide curve, it is possible in these worlds to travel into any region of the past, present, and future and back again.”

Gödel’s formulations also borrowed from George Gamow’s (1946) conception of a universe which, like all astral bodies in space-time, is in orbital motion. As pointed out by Gamow, and Pythagoras 2000 years before, patterns repeat themselves in nature from the subatomic to entire galaxies (Joseph 2010c). Electrons orbit the nucleus of the atom. Planets orbit the sun. The sun is just one of billions of stars located throughout the spiral arms of the Milky Way Galaxy, and the entire galaxy is rotating. Perhaps the entire universe is also rotating and thus space-time is rotating, such that time is a circle and the future leads to the present, then the past, which leads back to the future.

Closed Time Curves In A Rotating Universe: The Future Leads to the Past

Gödel (1949a,b) explained that if the universe was rotating and space-time is curved, time should also be curved and curve back upon itself, forming infinitely repeating closed time-like curves (CTCs). Just as it is possible to circle the Earth and return to where one began, if time and time-space circles back on itself in Pythagorean endless loops thereby giving rise to CTCs, it would be

possible to journey in a circle back to where one began; which means, one can travel into the future and into their own past.

In a “rotating universe” time is a circle where the future leads to the past and effects precede causes; the future can effect the present, and the past. However, the time-traveler journeying along such a loop does not experience a slowing of time as there is no contraction of space-time. Time would remain the same for the time-traveler and all those on Earth, as the time traveler is merely going in a circle.

A rotating universe and closed time-like curves violate the rules of causality. If time can circle back on itself, then the future can effect the past and the temporal discontinuity between past, present, and future is abolished. Hypothetically, and based on the concept of Karma, since cause and effect are abolished, if, as a child, you do something bad in the future when you become an adult, you may be punished for that future indiscretion while you are still a child; “karma” in reverse.

Gödel (1949a,b) developed Gamow’s (1946) concept of rotating universes as a thought experiment and as a logical extension of Einstein’s field equations of gravity. However, the implications were so profound, and so contrary to the predictions of Newtonian physics, Einstein’s concept of relativity, and what is now referred to as the “Standard Model” that the possibility of a rotating universe has been almost universally rejected (Buser et al. 2013). Even Gödel (1949a,b, 1995) who published his observations in the 1940s and 1950s, pointed out that there was a yet no evidence of red shifts in the distant regions of the cosmos which would support a rotation model.

Gamow (1946) who first proposed a model of a rotating universe blamed the lack of evidence on the insufficient power of the telescopes available to astronomers and physicists at that time and proposed that proof of rotating universes would have to wait until advanced telescopes became available.

As based on the observation of planets, stars, and the rotation and combined gravity of mass aggregations such as entire galaxies, Gamow (1946) thought it was only logical that the entire universe must also be rotating around some axial point in space. As pointed out by Gamow, “galaxies are found in the state of more or less rapid axial rotation” contrary to the Big Bang theory and in contradiction to the belief that galaxies formed following the condensation and angular momentum of the primordial matter. Gamow posed this question: since planets, stars, and galaxies are rotating then perhaps “all matter in the visible universe is in a state of general rotation around some centre located far beyond the reach of our telescopes?” As detailed elsewhere (Joseph REF) in the 1998, observations published by two separate teams inadvertently provided that evidence, as based on the red shifts of distant stars which had undergone supernova (Perlmutter et al., 1998; Schmidt, et al., 1998); i.e. the observable “Hubble Length Universe” appears to be in orbit around a universe-in-mass black hole (Joseph 2010REF).

Gamow (1946) based his rotating universes model on the rotation and angular momentum of galaxies which appear to orbit an axial point in space. Any rotating body, be it a galaxy, a merry-go-round, or the planets orbiting the sun, shows differential speeds of acceleration and velocity depending on how far away they are from the axial center of rotation. For example, in the inner

galaxy, the rotation speed rises with the radius. By contrast, in the outer galaxy the rotation speed remains constant (Petrovskaya, 1994; Teerikorpi, 1989). The point closest to the axis rotates faster than points closer to the outer rim which rotate at a similar velocity. For example, Earth and our solar system, located on an outer arm of the Milky Way galaxy, orbit the supermassive black hole at the axial center of the galaxy, at a speed of approximately 155 miles/sec (250 km/sec) (or from 965,600 km/h, to 804,672 km/h), taking around 240 million years to complete an orbit. However, those stars closest to the axial galactic center, relative to the stars on the outer rims, are moving more rapidly and display accelerating velocities as they come closer to the central axis (Ghez et al., 2005; Petrovskaya, 1994; Teerikorpi, 1989). In fact, the speeds are so high they are beyond what would be predicted based on the universal law of gravitation (Schneider, 2006); observations which also led Gamow (1946) to question the Big Bang origins model and to propose that the universe may be in rotation.

In 2010, additional evidence, based on red shifts of exploding supernovas, appears to support Gamow's predictions. The entire Hubble Length (observable) universe, appears to be rotating around a universe-in-mass black holes, with those closest to the hole rotating at a faster rate than those future away; exactly as described for stars in the Milky Way galaxy which are closer vs further away from the black hole at the center of this galaxy (Joseph, 2010a,b). If pattern repeat, the the Hubble Length (observable galaxy) is just a spec of dust in an infinitely curved universe where time-space and thus time, are a circle, with the future leading to the present and then the past.

Multiple Earth's In the Circle of Time: Patterns Repeat

A pattern, be it recurring numbers, events, or objects, repeats itself in a predictable manner down to its essential elements (Ball 2009; Novak 2002; Wille 2010). The entire field of mathematics is the "Science of Patterns" and any sequence of numbers that may be described by a mathematical function has a pattern (Wille 2010). The pattern at the elementary level is the basis, model, or template which is repeated on a larger scale to generate larger objects or series of events all of which exhibit the same or similar underlying pattern. Hence, elementary particles have orbits, planets have orbits, stars have orbits, and it can be assumed that, collectively, galaxies have orbits which would mean the "known" Hubble length universe, is also in a rotational orbit as all share similar patterns (Joseph 2010b).

In Euclidean geometry, a pattern known as a translation involves movement of every point at a constant distance in a specified direction and the same can be said of rotation (Johnson 2007). The symmetry of the cosmos is based on the repetition of patterns found throughout nature, from sea shells to spiral galaxies (Joseph 2010b). For example, snail shells, sea shells, vortices, the cochlear nucleus of the inner ear, etc., show similar repeating patterns around an axial center or "eye." The patterns intrinsic to the shell of a snail are replicated repeatedly in nature and typify the structure of whirlpools, cyclones, hurricanes, the Milky Way galaxy and every spiral galaxy so far observed all of which rotate around an axial point (a "black hole") at their center.

Since rotating patterns repeat, as pointed out by Gamov (1946) and 2000 years earlier by Pythagoras, then the universe (including an expanding universe) and time-space would be part of this pattern. The entire universe, therefore, must orbit and rotate around an axial point, as predicted

by Einstein's field equations (Gödel 1949a,b). Again, however, Einstein's equations do not predict a perfectly curved universe, but a lumpy universe with waves and crests which circles round and which would be pulled inward toward the center of gravity; that is, if the cosmos is considered as a collective single entity. If correct, then curvature of space-time would continue as a repeating pattern of curvature, curving forever inward and outward; which leads to Pythagoras and the "golden ratio" (Joseph 2010b).

Because of gravity, time-space can also be bent backwards in a circle, as happens with whirlpools and eddies along river banks where water flows in a circular motion. If the implications of Einstein's field equations are correct, then the river of time is bent round in a circle and it has no ending or beginning and may include pockets or vortexes of time which pop in and out of existence like vortexes and eddies along the river banks.

Einstein's time-space curvature coupled with gravity and the principle of repeating patterns, and the concept of close-time-like curves, raises the possibility that space-time is like a spiral staircase, so that when circling round at 360 degrees one does not end up in the same space or spot where they began, but above or below it (Buser et al. 2013; Gödel 1995). From the perspective of the Time Traveler, this spiraling circle can lead to the future or the past, or to multiple futures and pasts which may coexist, in parallel, side by side.

One feature of a CTC is that it opens the possibility of a world-line which is not connected to earlier times in this past, but to multiple possible pasts, and futures, which exist in parallel, above, or below, or alongside one another--multiple spiraling staircases of time which lead to parallel worlds of time (Buser et al. 2013; Gödel 1949a,b); and each of which may have probable existences as predicted by Everett's "many worlds" interpretation of quantum physics (REF). Therefore, if one were to travel in a circle across space-time, they may be taken to "a" future and then to "a" past, but not to "the" future or past--rather, to multiple possible futures and pasts some of which may exist *side by side* or one on top of the other--parallel times existing simultaneously.

A Gödel rotating universe implies duality, if not multiplicity; and the same is true of the bending of light. Because gravity increases the curvature of space-time and can bend and split images of light, as illustrated by galactic lensing (Renn et al., 1997; van der Wel et al. 2013), then light reflected from Earth may also be split apart as it curves through space. When these light-images of Earth cross paths with stellar objects of sufficient gravitational strength, these beams of light may be curved round in an 180 degree arc with Earth as its target. That is, light-images, or time-light, may be split apart and circle around numerous gigantic galaxies, and some of these light images will be reflected back toward Earth and become mirror images of Earth's past. Therefore, as we gaze at the various stars which twinkle in the darkness of night, some of those stars may be mirror images of Earth and our solar system from the long ago. Likewise, we may exist in the past relative to other observers on Earths which exist in the future--observers which are then looking upon an mirror image of Earth which exists in our "now" but which also exists in the past of those Earths in the future.

In a Godel spinning universe where time is a circle, the mirror would also be gazing back; meaning that this Earth could also be a mirror from the past of a future Earth; a reflection that those on a future Earth can look back upon.

The same can be said of consciousness which can anticipate the future, remember the past, and reflect upon itself.

Closed Time Light Curves: The Future Causes the Past

There are two conceptions of time-like curves, open or closed (Bonor & Steadman, 2005; Buser et al. 2013; Friedman et al. 1990). Open time-like curves follow an arrow of time straight into the future, and there is no return to the past unless one can exceed the speed of light.

Time-like curves which are closed, loop back in a circle; meaning that future events could affect past ones. A closed time-like curve (CTC) is a world line in a Lorentzian manifold, such that a particle or time traveler returns to its starting point (Buser et al. 2013). That is, because light is curved, then light can loop back on itself, and it would be possible for an object to move around this loop and return to the same place and time that it started. An object in such an orbit would repeatedly return to the same point in space-time.

The circle of space-time points forwards and backwards in time. If CTCs exist then it would be possible to travel backwards in time. The question becomes: how far back or forward in time? For example, it may be possible to follow the CTC in a negative direction and revisit the day President Abraham Lincoln was assassinated, the morning when Jesus was nailed to a cross, 65 million years ago when a giant asteroid struck this planet exterminating the last of the dinosaurs, and further back still to the Cambrian Explosion 500 million years ago when all manner of complex species with bones and brains appeared almost simultaneously in every ocean of Earth, and to the time when Earth was hellishly hot and populated by only microbes some 4.2 billion years ago.

Although seemingly paradoxical, Einstein's theories of relativity (despite his posting of a cosmic speed limit) predicts that the only way to travel into the past is to travel first to the future and then exceed the speed of light. Upon accelerating toward light speed, space-time contracts and the space-time traveler is propelled into the future. For example, because of the contraction of space-time, each day in the time-space machine at 90% light speed would propel the time traveler 2.29 days into the future of Earth.

Specifically, and if we accept that time and the speed of light are related, then if the time traveler journeys at 80% speed of light, then one day (1.197 days) from the perspective of the time traveler would be the equivalent of 2 days back on Earth. If he achieves 99% light speed, then 104 days in the time machine (time contraction) would be the equivalent of about 2 years on Earth. At 99.9% the speed of light, then 1 day (26 hours) in the time machine would be the equivalent of 6 years on Earth. If the time traveler wished to experience a future 2190 years distant she would have to spend one year in the time machine traveling at 99.999% light speed. At 99.999999% the speed of light, almost two years pass for every day in the time machine. At 99.9999999999999999 % of c for every day on board, nearly twenty thousand years pass back on Earth. However, upon reaching light speed, time stops and the contraction of space-time comes close to a zero point, i.e. smaller than a Planck Length. At 100.0000000001% light speed, contraction continues in a negative direction, and time runs backward. The time traveler has entered the mirror universe of the past. It is only upon accelerating beyond light speed, that time runs in reverse and the contraction of space-time

continues in a negative direction. One must accelerate toward the future to reach the past. Einstein's general theory of relativity predicts that the future leads to the past. Likewise, as shown by Gödel (1949a,b), Einstein's field equations predict that time is a circle; and this violates the laws of causality (Buser et al. 2013). Therefore, upon reaching superluminal speeds, the time traveler would be headed backwards in time from the future and would pass himself journeying from the past into the future. And the time traveler voyaging toward the future and then the past, would pass himself heading back from the future. And the time traveler heading from the future to the past, could therefore, theoretically alter the past, thereby giving rise to innumerable paradoxes (Joseph 2014).

If time is a circle, then effects cannot always be traced to an earlier cause, for the cause may occur in the future; and this is because, in a closed loop, the future can come before the past and can even catch up with itself in the past so that an event can be "simultaneous" with its cause or occur before its cause. An event may be able to cause itself.

These are not just thought experiments. There is considerable evidence of what Einstein (1955) referred to as "spooky action at a distance" and what is known in quantum physics as "entanglement" (Plenio 2007; Juan et al. 2013; Francis 2012). It is well established that causes and effects can occur simultaneously and even faster than light speed (Lee et al. 2011; Matson 2012; Olaf et al. 2003); a consequence of the connectedness of all things in the quantum continuum including time which flows in all directions and which can circle round such that events in the future effect events in the present and in the past. The circle of time predicts that the future, present, and past exist simultaneously as a unity, and that this interconnectedness can result in effects in the future causing themselves.

Time is a circle, and this too is predicted by Einstein's theories of relativity, where accelerating toward light speed takes the voyager to the future, and upon exceeding the speed of light, the traveler heads back from the future into the past and thus effect the present and the past, as demonstrated by experiments in entanglement.

Quantum Entanglement And Causality: The Future Effects the Past

The river of time is bent round in a circle and it may have no beginning and no end. Since space-time is curved, warped and littered with vortexes surrounding black holes and effected by the gravity of innumerable stellar objects, the river of time may also be split apart and bent backwards in a circle, with circles within circles, as happens with whirlpools and eddies along river banks. Likewise, the geometry of time may flow differently in various regions of the cosmos and split off into innumerable tributaries of time each with their own unique trajectory and velocity.

Because space is "isotropic" there is nothing in the law of physics indicating that a particular direction is preferred; down, up, sideways, backwards, its all the same. Why should space-time, or time, be any different? Since the past, present and future overlap and are relative to observers and differ according to location, gravity, and speed of movement, then as Einstein stated, the distinctions between the past present and future are an illusion. If time is a circle, then time is a unity and there is no future, past, or present, except from the perspective of an observer.

The laws of electromagnetism do not make a distinction between past and future (Pollack & Stump, 2001; Slater & Frank, 2011). And yet, although light waves travel in a direction, it is assumed that these waves are traveling from the present into the future, when in fact they are traveling into the past and the future and from the future and from the past relative to different observers on different worlds and even on the same planet.

A light wave from Earth takes 4.2 light years to reach Proxima. However, since it will not be received on Proxima for 4.2 light years it will not arrive until some future date on Proxima. The light wave from Earth is in the future relative to observers on Proxima, although it is from the past relative to those on Earth. Likewise, light-images which just left Proxima are from Proxima's past but will not arrive on Earth until some day in their future. The future and the past are relative. Moreover, once light-images from Proxima arrive on Earth, they continue into the past relative to those on Earth, but not relative to those on a planet 4.2 light years in the opposite direction from Earth and 8.4 light years from Proxima, in which case although they are from the past relative to Earth and Proxima. However, these same light waves will not be received until some future date for those denizens of that more distant alien world. This conception of time is entirely consistent with Einstein's theories of relativity and Maxwell's equations of electromagnetism.

The past and future exist simultaneously in different and overlapping locations in space. Since space is isotropic, then, theoretically, there are no roadblocks to prevent a time traveler from choosing a location at will and then speeding into the future or the past; just as he may decide to go up-river or down-river.

The past, present and future, however, are like the weather, and differ in distant locations. There is no universal "now" and there are innumerable pasts, presents and futures which increasingly diverge as distance from any particular observer increases. Time is relative and the same can be said of the future and the past which only remains approximately and generally similar relative to observers sharing the same local, or personal, frames of references. Only when frames of reference are shared locally can observers agree on what took place first and last and what is in the past and what is still in the future.

Entanglement: The Future Effects the Present and the Past

Light can travel to the future and from the past relative to the observer's frame of reference. However, light and time are not the same. The speed of light, and time, be it past or future, are not synonymous, though both may be affected by gravity (Carroll 2004; Einstein 1961). Moreover, just as light has a particle-wave duality and can physically interact with various substances, time also can be perceived and therefore must have a wave function if not a particle-wave duality.

Time-space is interactional, and can contract to near nothingness and then continue to contract in a negative direction such that the time traveler can journey into the past. Therefore, time, and time-space are embedded in the quantum continuum and can effect as well as be effected by other particle-waves even at great distances; a concept referred to as "entanglement." Time and space-time are entangled.

It is well established that particles respond to and can influence and affect distant particles at speeds faster than light. This “spooky action at a distance” has been attributed to “fields,” “mediator particles,” gravity, and “quantum entanglement” (Bokulich & Jaeger, 2010; Juan et al. 2013; Sonner 2013).

For example, it is believed that an electric “field” may mediate “electrostatic” interactions between electromagnetic charges and currents separated by great distances across space. However, these changes can also take place at faster than light speeds. Charged particles, for example, produce an electric field around them which creates a “force” that effects other charges even at a distance without any time lapse. Maxwell’s theories and equations incorporate these electrostatic physical “fields” to account for all electromagnetic interactions including action at a distance.

Since mass can become energy and energy mass, the “field” is therefore a physical entity that contains energy and has momentum which can be transmitted across space. Therefore, “action at a distance” may be both distant and local, a consequence of the interactions of these charges within the force field they create. However, the problem is: the effects can be simultaneous, even at great distances, and occur faster than the speed of light (Plenio 2007; Juan et al. 2013; Francis 2012; Schrödinger & Dirac 1936), effecting electrons, photons, atoms, molecules and even diamonds separated by great distances instantaneously (Lee et al. 2011; Matson 2012; Olaf et al. 2003; Schrödinger & Born 1935). The effect may even precede the cause since it takes place faster than light.

For example, photons are easily manipulated and preserve their coherence for long times and can be entangled by projection measurements (Kwiat et al. 1995; Weinfurter 1994). A pump photon, for example, can split light into two lower- energy photons while preserving momentum and energy, and these photons remained maximally entangled although separated spatially (Goebel et al 2008; Pan et al. 1998); the measurement of one simultaneously effects the measurement of another although separated by vast distances. It has been repeatedly demonstrated that entanglement swapping protocols can entangle two remote photons without any interaction between them and even with a significant time-like separation (Ma et al., 2012; Megidish et al. 2013; Peres 2000). Another example, two particles which are far apart have “spin” and they may spin up or down. However, an observer who measures and verifies the spin of particle A will at the same time effect the spin of particle B, as verified by a second observer. Measuring particle A, effects particle B and changes its spin. Likewise observing the spin of B determines the spin of A. There is no temporal order as the spin of one effects the spin of the other simultaneously through the simple act of measurements. Even distant objects are entangled and have a symmetrical relationship and a constant conjunction (Bokulich & Jaeger, 2010; Plenio 2007; Sonner 2013). If considered as a unity with no separations in time and space, then to effect one point in time-space is to effect all points which are entangled; and one of those entangled connections is consciousness (Joseph 2010a). And this gives rise to the uncertainty principle (Heisenberg, 1927) as the laws of cause and effect are violated. Correlation is not causation and it can’t always be said with certainty which is the cause and which is the effect and this is because the cosmos is entangled.

Moreover, the decisions and measurements made in the future can effect the present. In one set of experiments entanglement was demonstrated following a delayed choice and even before there was a decision to make a choice. Specifically, four photons were created and two were measured

and which became entangled such that the measurement of one effected the other simultaneously. However, if at a later time a choice was then made to measure the remaining two photons, all four became entangled before it was decided to do a second measurement, before the choice was even made in the future (Ma et al., 2012; Peres 2000).

Entanglement can occur independent of and before the act of measurement and choices made in the future can effect the present. “The time at which quantum measurements are taken and their order, has no effect on the outcome of a quantum mechanical experiment” (Megidish et al. 2013). Moreover, “two photons that exist at separate times can be entangled” (Megidish et al. 2013). As detailed by Megidish et al (2013): “In the scenario we present here, measuring the last photon affects the physical description of the first photon in the past, before it has even been measured. Thus, the ”spooky action” is steering the system’s past. Another point of view...is that the measurement of the first photon is immediately steering the future physical description of the last photon. In this case, the action is on the future of a part of the system that has not yet been created.”

Hence, entanglement between photons has been demonstrated even before the second photon even exists; “a manifestation of the non-locality of quantum mechanics not only in space, but also in time” (Megidish et al 2013). In other words, a photon may become entangled with another photon even before that photon is created, before it even exists. Even after the first photon ceases to exist and before the second photon is created, both become entangled even though there is no overlap in time. Photons that do not exist can effect photons which do exist and photons which no longer exist and photons which will exist (Megidish et al. 2013); and presumably the same applies to all particles, atoms, molecules (Wiegner, et al 2011).

The same principles can be applied to conscious phenomenon, including the experience of *deja vu* and premonitions; i.e. experiencing an event before it occurs. In fact, the same could be said of feelings such as “anxiety” about what may happen before it happens, or logical thought processes of predicting what will happen before it happens--all of which may be made possible not by anticipation but by the future effecting the present. Premonitions and entanglement also prove the future exists before it becomes the present.

Deja Vu

Entanglement commonly occurs at superluminal speeds (Francis 2012; Juan et al. 2013; Plenio 2007; Lee et al. 2011; Matson 2012; Olaf et al. 2003). However, if an entangled consciousness is effected by the passage of that superluminal information from the future into the present, this can give rise to retro-cognition (Bem 2011; Radin 2006); knowing something has happened or will happen before it happens.

As illustrated by light-images from distant stars which are from the past but which will arrive on Earth in the future, various “futures” exist prior to being experienced by various observers. If time has a wave function and is entangled with space-time and the quantum continuum, and as the brain and consciousness are part of that continuum (Heisenberg 1958; Planck 1931, 1932), then under certain circumstances a future may effect consciousness prior to being experienced by consciousness due to entanglement of their wave functions. However, as discussed, consciousness too may exist in the future which is coextensive with the consciousness existing in the *now*. Since

entanglement takes place faster than light speed, the leading edge of a future experience may be registered in various conscious minds at superluminal speeds before the future actually arrives in the *now*. The experience of this “time echo” is not uncommon, and has been referred to as *deja vu*, pre-cognition, and premonitions.

Deja vu is the conscious experience of having experienced some events just moments before the events take place. For example, a man opens the front door, step outside, drops his keys and then a dog barks and the phone rings, and then he again *experiences* himself opening the door dropping his keys and then hearing a dog bark and then the ringing of his phone; like a time echo. He thus has the experience that all this has happened before or that he has done this before it happens. He may even say: “I’ve done this before” and then a few nanoseconds later he experiences himself saying “I’ve done this before.”

Deja vu has been attributed to a delay in the transfer of sensory experiences from one region of the brain to another which receives that information twice, or the transmission of the same experience to the same area of the brain by two different brain areas such that the information is received twice following a brief delay (Joseph 1996). Hence, someone may experience *deja vu* because two or more areas of the brain are receiving or processing the same message with a slight delay between them. For example, the right and left halves of the brain are interconnected by a massive rope of nerve fibers called the corpus callosum. Each half of the brain is capable of conscious experience (Joseph 1988a,b; 2010a). Usually information is shared between the cerebral hemispheres. However, if there is a delay in transferring these signals, then one or both halves of the brain may sense it has had this experience just moments before thereby giving a sense of familiarity (Joseph 1996).

Brain areas communicate via neurons, and neurons communicate with each other by sending signals over axons which are transmitted to and received by dendrites (at the synaptic junction) belonging to other neurons which in turn may transmit message via their axons at synaptic junctions to the dendrites of other neurons. Impulses between neurons travel at various speeds, ranging from 10 to 50 m / s (Joseph 1996) whereas the speed of light is 300,000 km/sec.

The experience of *deja vu* has been reported under conditions of altered and heightened brain activity (Bancaud et al., 1994; Gloor 1990; Joseph 1996). Moreover, *deja vu* has been reported in cases involving the ingestion of anti-viral flu vaccines, such as amantadine and phenylpropanolamine (Taiminen & Jääskeläinen 2001) which increases brain activity by acting on dopamine receptors and increasing dopamine activity.

Heightened brain activity can be likened to an accelerated state of consciousness. Accelerated states are also associated with the contraction of space-time such that future arrives more quickly.

Deja vu, is also associated with heightened and accelerated activity in the inferior temporal lobe which houses the limbic striatum and amygdala, the later of which receives multi-modal sensory information and which normally filters out most of these sensations so the brain is not overwhelmed (Joseph 1996, 2011). *Deja vu* has been reported by patients when these areas of the brain have been activated due to direct electrode stimulation (Halgren 1990; Gloor 1990), drug ingestion (Taiminen & Jääskeläinen 2001) or seizure activity (Joseph 1996).

Therefore, when brain activity increases and neurons fire more rapidly and process more information, one of the consequences is Deja vu. In other words, just as a Time Traveler will come closer to the future as he accelerates toward light speed, when brain activity accelerates the future may also come closer such that the leading edge of a future event is experienced by this accelerated state of consciousness just before the event happens in the present.

Consciousness and Entanglement

As demonstrated in quantum physics, the act of observation, measurement, and registration of an event, can effect that event, causing a collapse of a the wave function (Dirac 1966a,b; Heisenberg 1955), thereby registering form, length, shape which emerges like a blemish on the face of the quantum continuum. Likewise, a Time Traveler or particle/object speeding toward and then faster than light and from the future into the past will affect the quantum continuum. By traveling into the future or the past, the Time Traveler will interact with and alter every local moment within the quantum continuum and thus the future or the past.

If the past or the future are not altered, this means that these dimensions of time are hardwired as part of the quantum continuum, that these events were already woven into the fabric of time and had always happened and always will happen and cannot be altered because they already happened, albeit in different distant locations of space-time which are linked as a unity within the quantum continuum.

If the future/past are not altered by voyaging through time then this is because the Time Traveler had already journeyed into the past and future before he journeyed into it. Likewise, a person not only exists in the present, but they will exist in the future. Thus, a future self would also be entangled with a past self and that self which exists in the present. Consciousness is thus entangled in time, and consciousness is entangled with its own consciousness which exists in the future, present, or past--such that a future self can effect a past self, including what the past self thinks and feels and anticipates.

The future already exists; a concept which is intrinsic to space-time relativity and Einstein's field equations. The future and the past exist in various overlapping locations in space-time which are in motion. And the same can be said of consciousness. Therefore, just as the end of a movie already exists as one begins watching the movie, then perhaps the same may be said of the river of time and consciousness as related to the future and the past. If this premise is correct, then one's consciousness also exists in the future and in the past.

World Lines, Causality, and Entanglement

Time is entangled. Future, past, present, are relative and overlap, and what is the future in one galaxy can be the past in another; all are entangled in the fabric of space-time and the quantum continuum. To get to the past, the Time Traveler must accelerate toward light speed into the future, and then, upon achieving superluminal velocities length contraction continues in a negative direction, time runs in reverse, and the destination becomes the past. Time is a circle and the future flows to the present, and the past and this is because time is entangled in the oneness of the quantum continuum.

If time is conceived as a spatial gestalt, an interconnected continuity of length, width, height, and extent but without temporal order, then what takes place in one location of space-time can effect what takes place in another, even if the distance is measured in miles, minutes, hours, light years, or as the future vs the past.

For example, in the Great Basin, White Mountains of California, there are “bristlecone pine” trees over 5000 years old, and which stand over 50 feet high. However, if the tree is measured in space-like intervals and not time-like intervals these same trees could be viewed as having a length of 5000 years. That is, if its “world line” is visualized as a thick strand of rope moving through space, that rope would begin with the seed and extend to the top of the tree.

The “world line” of the tree, encompasses it’s entire history and although the tips of some branches and roots may have only recently grown, they are connected with the entire tree from the roots to the crown, and thus to the youngest and oldest parts of the tree. And what takes place in the roots can effect the twigs, branches, and crown of the tree, and the condition of the crown can effect the roots, branches and twigs. However, if viewed from a space-like intervals, the seeds of the tree and the 50 foot tree also becomes an interconnected continuity.

Likewise, if the orbit of Earth was viewed as a strand of rope, that rope would circle around the sun; for in fact, the movement of Earth is a continuity and is not separated into intervals which take place one after another like the ticking of a clock. If the genes of the first life forms to take root on Earth were viewed as a rope, then it would extend from the present to 4.2 billion years ago and perhaps even to the DNA of life forms whose bacterial ancestors journeyed here from the stars.

If time is considered from the perspective of space-like intervals and not time-like intervals, then causality can be forward, backward, or simultaneous (Bonor & Steadman, 2005; Buser et al. 2013; Carroll 2004; Gödel 1995). The future and the past are entangled as a continuity in space-time and this means information can be transmitted from the past to the future, and from the future to the past simultaneously.

Consciousness, however, would also have a world line, which extends from the birth to the death of that consciousness. Consciousness is therefore entangled with itself, and could transmit information from itself to itself, even if that consciousness exists in the illusionary present, past, or future.

Tachyons: Messengers From The Future

It is well established that various particles have a velocity close to or at the speed of light (Houellebecq 2001). Many of these high speed particles were hypothetical until their existence was verified experimentally. Photons and electromagnetic waves travel at light speed whereas some particles, such as positrons, and hypothetical “tachyons” are, or were believed to travel faster than light (Bilaniuk & Sudarshan 1969; Chodos 2002; Feinberg, 1967; Feynman 1949; Sen 2002) whereas others, such as . Superluminal tachyons, however, if they exist, may have negative energy and negative mass (Chodos 2002; Feinberg, 1967) and this may be a requirement for traveling at superluminal speeds where time flows in reverse.

Electromagnetic waves are a fundamental quality of matter and are subject to the effects of gravity as exemplified by galactic lensing (Slater & Frank, 2011; van der Wel 2013). When the electromagnetic force is stripped of its particle, it has no mass, and this is what is believed to occur when particles, or time machines enter a black hole (Everett & Roman 2012); what emerges has no mass, and it may possess negative mass and negative energy and may journey at faster than light speeds.

Wheeler and Feynman argued in 1945 that electromagnetic waves emitted by an electron proceed into the future and the past (Wheeler & Feynman 1945, 1949). When these waves collide with waves in the future they send waves back in time and further into the future due to the collision. Those sent to the past can also collide with those in the past sending them again in opposite directions, into the future and further into the past. Depending on if these waves collide crest to trough their energy levels may double, but if they collide crest to crest (or trough to trough) they cancel each other out; a phenomenon referred to, respectively, as constructive and destructive interference.

Some hypothetical particles, such as the “tachyon” are believed to be time-independent and to travel faster than light speed (Bilaniuk & Sudarshan 1969; Chodos 2002; Feinberg, 1967; Sen 2002); meaning that these particles are constantly arriving in the present from the future and continue their high speed journey into the distant past.

In contrast to slower than light particles which have “time-like four-momentum” tachyons and other hypothetical superluminal particles have “space-like four-momentum.” For example, if two events have a greater separation in time than in space, they have a time-like separation which is indicated by a negative (minus) sign. If the sum is positive, the two events have a space-like separation which is greater than their separation in time. If the result is 0, then the two events have a light-like separation and are connected only by a beam of light.

Tachyons are believed to have worldlines which are space-like and not time-like such that the temporal order of events would not be the same in all inertial frames (Bilaniuk & Sudarshan 1969; Chodos 2002; Feinberg, 1967; Gibbons, 2002; Sen 2002); meaning cause and effect would be reversed or abolished. Tachyons, because they travel from the future to the past, would violate the laws of causality.

The existence of a tachyon particle was first proposed by Gerald Feinberg in 1967. According to Feinberg’s theories and calculations, a tachyon could be similar to a “quanta” of a quantum field but with negatively squared mass; that is, it would have no mass or anti-mass. Its energy, nevertheless, would be real. Objects traveling toward light speed gain energy and mass, only to implode and come to consist of negative energy and negative mass (Joseph 2014). Tachyons would have negative mass and negative energy, thus avoiding any violation of the laws of thermodynamics. If the tachyon increases its superluminal speed it loses energy as it journeys faster into the past. If it accelerates to 200% light speed its negative energy diminishes to zero, time stands still and its negative mass becomes smaller than a Planck Length due to length contraction. Upon accelerating to 200.00001 light speed, what had been a negative contraction implodes and it contracts in a positive direction and gains positive energy and positive mass and turns around and travels from the past back to the future.

Therefore, whereas objects are believed to reach “infinite velocity” upon attaining light speed, the tachyon can only reach infinite velocity upon accelerating to speeds twice that of the speed of light, at which point there would be another time reversal and the tachyon would journey from the past into the future.

Einstein’s field theories predict the curvature of space-time, such that the universe and time circles back upon itself (Gödel 1949a,b). The future leads to the past; a realization which greatly troubled Einstein. The existence of particles which travel from the future to the past are a logical extension of Einstein’s theories and field equations (Gödel 1949a,b). Time is a circle which may be orbited by positive and negatively charged particles. If correct, then these negative and positively charged particles would also create a neutral state of equilibrium (Feynman 2011; Pollack & Stump, 2001; Slater & Frank, 2011; Wheeler & Feynman 1949); much like the positively charged nucleus of an atom counters the negative charge of an electron--the amount of positive charge determining the number of electrons.

Electrons may also circle in and out of time and changing charges as they do so, with negatively charged electrons directed toward the past and positively charged electrons, referred to as “positrons” directed toward the future. John Wheeler proposed that all electrons and positrons (the antiparticle to the electron) have identical mass but opposite charges (see also Feynman 1949). According to Wheeler (2010; Wheeler & Feynman 1949), all electrons in the universe zig zag backward and forward in time, and when zigging backward it is an electron and when zagging forward it is a positron. And when zigging and zagging they interact as an electron-positron pair, moving in and out of the past and future. Richard Feynman (2011) incorporated these ideas in his formulations for quantum electrodynamics which earned him a Nobel Prize. However, these pairs are not necessarily being created or annihilated; though annihilation could be predicted if they were to come in contact. Rather, like the positive and negative charged tachyon, they chase each other in a circle of time.

If we were building an atom-of-time, then it could be proposed that positively charged positrons and negatively charged tachyons circle toward the past, maintaining an equilibrium of charges in the past, whereas negatively charged electrons and positively charged tachyons do the same in the future; with all four circling around each other, in and out of the future and the past and without violating the laws of conservation of energy and mass.

Therefore, if a negative energy negative mass tachyon and a positron traveling from the future to the past was able to circle round and go from the past back toward the future, the tachyon would become a positive energy anti-tachyon and the positron a negatively charged electron. If time is a circle, the positron/electron and tachyon/anti-tachyon may circle from the future to the past to the future and back again; as if time was composed of particles which orbit the nucleus of “eternal now.” Positrons, electrons, and tachyons would therefore provide time with the energy and atomic structure to emerge from the quantum continuum and be perceived as something real.

The existence of “tachyon” like particles has been rejected because they would violate the laws of causality and Einstein’s theory of special relativity (Aharonov et al. 1969). Feinberg (1967), however, determined that special relativity did not prohibit faster than light travel so long as the object had always maintained superluminal velocities and had never had a velocity below the speed

of light. According to special relativity (but not general relativity or quantum mechanics) the acceleration of matter to beyond light speed could cause the energy of this mass to become infinite and the Lorentz transformations would then have no meaning. However, if superluminal velocities are the norm for these faster than light particles, then there would be no need to break the cosmic speed limit except at 200% light speed. By the same token, these particles would never be able to reduce velocity to below light speed. Therefore, if these and other particles are traveling beyond the velocity of light they may have always journeyed at superluminal speeds and never had a velocity below light speed.

Others have argued that particles with negative mass cannot travel faster than light and would have negative energy and become unstable and undergo condensation (Ahraonov et al. 1969). These arguments were countered by Chodos (1985) who proposed that neutrinos can behave like tachyons and travel at superluminal speeds. By violating Lorentz invariance, neutrinos and other particles would undergo Lorentz-violating oscillations and travel faster than light while maintaining high energy levels. However, over time superluminal neutrinos would also lose energy, probably as Cherenkov radiation (Bock 1998).

Although theoretical, the implications are that information can travel from the future to the past; thus making it possible to anticipate, or *see* the future before it becomes the present, thereby giving rise to premonitions and related conscious experiences, including perhaps, anxiety, or conversely, an uncanny ability to correctly plan future courses of action which almost always lead to success and follow a course or result in a specific outcome exactly as predicted.

Although there have been numerous proposals and arguments to and fro it appears that objects or particles would lose mass and energy upon reaching superluminal speeds and those which travel faster than light would have negative mass and negative energy. Further, it could be said that tachyon-like particles once they accelerate to superluminal velocities, or, if they have always journeyed at faster than light speeds, may be unable to slow down to a velocity less than the speed of light. It has also been theorized that tachyons must maintain a constant speed, for if the Tachyon were to accelerate and increase velocity it loses energy which becomes zero if the speed reaches infinite velocity; i.e. 200% light speed; a velocity which would trigger a time reversal with negative contraction imploding and continuing in a positive direction back toward the future from the past.

According to some theories, if a tachyon were to slow toward light speed, the energy of a tachyon would increase and would become infinite as its velocity equals the speed of light; and the same would be true at 200% the speed of light. This is a mirror image of what is theorized to occur when particles or objects reach light speed as they are also supposed to gain infinite mass and infinite energy. Thus particles which always travel above and those which always travel below light speed are mirror images of each other and may have the same barriers and non-traversable event horizon, with the past on one side and the future on the other.

In other words, the transformation from positive to negative energy/mass, may be the event horizon which separates the future from the past. Thus, relative to a conscious observer, the future may consist of positive energy, and the past becomes the negative.

The Future and Past Exist Simultaneously: Circle of Time

As implied by the Lorentz transformation (Einstein et al 1923), a tachyon would always have negative energy. The Lorentz transformation indicates that the sign of a particle's energy is the same in all inertial frames, just as the sign of the temporal order of two points on the world line remain the same. All observers will see that the particle has positive or negative energy, though they may disagree on how much energy it has. However, if the particle has positive energy according to one observer, and negative according to another, then the observers, or the particles, are occupying different inertial frames (e.g. one in the present the other in the future/past; and this implies duality.

If tachyons or other objects did not have the same energy sign in all inertial frames, that is, if they were sometimes positive and at other instances negative, then perhaps they are looping in and out of the past and future, becoming positive when below the speed of light and negative above it as predicted by superluminal Lorentz transformations (Everett & Roman 2012). Because they would have positive energy when heading toward the future and negative energy when traveling into the past they could both exist even in the same inertial frame. The future and the past would exist simultaneously.

The dichotomy between positive vs negative energy and mass implies duality; the tachyon which voyages beyond light speed is the antithesis of the tachyon or time machine at a velocity below light speed. For example, the tachyon below light speed could be considered an anti-tachyon. The antiparticle of a tachyon would be a positive energy tachyon which is traveling forward in time. The negative energy tachyon would be coming from future heading into the past. As such, they would seem to be continually circling around each other from the perspective of an observer: one coming the other going in parallel continuously.

Negative energy and positive energy are repulsive and attractive. Therefore, if the future consists of positive energy and the past negative energy, and both consist of particles with positive vs negative energy/mass respectively, then the future and the past would be continually chasing and escaping from each other, with the positive energy tachyon showing attraction and the negative repulsion and with both maintaining the same distance from each other. Positive and negative tachyons, or a positive vs negative future and past, therefore, would create a circle of time.

For example, if a negative object and a positive object of the same size came into contact, the negative would be repelled away and the positive would accelerate toward--a push pull scenario which could result in the negative and positive objects circling round and round each other as they are attracted and repelled at the same time--like a very bad romantic relationship.

An object with negative energy falls down just like an object with positive energy. However, if a negative particle swerved near a planet, the gravitational effect would be repulsive and it would be pushed away. Negative mass is repelled by positive mass and vice versa. If both were negative, they would also be repelled and this is because the two minus signs (-m and -m) cancel each other out.

Positive energy would propel the negative energy object to accelerate in the direction it is already going. If the universe and time are curved and lead back to their starting point in a circle, then the positive (heading toward the future) and the negative (head from the future to the past) would also

circle round each other, with the future leading to and following into the past. If the positive particle actually caught up with and bumped into the negative particle, such as might be expected at the event horizon, the positive would force the negative to speed up in the negative direction it is already going.

Moreover, although the the positive and the negative particles might maintain the same distance from each other, they would accelerate to greater and greater speeds--and this is because both have acceleration; despite the fact that this seemingly violates the conservation laws of momentum and energy which requires that they remain constant.

For example, the positively charged anti-tachyon would accelerate toward the future coming closer and closer to light speed, and upon crossing the event horizon separating future from past, would lose positive energy and attain negative mass and then accelerate backwards into the past at superluminal values. However, they would also chase one another, such that both increase in speed; the positively charged tachyon toward the velocity of light, and negatively charged tachyon to twice the speed of light; or, in a mirror universe where all is reversed, the negative would be forced to below the speed of light. That is, as the positive speeds up, the negative, going in a negative direction, might slow down, with both exchanging energy at the event horizon of "eternal now." Alternatively, the tachyon may accelerate until reaching twice the speed of light thereby losing negative energy and gaining positive energy as the contraction of time-space implodes and collapses in a positive direction.

At this juncture, we can only theorize and hypothesize: negative energy tachyons become positive energy anti-tachyons and positrons become electrons; and the circle of time continues to circle around with the positive chasing the negative which is chasing the positive, like the hands of a clock.

Coupled with Einstein's field equations which predict time is a circle, if tachyon-like particles exist, this would mean the future could effect and alter the present and the past. If true, then the past present and future would be in continual flux and undergoing constant change--which is exactly what might be expected if time is merely a *perceived* aspect of the quantum continuum (a function of wave form collapse)--such that even events which already *occurred* in the past may or may not have occurred. Time therefore becomes uncertain and what has or will take place can only be determined imprecisely by means of a probability distribution; all of which leads to the Many Worlds Interpretation of quantum physics. If true, this may explain why premonitions of future event are not always accurate; since that future may rapidly change, and may represent just one of many futures.

Consciousness, Wave Functions and Many Worlds

Quantum mechanics, in theory, governs the behavior of all systems regardless of size (Bohr, 1934, 1947, 1958, 1963; Dirac 1966a,b; Heisenberg, 1930, 1955, 1958). Central to quantum mechanics is the wave function (Bohr, 1963; Heisenberg, 1958). All of existence has a wave function, including light. Every aspect of existence can be described as sharing particle-like properties and wave-like properties. The wave function is the particle spread out over space and describes all the various possible states of the particle. According to quantum theory the probability of findings a

particle in time or space is determined by the probability wave which obeys the Schrodinger equation. Everything is reduced to probabilities. Moreover, these particle/waves and these probabilities are entangled.

Reality is a manifestation of wave functions and alterations in patterns of activity within the quantum continuum which are entangled and perceived as discontinuous, and that includes the perception of time: past, present, future, and consciousness. The perception of a structural unit of information is not just perceived, but is inserted into the quantum state which causes the reduction of the wave-packet and the collapse of the wave function. It is this collapse which describes shape, form, length, width, and future and past events and locations within space-time (Bohr, 1963; Heisenberg, 1958).

Consciousness can also reflect upon and become conscious of being conscious, and in so doing, creates a collapse of the wave function which is experienced as a dissociated consciousness observing itself; conditions which are not uncommon during accelerated states of brain-mind activity typical of terror and other emotional extremes. Consider the case of U.S. Army Specialist Bayne:

“I could see me... it was like looking at a mannequin laying there... I was burnt up and there was blood all over the place... I could see the Vietcong. I could see the guy pull my boots off. I could see the rest of them picking up various things... I was like a spectator... It was about four or five in the afternoon when our own troops came. I could hear and see them approaching... I could see me... It was obvious I was burnt up. I looked dead... they put me in a bag... transferred me to a truck and then to the morgue. And from that point, it was the embalming process.”

“I was on that table and a guy was telling a couple of jokes about those USO girls... all I had on was bloody undershorts... he placed my leg out and made a slight incision and stopped... he checked my pulse and heartbeat again and I could see that too...It was about that point I just lost track of what was taking place.... [until much later] when the chaplain was in there saying everything was going to be all right.... I was no longer outside. I was part of it at this point” (Wilson, 1987).

One woman stated: “it was though I were two persons, one watching, and the other having this happen to me.” Another patient stated “it was as though the patient were attending a familiar play and was both the actor and audience.”

“I was struck from behind...That’s the last thing I remember until I was above the whole scene viewing the accident. I was very detached. Everything was very quiet. This was the amazing thing about it to me... I could see my shoe which was crushed under the car and I thought: Oh no. My new dress is ruined... I don’t remember hearing anything. I don’t remember anybody saying anything. I was just viewing things...like I floated up there...” (Sabom, 1982; p. 90).

In instances of dissociation, consciousness is also conscious of itself as a consciousness. The dissociated consciousness creates a collapse of the wave function which includes the body, its brain, consciousness, and the surrounding space-time continuum which includes time; time which

may speed up or slow down. Similar phenomenon also occur when dreaming and can be attributed to a collapse of the wave function; consciousness creating itself by dissociating itself from the quantum continuum.

In quantum physics, the wave function describes all possible states of the particle and larger objects, thereby giving rise to probabilities, and this leads to the “Many Worlds” interpretation of quantum mechanics (Dewitt, 1971; Everett 1956, 1957). That is, since there are numerous if not infinite probable outcomes, each outcome and probable outcome represents a different “world” with some worlds being more probable than others.

For example, an electron may collide with and bounce to the left of a proton on one trial, then to the right on the next, and then at a different angle on the third trial, and another angle on the fourth and so on, even though conditions are identical. This gives rise to the Uncertainty Principle and this is why the rules of quantum mechanics are indeterministic and based on probabilities. The state of a system one moment cannot determine what will happen next. Instead, we have probabilities which are based on the wave function. The wave function describes all the various possible states of the particle (Bohr, 1963; Heisenberg, 1958).

Since the universe, as a collective, must also have a wave function, then this universal wave function would describe all the possible states of the universe and thus all possible universes, which means there must be multiple universes which exist simultaneously as probabilities (Dewitt, 1971; Everett 1956, 1957). And the same would be true of time. Why shouldn't time have a wave function?

The wave function of time means there are infinite futures, presents, pasts, with some more probable than others.

Everett's Many Worlds

As theorized by Hugh Everett the universal wave function is “the fundamental entity, obeying at all times a deterministic wave equation” (Everett 1956). Thus, the wave function is real and is independent of observation or other mental postulates (Everett 1957), though it is still subject to quantum entanglement.

In Everett's formulation, a measuring apparatus MA and an object system OS form a composite system, each of which prior to measurement exists in well-defined (but time-dependent) states. Measurement is regarded as causing MA and OS to interact. After OS interacts with MA, it is no longer possible to describe either system as an independent state. According to Everett (1956, 1957), the only meaningful descriptions of each system are relative states: for example the relative state of OS given the state of MA or the relative state of MA given the state of OS. As theorized by Hugh Everett what the observer sees, and the state of the object, become correlated by the act of measurement or observation; they are entangled.

However, Everett reasoned that since the wave function appears to have collapsed when observed then there is no need to actually assume that it had collapsed. Wave function collapse is, according to Everett, redundant. Thus there is no need to incorporate wave function collapse in quantum

mechanics and he removed it from his theory while maintaining the wave function, which includes the probability wave.

According to Everett (1956) a “collapsed” object state and an associated observer who has observed the same collapsed outcome have become correlated by the act of measurement or observation; that is, what the observer perceives and the state of the object become entangled. The subsequent evolution of each pair of relative subject–object states proceeds with complete indifference as to the presence or absence of the other elements, as if wave function collapse has occurred. However, instead of a wave function collapse, a choice is made among many possible choices, such that among all possible probable outcomes, the outcome that occurs becomes reality.

Everett argued that the experimental apparatus should be treated quantum mechanically, and coupled with the wave function and the probable nature of reality, this led to the “many worlds” interpretation (Dewitt, 1971). What is being measured and the measuring apparatus/observer are in two different states, i.e. different “worlds.” Thus, when a measurement (observation) is made, the world branches out into a separate world for each possible outcome according to their probabilities of occurring. All probable outcomes exist regardless of how probable or improbable, and each outcome represent a “world.” In each world, the measuring apparatus indicates which of the outcomes occurred, which probable world becomes reality for that observer; and this has the consequence that later observations are always consistent with the earlier observations (Dewitt, 1971; Everett 1956, 1957).

Predictions, therefore, are based on calculations of the probability that the observer will find themselves in one world or another. Once the observer enters the other world he is not aware of the other worlds which exist in parallel. Moreover, if he changes worlds, he will no longer be aware that the other world existed (Everett 1956, 1957): all observations become consistent, and that includes even memory of the past which existed in the other world.

The “many worlds” interpretation (as formulated by Bryce DeWitt and Hugh Everett), rejects the collapse of the wave function and instead embraces a universal wave function which represents an overall objective reality which consists of all possible futures and histories all of which are real and which exist as alternate realities or in multiple universes. What separates these many worlds is quantum decoherence and not a wave form collapse. Reality, the future, and the past, are viewed as having multiple branches, an infinite number of highways leading to infinite outcomes. Thus the world is both deterministic and non-deterministic (as represented by chaos or random radioactive decay) and there are innumerable futures and pasts.

As described by DeWitt and Graham (1973; Dewitt, 1971), “This reality, which is described jointly by the dynamical variables and the state vector, is not the reality we customarily think of, but is a reality composed of many worlds. By virtue of the temporal development of the dynamical variables the state vector decomposes naturally into orthogonal vectors, reflecting a continual splitting of the universe into a multitude of mutually unobservable but equally real worlds, in each of which every good measurement has yielded a definite result and in most of which the familiar statistical quantum laws hold.”

DeWitt's many-worlds interpretation of Everett's work, posits that there may be a split in the combined observer-object system, the observation causing the splitting, and each split corresponding to the different or multiple possible outcomes of an observation. Each split is a separate branch or highway. A "world" refers to a single branch and includes the complete measurement history of an observer regarding that single branch, which is a world unto itself. However, every observation and interaction can cause a splitting or branching such that the combined observer-object's wave function changes into two or more non-interacting branches which may split into many "worlds" depending on which is more probable. The splitting of worlds can continue infinitely.

Since there are innumerable observation-like events which are constantly happening, there are an enormous number of simultaneously existing states, or worlds, all of which exist in parallel but which may become entangled; and this means, they can not be independent of each other and are relative to each other. This notion is fundamental to the concept of quantum computing.

Likewise, in Everett's formulation, these branches are not completely separate but are subject to quantum interference and entanglement such that they may merge instead of splitting apart thereby creating one reality.

Many Worlds of Quantum Dream-Time

When considered as a unity within the quantum continuum, time and consciousness exist in the future, past, present, simultaneously. Consciousness which exists in the future is entangled with consciousness which exists in the present and the past--like a rope of string stretched out and extending in all directions from the birth to death of that consciousness. Therefore, just as the hypothetical tachyons can travel from the future to the past, and the circle of time circles round from the present to the future and back again, information may also be conveyed from the future to the past, perhaps along the rope of consciousness which extends in all directions and dimensions and is an aspect of the quantum continuum.

Acceleration leads to a compression of time-space, such that the future comes closer to the present. The same can be said of accelerated consciousness, thereby giving rise to phenomenon such as *deja vu*, premonitions, precognition, as well as anticipation and prediction about the immediate future. Dream time is a form of accelerated consciousness; i.e. dream consciousness.

Consciousness and dreaming are not synonymous. Dreams may be observed by consciousness and as such, dreaming and consciousness are entangled as dream-consciousness. However, consciousness is generally little more than a passive witness during dreaming, an audience before the stage upon which the dreams are displayed in all their mystery and majestic glory. It is rare for consciousness to become conscious that "it" is observing a dream, and when such rarities occur the dreamer may awaken or briefly take an active role in what has been described as "lucid dreaming" (LaBerge, 1990).

Unlike conscious-time and the conscious mind, the dream-kaleidescape of dream-time and dream-consciousness could best be described as manifestation of the "Many worlds" interpretation of quantum physics where all worlds are possible and past and future and time and space are

juxtaposed and intermingled; time can run backward and forward simultaneously and at varying speeds, and multiple realities come and go no matter how improbable.

During dream-time the brain is in a “paradoxical” state of accelerated activity, known as paradoxical sleep, as demonstrated by rapid eye movement (REM) and electrophysiological activity (Frank, 2012, Pagel, 2014, Stickgold & Walker, 2010). As predicted by Einstein’s (1961) relativity, under accelerated states time contracts and the future arrives more quickly. Dream-time represents accelerated states of brain activity and is entangled with the “many worlds” and the space-time quantum continuum of future and past, and as such, while dreaming, the dreamer may obtain a glimpse of the future before it arrives. Therefore, in dream-time and dream consciousness one may visit the future or the past during the course of the dream.

It is through dreams that we may be transported to worlds that defy the laws of physics and which obey their own laws of time, space, motion and conscious reality, where the future is juxtaposed with the past and where time runs backwards and forwards (Campbell, 1988; Freud, 1900; Jung, 1945, 1964). Throughout history it has been believed that dreams open doors to alternate realities, to the future, to the past, and the hereafter, where the spiritual world sits at the boundaries of the physical; hence the tendency to bury the dead in a sleeping position even 100,000 years ago (Joseph 2011a,b). Although but a dream, the dream is experienced during dream consciousness much as the waking world is experienced by waking consciousness. The dream is real. Thus, throughout history dreams have been taken seriously especially when they gave glimpses of the future.

Dreams are often of events from the previous day and may concern the future. It is through dreams that the dreamer may gain insight into problems which have plagued him or which he anticipates encountering in the near future. Just as one can think about the future or the past and make certain deductions and predictions, a dream may include anticipations regarding the future, and in this respect, the dream could be considered an imaginal means of preparation for various possible realities. As such, dream-time and dream-consciousness could be considered obvious manifestations of the “Many Worlds” theory of quantum physics.

Not uncommonly the dream will include so many branching and overlapping multiple realities that it makes no sense at all, except to those skilled in the art of interpreting dream symbolism (Freud 1900; Jung 1945, 1964). Indeed, it is due to the non-temporal, often gestalt nature of dreams which require that they be consciously scrutinized from multiple angles in order to discern their meaning, for the last may be first and what is missing may be just as significant as what is there.

Relativity predicts that observers with an accelerated frame of reference experience time-contraction and a shrinking of time-space such that the future and the present come closer together relative to those with a different frame of reference (Einstein et al. 1923, Einstein 1961). Thus, since dream-consciousness and dream-time are also associated with accelerated levels of brain activity, during dream-time, the dreamer may see or experience the future before that future is experienced by the awake conscious mind or the consciousness of those external observers who have a different frame of reference as regard to the contraction of time.

Abraham Lincoln Dreams Of His Death

In April of 1865, less than two weeks before he was gunned down by an assassin's bullet, President Abraham Lincoln dreamed of his own assassination (Lamon 1911). Lincoln told this dream to his wife and to several friends including Ward Hill Lamon who was Lincoln's personal friend, body guard and former law partner. According to Lincoln:

“About ten days ago, I retired very late. I had been up waiting for important dispatches from the front. I could not have been long in bed when I fell into a slumber, for I was weary. I soon began to dream. There seemed to be a death-like stillness about me. Then I heard subdued sobs, as if a number of people were weeping. I thought I left my bed and wandered downstairs. There the silence was broken by the same pitiful sobbing, but the mourners were invisible. I went from room to room; no living person was in sight, but the same mournful sounds of distress met me as I passed along. I saw light in all the rooms; every object was familiar to me; but where were all the people who were grieving as if their hearts would break? I was puzzled and alarmed. What could be the meaning of all this? Determined to find the cause of a state of things so mysterious and so shocking, I kept on until I arrived at the East Room, which I entered. There I met with a sickening surprise. Before me was a catafalque, on which rested a corpse wrapped in funeral vestments. Around it were stationed soldiers who were acting as guards; and there was a throng of people, gazing mournfully upon the corpse, whose face was covered, others weeping pitifully. ‘Who is dead in the White House?’ I demanded of one of the soldiers, ‘The President,’ was his answer; ‘he was killed by an assassin.’ Then came a loud burst of grief from the crowd, which woke me from my dream. I slept no more that night; and although it was only a dream, I have been strangely annoyed by it ever since.”

Dream-Time and the Many Worlds of Quantum Physics

In dream-time past-present-future and the three dimensions of space may exist simultaneously as a gestalt thereby violating all the rules of causality about not the laws of quantum physics. During dream-time events may occur in a logical or semi-logical temporal sequence, or they may be juxtaposed and make no sense at all to an external consciousness which is dependent on temporal sequences to achieve understanding. Because the future past present may exist simultaneously and as the future may be experienced in a dream during accelerated states of brain activity, then during dream consciousness the dreamer may get glimpses of future events which may occur within days, the next morning, or which may even trigger wakefulness. In other words, just as increased velocity causes a contraction of space-time thereby decreasing the distance between the present and the future (Einstein 1961, Einstein et al. 2913), accelerated dream-consciousness has the same effect.

In dream-time and dream-consciousness all worlds are possible simultaneously and in parallel. These many worlds include those of the future and the past and where time and space are juxtaposed and every probable outcome is equally likely, and where the world is continually splitting into alternate worlds. Dream-time-consciousness is a manifestation of and in many respects obeys the laws of the “Many Worlds” theory of quantum physics as first proposed by Hugh Everett (1956, 1957).

Hugh Everett's "theory of the universal wavefunction" (Many Worlds) is distinguished from the Copenhagen model, as there is no special role for an observing consciousness. Everett also removed the "wave function" collapse which he believed to be redundant, and instead insisted that what is observed must be clearly defined (thereby answering one of Einstein's criticism of quantum theory). According to Everett's theory, every action, every measurements, every behavior, every choice, even not choosing, can create a new reality, another world, generating a bifurcation between what happened and what did not happen, such that innumerable possibilities and possible worlds arise from every action, including realities which do not obey the laws of physics and cause and effect.

As conceived by Everett (1956, 1957) and Dewitt (1971), when a physicist measures an object, the universe splits into two distinct universes to accommodate each of the possible outcomes. In one universe, the physicist measures the wave form, in the other universe the physicist measures the object as a particle. Since all objects have a particle-wave duality, this also explains how an object can be measured as a particle and can be measured as a wave, but not both at the same time in the same world, and how it can be measured in more than one state, each of which exists in another world. The simple act of measurement creates two worlds both of which exist at the same time in parallel, and each separate version of the universe contains a different outcome of that event.

Instead of one continuous timeline, the universe under the many worlds interpretation looks more like a forest of trees with innumerable branches and twigs each of which represents a different possible world. According to Everett the entire universes continuously exists in a superposition and juxtaposition of multiple states. In many respects, Everett's theory defines dream-time and dream-consciousness.

According to Everett (1957), observation and measurement does not force the object under observation to take any specific form or to have any specific outcome. Instead, all outcomes are possible; much like a dream. For example, an NFL football player, a receiver, is running down the field and the quarterback throws him the ball. According to the "Many Worlds" interpretation of quantum physics, every conceivable and incomprehensible outcome is possible: The receiver catches or doesn't catch the ball. A female cheerleader runs out into the field and catches the ball. The receiver and the cheerleader ignore the ball and take off their clothes and have sex on the field. The head coach takes out a shotgun and begins shooting at the football. Spectators run onto the football field and erect circus tents and it becomes a giant carnival with rides. Some of the football players dress up as clowns and circus performers. Players and spectators lay on the grass and swim toward the goal posts. An alien space ship crashes into the football stadium and aliens emerge selling popcorn. Terrorists attack the football players and steal the football, and so on.

All outcomes are possible in Multiple Worlds, ranging from the most probable, to the least probable (Dewitt 1971). Thus every probable outcome is possible; trillions of outcomes including those where the improbable, and in defiance of physics may become the law of the land. Moreover, each of these multiple realities exist, simultaneously, side-by-side, in parallel. They exist simultaneously with the reality in which the observer resides; and whatever reality houses the observer is just one probable reality.

PreCognition in Dream-Time and Dream-Consciousness

During dream-time and during dream-consciousness the reality being dreamed is characterized by every possible outcome. Some dream worlds exist in the future, others in the past, and yet others in a world where past, present and future are juxtaposed and exist simultaneously and where every possible outcome is possible. Thus, in dream-time, the dream-consciousness can witness any number of these possible worlds including those which exist in the future.

However, these futures and possible futures which are observed by dream-consciousness are not “just a dream.” According to the Many Worlds interpretation, they actually exist. In terms of space-time, these future worlds exist in the future, in a distant location. As predicted by quantum mechanics, the observer is entangled with that future. However, in dream-time the observer (dream consciousness) directly observes that future; including those futures which are improbable or most probable.

The Many Worlds of dream-consciousness provides the foundation for dream-time precognition. The dreamer may dream of the future just before it occurs. And upon waking from that dream of the future, the conscious mind may remember it and then experience it as it occurs in real time.

Dream-time access to the future is made possible because the brain is in a state of accelerated activity during the course of the dream. As predicted by Einstein (1961) an accelerated frame of reference brings the future closer to the present and makes time travel possible. Accelerated states of consciousness not only bring the future closer, but provide glimpses of those futures before they occur; a phenomenon best described as pre-cognition in dream time.

Aberfan Disaster Dream-Time Precognition

Aberfan is a small village in South Wales. Throughout late September and October 1966, heavy rain lashed down on the area and seeped into the porous sandstone of the hills which surrounded the town and against which abutted the village school (Barker 1967).

On September 27 1966, Mrs SB of London dreamed about a school on a hillside, and a horrible avalanche which killed many children.

On October 14, 1966 Mrs GE from Sidcup, dreamed about a group of screaming children being covered by an avalanche of coal.

On October 20, 1966 Mrs MH, dreamed about a group of children who were trapped in a rectangular room and the children were screaming and trying to escape.

On October 20, 1966, a 10 year old child living in Aberfan woke up screaming from a nightmare. She told her parents that in her dream she was trying to go to school when “something black had come down all over it” and there was “no school there.”

On October 21, 1966, part of the rain soaked hills of Aberfan gave way and half a million tons of debris slid toward the village of Aberfan and slammed into the village school. The

10 year old girl who dreamed of the tragedy and 115 other schoolchildren and 28 adults lost their lives when the school was smashed and covered with mud. There were less than a dozen survivors (Baker, 1967).

Assassination of Archduke Francis Ferdinand: Dream-Time Precognition

In June of 1914, Austria was seeking to expand its central European empire; plans which were resented by neighboring states, including Serbia, who wished to remain independent. That same month, the Archduke Francis Ferdinand, nephew of the Austrian Emperor Francis Joseph, went on a diplomatic tour accompanied by his wife, to build alliances with the leaders of these independent nations. In late June he and his wife arrived in Sarajevo, Serbia.

On the evening of June 27, 1914, Bishop Joseph Lanyi prepared for bed and upon falling asleep he began to dream. The Archduke Franz Ferdinand of Austria, heir to the throne of Austria, had been the Bishop's student and pupil, and late that night the Archduke appeared in Bishop Lanyi's dream. The dream became a nightmare and at 3:15 AM Bishop Joseph Lanyi awoke, frightened, upset and in tears. He glanced at the clock, dressed himself, and because the dream was so horrible, he wrote it down:

“At a quarter past three on the morning of 28th June, 1914, I awoke from a terrible dream. I dreamed that I had gone to my desk early in the morning to look through the mail that had come in. On top of all the other letters there lay one with a black border, a black seal, and the arms of the Archduke. I immediately recognized the letter's handwriting, and saw at the head of the notepaper in blue colouring a picture which showed me a street and a narrow side-street. Their Highnesses sat in a car, opposite them sat a General, and an Officer next to the chauffeur. On both sides of the street there was a large crowd. Two young men sprang forward and shot at their Highnesses.”

In the dream, Bishop Lanyi read the dream-letter, which had been written by the Archduke. According to the Bishop's account, which he wrote down in the early predawn hours of June 28, the dream letter from the Archduke was as follows: “*Dear Dr Lanyi: Your Excellency. I wish to inform you that my wife and I were the victims of a political assassination. We recommend ourselves to your prayers. Cordial greetings from your Archduke Franz. Sarajevo, 28th June, 3.15 a.m.*” Bishop Joseph Lanyi was convinced that the Archduke had been assassinated, and called his parishioners and household staff to tell them of the terrible news. Later that morning of June 28, 1914, the Bishop held a mass for the Archduke and his wife. But, the Archduke were still alive and would not be shot dead for another 2 hours.

On June 28, 1914, at 11 a.m., as the Archduke and his wife were leaving a ceremony at Sarajevo, a Serbian nationalist leaped from the crowd and killed them both. It was the Archduke's assassination which triggered World War One.

Death of Mark Twain's Brother: Dream-Time Precognition

In May of 1858, Mark Twain had a dream about his younger brother Henry who was working on a riverboat as a “mud clerk.” As related by Mark Twain:

“The dream was so vivid, so like reality, that it deceived me, and I thought it was real. In the dream I had seen Henry a corpse. He lay in a metallic [burial case]. He was dressed in a suit of my clothing, and on his breast lay a great bouquet of flowers, mainly white roses, with a red rose in the [centre]. The casket stood upon a couple of chairs...it suddenly flashed upon me that there was nothing real about this--it was only a dream. I can still feel something of the grateful upheaval of joy of that moment, and I can also still feel the remnant of doubt, the suspicion that maybe it [was] real, after all. I returned to the house almost on a run, flew up the stairs two or three steps at a jump, and rushed into that [sitting-room]--and was made glad again, for there was no casket there.”

A few days later, Twain’s brother left on a river boat from New Orleans. As related by Mark Twain:

“Two or three days afterward the boat’s boilers exploded at Ship Island, Memphis. I found Henry stretched upon a mattress on the floor of a great building, along with thirty or forty other scalded and wounded persons... his body was badly scalded... I think he died about dawn. The coffins provided for the dead were of unpainted white pine, but in this instance some of the ladies of Memphis had made up a fund of sixty dollars and bought a metallic case, and when I came back and entered the [dead-room] Henry lay in that open case, and he was dressed in a suit of my clothing. He had borrowed it without my knowledge during our last sojourn in St. Louis; and I recognized instantly that my dream of several weeks before was here exactly reproduced, so far as these details went--and I think I missed one [detail;] but that one was immediately supplied, for just then an elderly lady entered the place with a large bouquet consisting mainly of white roses, and in the [centre] of it was a red rose, and she laid it on his breast.”

The Dream-Murder of Tanya Zachs

In a legal case investigated and reported by Joseph (2000), a beautiful young woman, Tanya Zachs, disappeared on her way home in San Jose from her job in Santa Cruz in September of 1984. Her car was found abandoned along highway 17 midway between the two cities and which courses through the Santa Cruz mountains. That night, a young woman “Sunshine” who lived in a nudist colony, Lupin Lodge, situated in the Santa Cruz Mountains, had a nightmare: A woman was being brutally murdered. The next day, Sunshine read the story of Tanya’s disappearance in the local newspaper, and that night she had the dream again, but this time the victim appeared to her quite clearly. It was Tanya.

In the dream Tanya showed “Sunshine” a narrow mountain road off highway 17, one of many leading from the long and winding highway between San Jose and Santa Cruz. Tanya led the dreamer down the mountain road which was bordered by a thick canopy of redwood trees and pines, and then to an isolated spot alongside. Tanya then beckoned the dreamer to follow her down a rather steep incline leading from the mountain road into the forest and thick brush, and then along a forested trail. Finally, Tanya stopped and pointed out her naked body, lying spread eagle on a huge slab of rock surrounded by trees.

Sunshine was convinced she knew where Tanya’s body lay hidden. On the morning of 9/15/84, she contacted Tanya’s family, told them of her dreams, and that same day led them and the police

to the mountain side road Tanya had showed her and finally to the isolated spot. The police climbed down the tree-covered steep incline, and just as Sunshine had dreamed, they found the trail leading into the forest. But, there was no body.

That night Sunshine had another dream and Tanya took her to the same spot, down the same trail, then pointed at and emphasized a little deer trail that forked off to the right between the trees, and which led directly to her body. The next day, Sunshine and the family met again, and then climbed down the incline, took the trail to the right, and there was Tanya's body laid out exactly as revealed to Sunshine when dreaming.

The murder remained unsolved, however, until four years later. Damon Wells, beset by horrible nightmares where the victim kept accusing him of her murder, sought psychiatric treatment and confessed (Joseph 2000).

Precognition Dreams Are Common

Precognition dreams are common (Fukuda 2002; Haraldsson, 1985; Lange et al. 2001; Ross & Joshi, 1992; Stowell, 1995; Thalbourne, 1994) and often involve negative, unhappy, unpleasant events such as deaths, disasters and other calamities (Ryback & Sweitzer, 1990). About 40% of precognitive dreams are linked to an event the following day (Sondow, 1988), or take place several days or weeks later. However, anecdotal evidence indicates that the dreamed events may occur just prior to waking, even triggering wakefulness.

Precognition dreams can be about mundane affairs of concern only to the dreamer. A colleague of this author admits to frequently having had precognitive dreams and relates the following:

“I dreamed that my water heater busted and that water was flooding out onto the floor. Three days later, the water heater sprung a leak.” “I dreamed about getting a flat tire while driving on the freeway. It was the rear tire on the driver's side. A couple days later, the car's dashboard-computer informed me that the rear tire on the driver's side was low in air.” “I dreamed that I took a girlfriend to my hot tub in the back yard, but it was empty and there was no water. When I tried to turn the water on nothing would happen. In the dream I was irritated because it would have to be replaced. A few days later the hot tub on-switch broke and after several failed attempts to fix it, I had it junked.”

Several studies indicate that precognitive dreams are more common in younger than older individuals and that women report more precognitive dreams than men (Lange et al. 2001). It has also been found that those who have experienced *deja vu* are more likely to have precognitive dreams (Fakuda, 2002).

In large samples, anywhere from 17.8 % to 66% of individuals report that they experienced at least one precognitive dream (Fukuda 2002; Palmer, 1979; Haraldsson, 1985; Ross & Joshi, 1992; Ryback, 1988; Thalbourne, 1994) whereas over 60% of the general population believe such dreams are possible (Thalbourne, 1984; Haraldsson, 1985). However, Ryback (1988) after investigating 290 case reports of paranormal dreams, dismissed most of these precognitive dreams as coincidence and concluded that only 8.8% of the population actually have these dreams.

PreCognitive Dream Skepticism and Professional Baseball

Over 2000 years ago Aristotle wrote a book expressing his disbelief in precognitive dreams: “On Divination in Sleep.” Aristotle complained that most of those having precognitive dreams were unworthy of the honor of receiving advanced information and “are not the best and wisest, but merely commonplace persons.” Aristotle argued that “the sender of such dreams should be God.” According to Aristotle “most dreams are to be classed as mere coincidences...” and do not take “place according to a universal or general rule” and have no causal connection to actual events in the future.

“Coincidence” has been the major objection to claims of precognitive dream activity (Caroll 2000; Wiseman 2011). Caroll (2000) refers to the “law of large numbers” and dismisses all claims as being a function merely of coincidence. For example, the odds, are with so many dreamers having dreams about so many different themes, that a few of them will have dreams about an airplane crash or a ship that sinks. If the next day a ship sinks or a plane crashes, this is merely coincidence. According to Caroll and others, if precognitive dreams were real, they should be more commonplace, with more dreamers coming forward, and thus there should be a high “hit rate” and there is not; and as such “precognitive dreams do not exist.”

However, if we applied the same reasoning to professional baseball, then professional baseball does not exist. Consider, from 2000 until 2013, the average baseball batting average ranged around .267. During regular season play during 2013, out of 750 major league players, 726 had a batting average of less than 30% (<http://espn.go.com/mlb/stats/batting>). Taking into considering foul balls and hits which result in “outs”, but considering that each player has at least 3 opportunities each time at bat to hit the ball, and then taking that .267 average, it could be said that the average professional baseball player actually gets a base hit less than 20% of the time. Be it a 20% or 30% hit rate, obviously this does not mean no one in professional baseball is able to hit the ball, or that when they do it is merely a coincidence. The same standard must be applied to precognitive dreams.

Precognitive dreams need not be about Earth-shaking national tragedies and it is unknown how many dreamers would ever come forward to report their dreams even if they did have national implications. In fact, most dreams are forgotten upon waking (Frank, 2012, Pagel, 2014, Stickgold & Walker, 2010). Further, many precognitive dreams may be related to mundane matters like a “flat tire,” or a phone call or visit from a friend the next day; or they may be entangled with events which are about to occur just minutes or seconds into the future, i.e. backward/precognitive dreams. Since most people forget their dreams upon waking and most dreams are forgotten, how often precognitive dreaming occurs, and how many people have them, is unknown. What is known is that such dreams can be explained by quantum physics and the neurological foundations for dream activity and dream-time.

PreCognitive Backward Dreams

Precognitive experiences occurring during waking may be entangled with innocuous event which are just about to occur, such as thinking of a friend and then getting a phone call or email from that friend minutes or hours later. Just as a professional baseball player is more likely to swing and

miss than hit the ball, the fact that one might think of a friend who does not call is not evidence against precognition.

During accelerated states associated with dream-time, precognitive dreams may be for events which will soon happen, or are just about to happen, perhaps seconds, or minutes away. These latter-type of dreams are best described as precognitive-backward dreams.

A case in point, “Katherine” dreams she and a friend “Sheryl” are shopping in Boston. They go from store, lugging shopping bags. “Katherine” in her dreams feels this sense of urgency to go home as if she is late for something and someone is waiting for her so she sets her bags down on the sidewalk and sits on a bench to wait for a cab or a the bus. She then realized her friend “Sheryl” is gone. Katherine looks for her, goes in and out of stores, but can’t find her. “Katherine” sees a bus-like street car coming down the cobbled street and she picks up her packages and steps out onto the curb. As the street car pulls up and stops “Katherine” is surprised to see that Sheryl is driving and is ringing its bell. The sound of the bell grows louder and louder and then jolts “Katherine” from her dream. Katherine realizes that her phone is ringing. She picks it up and it is her friend “Sheryl” who is calling. Sheryl and Katherine are going shopping that day.

That “Katherine” dreamed about going shopping with “Sheryl” is not remarkable in-itself. That “Sheryl” was ringing the bell and it was Sheryl who was calling can be explained away as interesting coincidence. It is no surprise that Sheryl called. What seems paradoxical, however, is that the dream of shopping and walking down the streets of Boston laden with packages, the desire to go home, then looking for her missing friend and then seeing the bus-like street car all seemed to lead up to the ringing of the bell in a logical order of events so that its ringing made sense in the context of the dream. Hearing the ringing bell seemed to be a natural part of the dream, and it is. However, the dream did not lead up to the bell. Rather, the ringing of the bell initiated the dream. The effect (ringing bell) and the cause (the ringing phone) are identical. The effect caused itself.

There are two explanations for these quite common “backward” dreams. Dream-time and dream-consciousness does not obey the laws of physics. In dream-time, dream-consciousness may attempt to impose temporal order on a dream which has no temporal order and which may be experienced as a gestalt. In other words, in dream-time the entire dream was instantaneous and the dream was initiated by the ringing of her phone. The bell was heard and the dream was instantly produced in explanation and association. Future, present, past may be juxtaposed and experienced as a gestalt; like seeing the forest instead of the individual trees. In fact, although dreams may seem to last long time periods, they may be only seconds in length (Frank, 2012, Pagel, 2014, Stickgold & Walker, 2010).

The other explanation is that the ringing of the phone and the fact that Sheryl was calling Katherine, was perceived in dream-time, before it happened. Just as a time-machine traveling at superluminal speeds from the future into the past will pass by an observer only to be followed by its light image (which trails behind at the speed of light), information just seconds or minutes away into the future can be perceived by dream-consciousness in dream-time through entanglement. However, it is not future information traveling at superluminal speeds, but the mind and brain of the dreamer which are accelerating toward that future event in advance of those conscious minds which are still awake.

In dream time, the brain is highly active (Frank, 2012, Pagel, 2014, Stickgold & Walker, 2010), and certain regions in the limbic system are hyperactive (Joseph 1992, 1996, 2000). During dream-time, brain activity is accelerating which causes a contraction in time-space. The future comes closer to the present during dream time relative to outside observers which may include, upon waking, the conscious mind of the dreamer. However, while in dream-time, in a state of accelerated dream-consciousness, the future may be sensed and it may trigger a complex dream which then leads up to that future event when it arrives in the present thereby waking the dreamer.

Another illustrative example: French physicist Alfred Maury dreamt that he had taken part in the French Revolution and that he had been condemned to death and his head cut off at the exact moment when his bedpost broken and struck him across the neck:

“I was rather,unwell, and was lying down in my room, with my mother at my bedside. I dreamed of,the Reign of Terror; I witnessed massacres, I was appearing before the Revolutionary,tribunal, I saw Robespierre, Marat, Fouquier-Tinville, all the most wicked figures of,that terrible era; I talked to them; finally, after many events that I only partly remember,,I was judged, condemned to death, taken out in a tumbril through a huge throng to the,Place de la Revolution; I mounted the scaffold; the executioner tied me to that fatal,plank, he tipped it up, the blade fell; I felt my head separating from my body, I woke up,racked by the deepest anguish, and felt the bedpost on my neck. It had suddenly come,off and had fallen on my cervical vertebrae just like the guillotine blade.”

Certainly it would be expected that a major blow to the head and neck would cause instant waking. But in this instance, it did not. Instead, the dreamer experienced a long and convoluted dream which was initiated by what was about to happen, and which could also be considered a warning of what was about to happen; albeit in the unique dream-language characteristic of dreams. This is not a case of an instantaneous backward dream, but a precognitive dream which provided the dreamer with a glimpse of what lay in store just moments into the future.

A third example related to me by a colleague:

“I had been working in my yard into the late Friday afternoon and was exhausted. It was hot and I stripped off my shirt and lay down in a swinging hammock in my yard to take a nap and instantly fell asleep and began to dream. In the dream I was in a nightclub and there was this exotic beautiful woman with long black hair drinking at the bar. We began drinking together and then we were dancing and kissing and then we were suddenly in my house and we were laying on the floor and I was taking off her clothes and she was getting very excited and aggressive. All at once I could see she had yellow eyes and black skin, but it wasn't skin, but resembled an insect's chitlin. Her arms and hands became claws and her teeth became razor sharp and pointed. She put her claw arms around me very tight as I struggled to escape. She had turned into some demonic insect-creature and pressed her razor sharp claw-hands into my back. I could feel her razor sharp claws knifing me and I felt I was being stabbed in the back. The pain was terrible. It seemed as if her pointed claws were going to completely pierce my back and come out my chest. The pain was so horrific I woke up. But the pain was still there. I got up from the hammock and there was a crippled black bumble bee laying there. The damn thing has stung me on my back.”

Dreams that seem to paradoxically lead up to an event which wakes the dreamer are common. These dreams may be relatively brief or become lengthy complicated dreams leading up to some event which then occurs, as if on cue, waking the dreamer who discovers upon waking that someone was knocking on his door, the phone was ringing, it was the alarm clock, a kid was yelling outside the window, and so on, all of which initiated the dream which then led up to the event which caused the dream (Joseph 1992). The dream was produced, so as to explain in the unique language of the dream what was about to happen; and this is because, it already happened in the future. The only other explanation is the dream was produced as an instant gestalt and the dreamer dreamed the dream in accelerated dream-time without any temporal order, and it was upon waking that the dream was reconstructed in a temporal sequential time frame (Joseph 1992).

Be they backward dreams instantly produced as a gestalt, or examples of dream precognition, backward dreams are the most easily comprehended because the conscious mind utilizes temporal sequences to explain what is observed, and may recall the dream in reverse, so it makes temporal-sequential sense; as if the cause led to the effect, when the cause and effect were either simultaneous, or the effect was its own cause.

Joseph Dreams His Death 2000 Years Ago

In the early 1950s, when I [R. Joseph] was a boy of 3, and for many years until around age 7, I had dreams about a little boy playing by the sea shore, by the ocean. And there were crowds of people. Some lying or sitting together on the sand. Others swimming or fishing. And then in the dream the ocean began to recede... the ocean waters drew back back back... and I could see shells and fish flopping on the wet sand where moments before there had been ocean... and ships and small boats lay on their sides... and I ran to where the ocean had been, on the wet sand, picking up shells... and many other people also ran onto the wet sand picking up wiggling fish and laughing and talking in amazement that the ocean had pulled back for miles and miles leaving the sand and ocean floor completely revealed for everyone to see.... and then... and then... and then...

I walked further and further out to where the ocean had been, picking up giant shells some with wiggling living creatures still inside, and gazing in wonder at what the ocean had hidden but which was now revealed... and then I heard screams... women and men and children were screaming... and in my dream, they were all running from the wet sand where the ocean had been toward the dry shore...and people on the shore were also running... everyone was running away and screaming... and I could hear this rumbling roar from behind me... and when I looked back to see why, what they were running from and what was making that roar, I could see the ocean... it was still miles away--but it was a WALL OF OCEAN.. a WALL OF WATER looming up maybe 100 yards perhaps even miles into the sky... and in my dream the wall of ocean was rushing forward, to where the ocean had been minutes before, toward where I was standing with sea shells in my hands... and I started running... like everyone else, running running running... and I could see, over my shoulder, behind me, the roaring wall of ocean water coming closer, and closer... and faster faster faster... and I kept running... everyone was running and screaming...trying to get away... and then the towering WALL OF WATER was just behind me... then looming over me... and then it crashed down upon me... and the little boy that I was, in this dream,

drowned.... and then I awoke in my bed... the same boy who drowned, but a different boy...me...

I had this dream over and over for years; the same dream, the source of which was a mystery to me as I had never even imagined that the ocean could actually recede and then rush back to land as I had dreamed. It was not until 20 years later that I learned, for the first time, about Tsunamis and how characteristic it is for people to foolishly run out to where the ocean had been... and then... the ocean comes rushing back as a wall of water drowning everyone who did not immediately run away.

How could I have dreamed so vividly about something 3-year old me knew nothing about in the early 1950s when we didn't even have a television? There were clues in yet other dreams when I was a child, and they were dreams of the same little boy. But it was during ancient Roman times, and I was sitting with my mother who was dressed in royal robes typical of the Roman period. She was singing to me... And down below I could see Roman soldiers marching, and peasant women by a river, washing clothes, and the river was flowing into the ocean. The peasant women, who had with them many naked children, were dressed in clothes I associated with Biblical times, of ancient Egypt; my grandmother would often read to me from a Bible picture book. But in these river-side dreams which began so peaceful, they all ended with incredible earthquakes, like the world was turning up-side down...

How do these two dreams relate? Almost 50 years after I had these dreams, I searched the records for Tsunamis in the Mediterranean sea near Italy and Egypt. On the morning of July 21, 365 AD, an earthquake of great magnitude caused a huge tsunami more than 100 feet high and it inundated and destroyed several towns on the coasts of the Mediterranean, including Alexandria. This is how Ammianus Marcellinus, a Roman historian described it:

Slightly after daybreak, and heralded by a thick succession of fiercely shaken thunderbolts, the solidity of the whole earth was made to shake and shudder, and the sea was driven away, its waves were rolled back, and it disappeared, so that the abyss of the depths was uncovered and many-shaped varieties of sea-creatures were seen stuck in the slime; the great wastes of those valleys and mountains, which the very creation had dismissed beneath the vast whirlpools, at that moment, as it was given to be believed, looked up at the sun's rays. Many ships, then, were stranded as if on dry land, and people wandered at will about the paltry remains of the waters to collect fish and the like in their hands; then the roaring sea as if insulted by its repulse rises back in turn, and through the teeming shoals dashed itself violently on islands and extensive tracts of the mainland, and flattened innumerable buildings in towns or wherever they were found. Thus in the raging conflict of the elements, the face of the earth was changed to reveal wondrous sights. For the mass of waters returning when least expected killed many thousands by drowning, and with the tides whipped up to a height as they rushed back, some ships, after the anger of the watery element had grown old, were seen to have sunk, and the bodies of people killed in shipwrecks lay there, faces up or down.

Had Joseph dreamed of a previous life from nearly 2000 years ago? Or did he journey to the past, during dream-time, and visit the long ago in the time machine of consciousness?

We have been here before, we will be here again, we will always be, and this is because time and consciousness are a quantum continuum and the distinctions between past present and future are illusions.

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