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The retrocasual and superluminal transfer of information in DNA and its applications for genetic adaption in biological and marine organisms.

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Abstract

Background: Both geomagnetic activity and lunar phase may be partly responsible for backward causation effects and retrocasual phenomena occurring in DNA. We examine the data to assess the effects of geomagnetic activity, lunar cycle and its effects upon DNA.

Methods: Using lunar and space weather studies, we review how these effects influence gene functioning, cycles of reproduction and PSI functioning in humans and animals.

Results: Significant associations were discovered to exist between retrocasual phenomena, geomagnetic activity and lunar phase. For example the meta data reviews that falling injuries occur far less often during the first quarter moon and PSI related phenomena is more accurate during lower geomagnetic activity. This implies that fields of energy outside of space-time influence DNA and these effects may be related to ultra high energy particles especially during times of charged emotional states.

Conclusion: Our results suggest geomagnetic activity and ultra high energy particles may be one of the primary mechanisms responsible for backward causation effects in DNA..

Keywords: space time, time machine, time travel, intuition, retrocognition, intuitive, lunar phase, moon phase, first quarter moon, time travellers, time dilation, quantum transitional states, dna, superluminal, synchrotron radiation, cherenkov radiation, geometric model, space time, psychic, minkowski space, scientific exploration, solar cycle, geomagnetic storm, time dilation.

Introduction

Many scientists toady are at a loss to explain why a supposedly once extinct plant or animal suddenly reappears in nature. For example, 89 Australian vascular plants once thought permanently extinct, were "rediscovered" between the years 1981 and 2001 and thirteen mammals underwent rediscovery from a list of 144 species once classified as permanently extinct after a reanalysis was performed 1999 (1) (2). The coelacanth, thought to have gone extinct with the dinosaurs over 65 million years ago, was also rediscovered in 1938 (3) and the Chagos Brain Coral, which was once one of the 25 most abundant corals in the Indian Ocean, and whose outer structure resembles a human brain, was classified as extinct due to mass bleaching events between 2015 and 2016. However during 2020 Dr. Bryan Wilson of the Department of Zoology at the University of Oxford rediscovered it on a trip to the Chagos Archipelago (4).

Why are these animals and plants reappearing? What is the primary mechanism responsible for such reoccurrences? Could the key be cycles involving solar and lunar activity?

Effects of the Moon

The moon has been shown to influence animal behavior and reproduction ⁽⁵⁾ ⁽⁶⁾ and some of the most important religious practices today time their holidays according to lunar phase (*Easter and Passover*). Is nature using specific moon cycles to get the most out of its reproductive cycle via some yet undiscovered mechanism? Recent studies conform certain species of marine animals have been shown to spawn according to phases of the moon ⁽⁷⁾ and recently in February 2023, scientists discovered that our moon acts as a collector of cosmic rays. When these cosmic rays reach ultra high speeds they emit Cherenkov radiation ⁽⁸⁾ ⁽⁹⁾. Particles emitted by Cherenkov radiation have been shown to travel faster than the speed of light ⁽¹⁰⁾

Acropora gemmifera coral has been shown to begin its spawning process at exactly the first quarter moon (11) and the clock genes cry1, bzip1 and clock all exhibit activity at both the first and last quarter moons (Oldach et al. 2017). This effect is not limited only to coral. For example the goldlined spinefoot Siganus guttatus fish contains the clock genes Cryptochrome (Cry1 and Cry3) and Period (Per2) which peak in its brain during first quarter moons (12). This is the same time this fish spawns.

One mechanism that may be responsible for this is the pineal gland because studies have found the pineal gland is sensitive to geomagnetism with geomagnetic activity influencing the processes of nitric oxide participation ⁽¹³⁾. This in turn influences melatonin production by the pineal gland. It is interesting to note here that earth is protected from the effects of strong solar flares by creating nitric oxide in its upper atmosphere which creates a cooling effect so as to not allow the energetic particles to damage surface life ⁽¹⁴⁾.

Quarter Moon Definition

The quarter moon is sometimes called a "half moon" because either its right or left side are exactly 50% illuminated. This takes place twice approximately every 30 days during the moon's lunar phase. These are the first quarter moon and the last quarter moon.

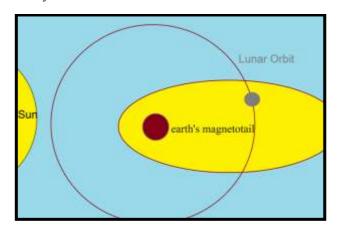


Clock Genes

Clock genes create instructions for clock proteins. Both genes and proteins interact with each other, creating a regular cycle of fluctuations in protein levels that can be measured ⁽¹⁵⁾. This is like an atomic clock is used as the master timekeeper for setting clocks.. The main time keeper in this gene is the PER gene that is responsible for the PER protein. PER proteins peak during early evening and are at their lowest early in the day ⁽¹⁵⁾.

The gnrh1 and gnrh2 genes, which are genes that govern reproductive activity, exhibit increased activity around the last quarter moons in the female honeycomb grouper Epinephelus merra ⁽¹⁶⁾. GnRH is synthesized by the hypothalamus ⁽¹⁷⁾. Oysters also spawn at first quarter moons ⁽¹⁸⁾.

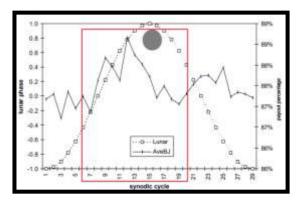
It is my hypothesis that the ultra high energetic particles emitted by the moon are interacting with DNA so a species can make the most of its reproductive activity. This field of energy may be related to the earth's magnetic field which extends several tens of thousands of kilometers out into space. This is because the Moon enters earth's magnetotail three days before full, taking six days to cross and exit it ⁽¹⁹⁾.



An Oscillating Moon and its effect on life on earth

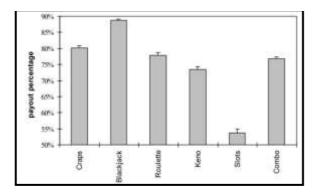
A field of energy appearing to have its own unique oscillation lasting approximately 14 days begins at the first quarter moon and ends at the last quarter moon. This oscillation may be seen by studying the cycle of winners at casinos.

Gambling is an activity where participants exert considerable thought power towards winning. This activity is akin to the same amount of mind power in laboratory psi experiments. An experiment conducted by Dean Radin at the Institute of Noetic Sciences examined approximately four years of casino data that was kindly provided by Bernice Jaeger of the Continental Hotel, Casino and Resort in Las Vegas, NV, USA., totaling approximately 49 cycles of lunar activity in all (21). All the data showed a specific rhythm or oscillation that always began at the first quarter moon and ended at the last quarter moon like clockwork. The authors of the study came to the conclusion that by gambling on or days close to the full moon, and avoiding gambling near the new moon, that over the long term one's chances of winning may increase approximately 2%. The author of this paper has surrounded the image with a red box. The following graph shows this cycle emitted by the moon on black jack winnings. The graph is courtesy of the study conducted by Dean Radin (20) titled Seeking PSI in the Casino. (where the number 1 represents the new moon and number 15 the full moon)



Black Jack winnings and lunar phase.

What was most interesting in this study is that out of all the games analyzed (*craps, roulette, keno and slots*), the game that showed the highest percentage of payouts over the 4 years was blackjack. Successful blackjack involves the ability to recall numerous items of information correctly and sometimes simultaneously, utilizing the numerous firings of neurons in the brain. The lowest payout over the 4 year period was slot machines.



Graph courtesy of Seeking PSI in the Casino. Dean Radin. Institute of Noetic Sciences. Dec 2014.

Keno involves using the mind to pick numbers in squares and the games craps, roulette and slots involves no mind activity, only pure random chance. The highest spectral peak of winning activity corresponded to a cycle lasting approximately 9 days.

A study by the University of Nevada at Reno found that betting on the home team one day before the full moon, during the last 4 weeks of the sporting season, showed a winning percentage of 63.75%. The most profitable strategy was betting on the home-underdog (*the team least likely to win*) on the day before the full moon with a winning percentage of 76.47% ⁽²¹⁾,

Remote Viewing

In the case of remote viewing, there should exist evidence that remote viewing would be more accurate during half moons. Remote viewing is starting to become accepted by mainstream science due to hundreds, if not thousands of tests and published papers verifying its authenticity and accuracy (22) (23).

Research from 25 remote viewing sessions ⁽²⁴⁾ seeking to view future stock price movements showed a significant correlation between the accuracy of remote viewing and lunar phase with more accuracy taking place during first quarter moons. What was most interesting was this accuracy was greatly increased during calmer geomagnetic activity and when earth's Schuman resonance was calm. The Schumann Resonance is a frequency that surrounds earth and is created by lightning ⁽²⁶⁾. Published studies ⁽²⁶⁾ have discovered this frequency overlaps the same brainwaves as that found in

brainwaves (alpha, beta gamma). and So we have two outstanding events that are interacting with this oscillating field. The spawning of marine animals and Casino winnings. Both of these events involve an organism's behavior wanting to win, survive and rapidly adapt or to make the most of its environment. I hypothesize that coral spawns at first quarter moons so that the young may become bathed in this oscillating field of energy which is influenced by its mother, acting as a form of biological intuition, intending that its offspring rapidly adapt to its environment to protect it from predators. This energy may also be giving the new offspring a boost in their intuition or enhancing the communication link between newborn and mother.

As stated previously, people are more likely to win at the casino when geomagnetic activity is calmer. I would like to point out that people born during solar maximum live 5.2 years less than people born during solar minimum. Reduced fertility is hypothesized to be the cause ⁽²⁶⁾. Higher solar activity is usually accompanied by above average geomagnetic activity ⁽²⁷⁾.

I hypothesize that newborns during solar maximum are not able to rapidly adapt to the above average geomagnetic field taking place in the environment. As a newborn encounters this field of energy, it experiences a sudden shockwave. Perhaps the reason the marine mollusk orients itself in regards to geomagnetic fields and lunar phase may be as an adaption mechanism (Kohmann & Willows, 1987). Mollusks can grow to live as long as 400 years or more ⁽²⁸⁾.

Retrocausality

Retrocausality, or backwards causation, is where an effect precedes its cause in time, in which a later event affects an earlier event. After 11 days in space RNA expression involved in human immune system functioning involving 85 genes became dysregulated. However 91% of differentially expressed genes had returned to normal within 6 months post-flight ⁽²⁹⁾.

Cosmic ray intensity is not as intense upon the earth's surface and may play a role in human evolution. For example, irradiation from cosmic-ray showers is believed to drive gene mutation in human DNA which is critical for evolution (30) (31) (32). Gene mutations that occurred during the earliest stages of life on earth allowed the opportunity of proto-life forms to adapt to their environment, ensuing their survival (30) (31) (32).

Both our DNA and showers of cosmic rays exhibit handedness. The spin and the linear motion of a subatomic particle is positive (*right-handed*) if its direction of spin is the same as the direction of motion. This becomes negative (*left-handed*) if its direction of spin and motion are opposite. To put this into perspective, think of a clock, with its spin vector defined by the rotation of the clock hands; exhibiting left-handed helicity if tossed with its clock face directed forwards.

This spin has the ability to change letters in an organisms' genetic codes. Early studies thought that only a single gene was responsible for handedness. However recent studies demonstrate that as many as 40 genes may be responsible for this effect ⁽³³⁾ ⁽³⁴⁾. Perhaps over the course of millions of years this spin is one of the primary factors responsible for human evolution.

Koret Fellow of the Kavli Institute for Particle Astrophysics and Cosmology (KIPAC). states the biological handedness we see occurring on Earth is the result of magnetically polarized radiation, where small, but consistent changes in the rate of mutation may be accelerating the evolution of DNA in living organisms (35) (36). Because cosmic ray fluxes on the moon have been observed to be consistent with those observed near our Earth (37) and water exists on the moon, (38) perhaps millions of years from now earth's moon will have an atmosphere that will support life. For example the moon Titan, which is next to the planet Saturn, has an atmosphere similar to that of our early Earth (39).

As hypothesized earlier, coral genes do their best to preserve their offspring by spawning during the first quarter moon. Could there be a form of genetic communication occurring through the unborn coral?, Do genes carry a unique signature that allows for a link of communication between two points in time?

Berkely Anthropologist Hank Wesselman recounts his story of being in contact with a future ancestor of his 5,000 years in the future (40) (41) (42) while he was living on the Big Island of Hawaii. In his memoir titled Spiritwalker, he states a particularly painful account where his future ancestor was badly mauled by a wild bull which almost killed him. It may have been this traumatic experience that acted as the catalyst for the communication link between both these genes separated by distant points in time. The geographical location may also have played a role. According to NOAA, the dormant volcano on the Big Island called Mauna Kea, is the tallest mountain on earth, measuring 33,500 feet (43).

Evidence to support the hypothesis that emotional trauma may be acting as the catalyst for genetic communication across space and time comes from the experience of Julia A Mossbridge, PHD of Northwestern University. In an interview by Gaia she stated that when she was a child she experienced a shadow of her 40 year old adult self visiting her from the future, while undergoing a traumatic experience. It was not until she was approximately forty years old and undergoing therapy to deal with the past trauma that she made the connection that it was her future self that was present with her in the room when she was a child (44).

A similar story was told when a mother experienced her yet to be born daughter visiting her. The mother at the time had been undergoing emotional trauma in her life at the time. After she left the traumatic relationship, her daughter was born ⁽⁴⁵⁾.

Who knows how many other accounts similar to these have happened, yet the person is afraid of reporting it due to being labeled as crazy or that the story would sound too good to be true. We have the brave professionals who were not afraid to share their experiences to show that this phenomena does indeed exist.

Because healthy neurocognitive functioning is the result of a stable mind, could this be one of the reasons psychiatric admissions to hospitals peak during first quarter moons because some people are more sensitive to the oscillating field effect that begins at the first quarter moon? ⁽⁴⁶⁾.

While at this point in time we do not have the technology to determine if DNA is indeed able to communicate across space time, this hypothesis may be proven valid in the future when such technology becomes available.

Backward causation and Retrocasuality

A number of published studies are now available that confirm that backward causation effects are indeed possible. Backward causation is when forces in the present have an ability to affect an event preceding the cause. Backward causation is also commonly called the retro-causal effect, retrocausality, supra-luminal signal transfer or reversed flow of time (48). Retrocausality may be responsible for the post-stimulus time delay effects taking place in conscious detection as has been shown by Libet, 1993. He hypothesized that these effects ought to be occurring through back-referral mechanisms (Libet, 1994, 1996; Hameroff, 1999). Quantum waves in future states have been shown to influence past states, as documented by Aharonov, 2010. Aharonov pioneered soft stimulation effects that used a method to prevent wave collapse using usual measurements. Numerous double split quantum interference experiments have been conducted by Wheeler (Meijer, 2015) Davies, 2014; Murphy 2011; Torday and Miller, 2016; Tabaczeck, 2015;

Campbell and Bickhard; Auletta et al, 2008; Hameroff, 2012; Sheehan, 2011; 2010 Wolf, 1989, and Shoup, 2011 (48) (49). Because many of these effects are occurring at the quantum level, their small size cannot rule out their influence on DNA and its method of information processing in biological organisms.

Henry Stapp at the University of California, Berkeley discovered a method to modify basic equations of quantum theory that allow people to mentally influence the past. Stapp says he was prompted by the work of Helmut Schmidt (50) (51) who performed retrocasuality experiments in San Antonio Texas.

Henry Stapp's experiments involved a radioactive decay counter that generated a sequence of negative and positive random numbers that no one was allowed to see (53) in order to avoid the collapse of the wave function due to the observer effect. A few months later the dual sets of numbers were displayed on an electronic display to students of the martial arts. These students were tasked with influencing the statistics of the previously stored data; to favor the output of positive numbers, all by using sustained concentration.

The results of the experiment revealed that the students were able to favorably influence the positive numbers. Stapp's experiment was built upon the premise that quantum theory was able to be modified, a theory proposed by Steven Weinberg at the University of Texas at Austin (53). Stapp came up with his own version of nonlinear quantum theory, which he says could be used to interpret and more fully understand the results of Helmut Schmidt's studies. Stapp claims that by introducing additional concepts of non-linearity, it would allow mental states to influence the outcome of quantum measurements.

Scientists still have doubts over what precisely occurs when a decaying radioactive atom (*a quantum system*) is measured or observed. Eugene Wigner proposed that consciousness is involved in the process ⁽⁵⁴⁾.

Quantum theory states that a radioactive atom is held in a superposition of states (neither materialized nor non observable), or a mixture of one state in which the atom has decayed and the other in which it did not decay. Wigner proposed that only when the decay has been seen by an observer that it becomes forced into one state or the other. In Helmut Schmidt's experiments, the radioactive decay counter generated random numbers, creating a superposition of states which each contained different sets of numbers. As long as no one had looked at those numbers (which would cause a collapse of the wave function), the superposition would hold for an indefinite period of time.

Regarding the study involving martial arts students just mentioned, if one assumes consciousness is crucial for collapsing the superposition of states onto one state, when a martial arts student saw a signal on the display, the combined system of brain activity and random numbers would have materialized the outcome into a new quantum state. In quantum theory according to Stapp, the way this materialization takes place depends on a term that involves the interaction of two objects meeting each other through the mere act of observation. This is the brain and the numbers. This would imply that objects have their own form of consciousness. Another theory is that the martial arts students had already subconsciously influenced the outcome of radioactive decay recorded months before the actual experiment began; signaling a retrocausation effect. Stapp theorizes that the energy levels taking place in the nucleus during this process may involve signaling that is faster than the speed of light, which would allow for retrocasuality effects, as observed in Helmut Schmidt's studies. It is interesting to point out here that the genes responsible for calcium signaling in some species of corals, is influenced by the lunar cycle.

This next research study occurred during the last few years towards solar maximum (during solar cycle 23). The

significance of this will be pointed out later in this paper. The study was published in the British Medical Journal (55) which even today perplexes many physicists, studied the effects of retrocasuality on previously recorded information. In July 2000, the data from 3,393 adults who had been previous patients at the Beth Israel Medical Center was used in a retrocasuality experiment (55). The test was to determine if remote retroactive intercessory prayer could affect the medical records of patients that had been discharged from the hospital for a number of years. The intention set was for the well-being and complete recovery of the participants. The lead researcher in the study, Leonard Leibovici, used patients that had been previously diagnosed with bloodstream infections, which is an infection some people get while in hospital.

The experiment took place on a prescribed date, years after the medical records had been stored away and forgotten about. The patients had been discharged from the hospital between 4 and 10 years. During the time the experiment was being performed, the patients had no knowledge about the experiment. Leonard's computer randomly assigned the groups into two populations, the group that experienced the remote retrocasual intention and the control group. The study used experienced healers who were told to pray for the patients. The healers were not told to send the energy into the past and were not told about the back in time intention experiment. They simply had a list of the discharged patients and were told to simply focus on these people getting better; enjoying good health.

The experiment was performed for two consecutive weeks. After the 2-week period was complete, Leonard than examined the discharge details of the previous patients. When he looked at the recovery data of the patients that received the therapeutic intentions, he discovered the data displayed radically different courses of recovery. The typical hospital assessment data showed that the length of using medications, incubation of fevers and length of stay in the hospital etc. was less than the untreated control group. If it were not for this study being published in a prestigious medical journal, one of the world's oldest medical journals whose research is peer-reviewed, it would seem to many people to be a fantastic claim.

Lunar Phases and Genetic Behavior

Spawning corals release trillions of gametes into the ocean. This release is governed by genes that are associated with circadian processes that are connected to biological clocks which change their diurnal cycles over the course of a lunar month. Most corals are an organism that have both male and female sex organs. At the right time, they release both eggs and sperm which floats to the surface and breaks, allowing for fertilization to occur (Wallace et al. 1986). A research study examined the reef building coral Acropora gemmifera over the period of a month and how its genes responded to lunar cycles ⁽⁵⁶⁾. This study will be covered in the following paragraphs. However it is first important to explore further the role of genetic clocks.

Genetic Light Signaling

Clock genes are the intracellular timekeeping system in living organisms that generates a 24-hour rhythm of activity. Some genes detect light. One such gene is the recoverin family protein (a protein found in photoreceptor cells of the eye). In coral, this regulates photoreceptor phosphorylation in a calcium-dependent manner (Klenchin et al. 1995) and it peaks during first quarter moons in some marine organisms (57). Corals use calcium as a messenger for light signal transduction (Hilton et al. 2012; Kaniewska et al. 2015) and calcium signaling is vital for gene transcription, neuronal transmission and fertilization. The data in the

study examining the coral Acropora gemmifera (55) indicated the transcription of a few of these genes peaked during the first quarter moon. Another is synaptotagmin, which mediates calcium-dependent binding to negatively charged membranes and regulates neurotransmitter release. Synaptotagmin also exhibits a profound change in activity during the first quarter moon (55).

The activity of Mucolipin, which is involved in the movement of biochemical signal molecules, peaks at the third quarter moon (55). The second class of genes that differed over a lunar cycle in the study (55) were the genes associated with protein secretion and modification. In the Drosophila fruit fly nocturnal activity and Clock protein levels have been shown to shift in response to the quarter moon lunar phase (Bachleitner et al. 2007). Hence, proteins associated with calcium signaling show changes over the course of each lunar cycle.

Studies confirm that magnetic flux and electromagnetic fields that are well below thermal limits and shaped with specific complex frequencies and patterns affect human physiology and single cells (Weaver & Astumain, 1990) and electromagnetic fields have been shown to alter the transport of calcium ions in cells (Cameron et al. 1985; Cameron et al. 1993; Zimmerman et al.1990).

The study ⁽⁵⁵⁾ continues on to state that 55 genes in coral exhibited diurnal patterns (*repeating every 24 hours*) which corresponded to specific lunar phases with P values of <0.05 and twenty-three of these genes were associated with biological clocks.

These clock genes included diurnal genes discovered in earlier studies (Brady et al. 2011; Bertucci et al. 2015; Hemond & Vollmer 2015; Kaniewska et al. 2015; Oren et al. 2015; Ruiz-Jones & Palumbi 2015). These genes were cryptochrome 1 and 2 (cry1 and cry2) and PAR-bzips (bzip), the hairy-related transcription factor helt and the clock-interacting circadian pacemaker (cipc). Other genes that responded to lunar changes were genes responsible for skeletogenesis and extracellular matrix/skeletogenic production. The genes responsible for signal transduction totaled 59 in all, with 20 of these genes being linked to calcium-based signal transduction activity.

Purpose	Gene	
Signal transduction mechanisms	59	
Protein turnover	24	
Amino acid transport and metabolism	11	
RNA processing and modification	7	
Defence mechanisms	6	
Carbohydrate transport and metabolism	4	
Replication, recombination and repair	3	
KOG analysis in response to genes that are influenced by lunar phases ⁽⁵⁵⁾		

The study goes on to state that genes that exhibited changes in diurnal patterns over the complete lunar cycle were, as stated previously, associated with biological clocks. The clock genes, bzip1 and cry1 exhibited changes in oscillation around midnight, having night-time peaks during the third and first quarter moons. I should point out here that at midnight during the first quarter moon, the moon is setting on the western horizon, and during the last quarter moon the moon is rising in the east at midnight. These positions may play a role in superluminal communication or retrocasual effects in DNA and will be discussed in detail later on.

The study ⁽⁵⁵⁾ goes on to state that the strongest genetic activity took place in gene bzip1, a gene that mediates gene expression and sugar signaling. A closely

related gene is tef1 which promotes the binding of RNA to ribosomes during protein biosynthesis (Vatine et al. 2009; Weger et al. 2011).

An intriguing class of genes exhibiting lunarassociated changes are genes that govern the division of cells. Cell division peaks during the night in mammalian cells (Halberg 1960; Johnson 2010) in order to repair UV induced errors in DNA replication. Studies on mice showed that the activation of mitosis during the night is governed by circadian clock genes regulating cyclin B/cdc2 (Matsuo et al. 2003). Multiple markers of cell division such as cyclin-dependent kinase (annotated as cdc28) and cyclin B) strongly peak during new moons (55). This suggests that lunar energy around this phase may regulate a molecular mitotic switch. In summary, the mechanism for circadian timekeeping in some biological organisms is influenced by lunar phases and involves signal transduction via calcium second messengers.

Simultaneous Time

The two experiences documented earlier the mother who experienced her yet to be born daughter and the woman who was visited by her future older self, both took place during times of emotionally charged experiences. If specific genes are playing a role in these experiences, it may somehow be linked to a phenomena known as simultaneous time, where two events in time become intertwined with one another. This has been extensively documented by therapist Delores Cannon. When her patients came to see her for therapy, at certain times Nostradamus would come through her patient and give her information. The information she received has been published in a number of books ⁽⁵⁸⁾.

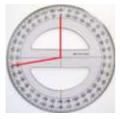
Simultaneous time may also explain the phenomena known as mondegreen, giving support to the theory that strong emotional events may intertwining with one another across space time.

A mondegreen is where a song that has been recorded suddenly sounds different a few months or years later after the master track has been mixed and finalized Examples include lyrics from Jimi Hendrix's song Purple Haze which was recorded on January 11, 1967, sounding like "excuse me while i kiss this guy". This was supposed to sound like "excuse me while I kiss the sky" or Bruce Springsteen's song Blinded by the Light which was recorded on September 11, 1972; having one of the lyrics sound like "wrapped up like a douche, another loner in the night". This was supposed to sound like "revved up like a deuce, another runner in On January 11th 1962 an avalanche of rocks and ice buried the remote village of Ranrahirca in the Andes, killing over 4,000 people and on September 11th, 2001 the Twin Towers in New York were attacked by terrorists. These are all events that involved highly charged emotional states. Could these strongly charged emotions taking place on these dates be somehow mixing with one another across time?

The number 260

It is interesting to note the significance of the number 260 and its relevance to timekeeping. Human DNA has an absorbance maximum at 260nm ⁽⁵⁹⁾ ⁽⁶⁰⁾. The Maya calendar, known as Tzolk in Yucatec Mayan, is made from a succession of 20 day glyphs in combination with the numbers 1 to 13 which produces a total of 260

unique days (20 x 13 = 260 days) (61). The international time standard we enjoy today is based upon averaging 260 atomic clocks (62) (63). The Benjamin Franklin Squares, invented by founding father Benjamin Franklin of the United States has each of its rows and



columns of the squares equal 260 with each row, or half of the column equaling half of 260 (64) (65). Benjamin Franklin also published Poor Richard's Almanac. On a protractor, 260 degrees is almost exactly 90 degrees. I will refer later on in this paper the significance of 90 degrees and its relationship to space time.

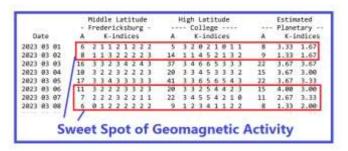
Examining Superliminal Theory

The theory that no physical object can travel faster than the speed of light holds valid for most of the scientific theory today due to Einstein's 1905 special relativity theory. Gauthier and colleagues (Stenner et al., 2003; see Seife, 2006) have been able to move information faster than the speed of light using optical pulse propagation. They proved that information arrived at a detector before being sent. However the information arrived distorted and was unreadable to some extent (66) (67) (68) (69).

Faster than light activity may be occurring in the human nervous system. Studies by Dean Radin and Edwin C. May had a participant look at a colored rectangle on a computer screen. The experiment involved the Stroop effect, which states reaction times are due to cognitive-perceptual interference as seen between pairs of colors and the names of colors. Hence a "time-reversed interference" phenomenon postulates that a positive correlation should exist between past and future states; occurring randomly. The authors of the study concluded evidence exists that time-reversal effects occur in the human nervous system ⁽⁷⁰⁾.

Because Neurotransmitters govern the nervous system and are the result of chemical reactions, it would make sense that retrocasual effects would be occurring in chemical reactions. This process was studied by Koichiro Matsuno at the Nagaoka University of Technology in Japan, who researched the chemical substance oxaloacetate ⁽⁷¹⁾.

Numerous studies have shown ESP and related psi improve as geomagnetic activity decreases (Gissurarson, 1992; Lewicki, Schaut & Persinger, 1987; Persinger, 1985; Persinger & Schaut, 1988; Spottiswoode, 1990; Radin, 1992, 1993; Wilkinson & Gauld, 1993). Regarding remote influencing action at a distance, such as PK, studies show the best results occur during the very first day of rising geomagnetic activity, usually the first increase after geomagnetic activity has been quiet for some time (e.g., Gearhart & Persinger, 1986). The author of this paper had found that by practicing acts of compassion and forgiveness, when the recipient was not available in person, when geomagnetic activity was rising, had positive effects, creating feelings of strong release and fulfillment. This was in strong contrast to times practicing these acts when geomagnetic activity was very calm. An example of the geomagnetic activity sweet spot is shown in the diagram below.



Data courtesy of NOAA Space Weather Prediction Center. Daily Geomagnetic Data

Exploring the possible mechanism

While there is no physical evidence that travel through time is actually possible, nature reveals clues where the flow of time may become more fluid. One can simply search for events that have occurred during these times. Timeslips are one example where people have suddenly experienced going from the present to a time in the past. A published paper by psychologist Carl Grove investigated a timeslip involving a house that would appear and reappear in Suffolk village of Rougham in England (72). The first report was by Robert Palfry, when during a sunset stroll in 1860 felt a sudden chill in the air at which time he saw a large red brick house appear (73). In his book Carl tells of another experience taking place years later of people who one day while walking came across the same large house. When they returned to the same location some time later, only small ponds of water were present at the same location. Further investigation by Carl revealed that at one time in the past the location had indeed been occupied by a large house.

On December 4, 1970 after 3 p.m., a brand new Beechcraft Bonanza A36 left Andros town Airport in the Bahamas headed for Miami airport. En-route to Miami pilot Bruce Gernon noticed a typical lenticular cloud formation directly ahead of his plane. After entering the cloud, calculations revealed Bruce's plane travelled 100 miles in a little more than three minutes. To cover that distance, his Beechcraft Bonanza A36 would have to have been travelling at over 2000 mph, when its top speed is only 200mph. Bruce is a respected pilot and has written a book documenting his experience. (74). When we take a look at the date of Bruce's timeslip experience on December 4, 1970, the moon was in its first quarter.

Almost exactly 10 years later on December 28th, 1980 the well documented encounter at Rendlesham Forest took place (75). This extraordinary encounter involved an unidentified flying object (or UAP) that was encountered by military personal near a military base in England that housed nuclear weapons. An investigation by science reporter Linda Moulton Howe (77), who has a degree in journalism from Stanford University and has received numerous awards, reported that the craft may have been a drone sent by time travelers from earth's future 6,120 years from the date of the original encounter.

The report submitted by Lieutenant Colonel Charles I. Halt to the Ministry of Defence regarding the incident was made publicly available in the United States under the U.S. Freedom of Information Act in 1983. A copy of Lieutenant Colonel Charles I. Halt's affidavit can be read online ⁽⁷⁶⁾.

When military officers Jim Penniston, John Burroughs, and Edward Cabansag examined the craft during their encounter they observed strange symbols. investigation further revealed that when Sergeant Penniston touched the symbols on the craft, his mind became filled with zeros and ones of binary code (77). Sergeant Penniston has recounted his experience in a book revealing all the facts about the investigation (78). It is speculated the binary code was used to communicate with the drone craft from the operators in the far future. Witness statements by the military officers who encountered the craft are also available for reading online ⁽⁷⁹⁾. We may have to wait approximately 6,120 years before we know the full facts of this story. The date this incident took place was when the moon was in its last quarter.

Time Moves in Curves

Physicist Dr. Ronald L. Mallett at the University of Connecticut states binary code is one way to send a message back in time (backward causation effects) (80). His method employs circular patterns of light which twist space and time. As this twist takes place, the resulting tightness creates a gravitational field with enough force to drag spinning neutrinos through time. Simply put, one pattern of light represents a one (1) another zero (0) representing binary code that can be translated into messages. In one of his published papers, Mallett states that with enough energy, circulating laser beams of light may produce both frame-dragging and closed time-like curves (CTC), allowing time travel into the past (81). Since Dr. Mallet's paper was published, neutrinos have since

been found to emit gravity waves (82).

Time appears linear to us because our intended direction of travel is usually from point A to point B. However the flow of time is subject to changes and starts to curve when in the presence of gravity. This is called "gravitational time dilation" and has been verified by multiple experiments. Gravitational time dilation occurs because objects with a lot of mass create a strong gravitational field (83). This is why time on the moon passes just a little bit faster than time on earth (84).

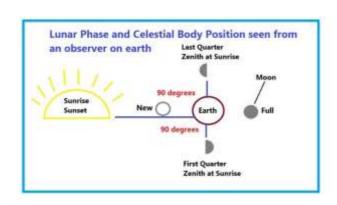
Using another example, when a large rotating orbiting body such as the moon is directly overhead, the linear direction of travel of a photon travelling in a straight line would become slightly curved. This would create a difference in the amount of time it would take for the photon to reach point B. Further studies should confirm or invalidate this hypothesis. Studies however do confirm that when the moon is directly overhead (*zenith*) objects on the ground do weigh slightly less (85) (86). Although this may not seem like much, it may be exhibiting profound effects at the quantum level.

The Emerald Tablets

Not much is known about these stone tablets. Some say they are from a secret society long gone. They appeared in a 1994 book written by Dr. Michael Doreal $^{(87)}$ and are reputed to be over 36,000 years old. The tablets contain numerous references to ancient scientific knowledge and spiritual wisdom. One of the more interesting tablets is Tablet #10 titled The Key of Time. One phrase mentioned in the tablet explains time is not linear, but that time moves in curves and spirals. The following quote is from the Key of Time Tablet $^{(89)}$ -

"Then sought I to solve the mystery of time. Found I that time moves through strange angles. Yet only by <u>curves</u> could I hope to attain the key that would give me access to the time-space. Found I that only by moving <u>upward</u> and <u>yet again by moving to rightward</u> could I be free from the time of the movement."

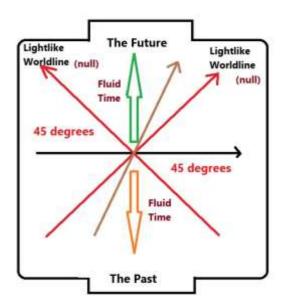
This is an obvious statement to 90 degrees, which is the position the sun and moon are in at sun rise and sunset during the first or last quarter moons as seen from the observer's point of view on earth During the last quarter moon, the moon is overhead (*zenith*) at sunrise. During sunset, the first quarter moon is exactly above us in the evening sky (*zenith*). As stated previously when the moon is exactly overhead, it distorts gravity in such a way that objects directly below it weigh less. This is because the mass of the large object directly above it creates a tugging or pulling effect. As stated previously a time slip incident occurred during the early evening.

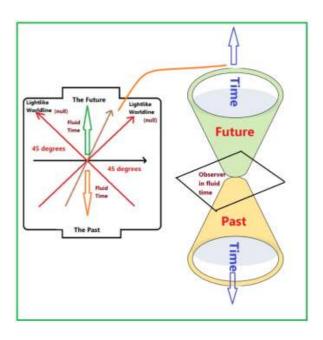


The Key to Time Emerald Tablet goes on to state:

Yet only by curves could I hope to attain the key that would give me access to the time-space

Any diagram that depicts space time shows that photons of light travel at 45 degrees relative to their time axis. For example Lineland Minkowski diagrams (*shown in the above illustration*) depict light rays travelling at 45 and 135-degree angles relative to the space axis ⁽⁸⁹⁾. The light eventually forms a two-dimensional cone of light, whose surface in space-time reaches given points in respect to its apex simultaneously. It is interesting to note here that when a half circle is folded in half, it creates a cone. These photons of light continue at 45 degrees in flat space time until they encounter the gravitational field of a large object.





Neutrinos and their Interaction with the Moon

Neutrinos are chargeless and weakly interact with matter. This allows them to travel vast cosmic distances and to travel through any medium unimpeded, much like a superconductor carries electricity over a large distance without losing a lot of power (90) (91). If one could encode a message into a neutrino, the message would travel like superconducting electricity, without any distortion or loss

An invention by Alexander Trominov and V.P Kaznacheev called the Kozyrev mirror is a device made with a reflecting mirror-like material that has been curled into a cylindrical spiral and used to focus different types of radiation (94). The device employs weights and beam balances to test the effects of gravity and the flow of time (94). The inventors discovered that the greatest effects on the changes of time would always occur in the material Tungsten. Tungsten is one of the hardest materials known to science, being three times stronger than steel. This allows it to attract neutrinos. Tungsten has been used as a material source for neutrino detection (95). A full report of the Kozyrev Mirror experiments has been made into a published paper and is available online (96).

When high energy cosmic rays encounter a hard solid medium such as ice, rock salt or the surface of the moon, electrons are attracted from the environment creating a shower disk which produces excessive electrons that appear and disappear $^{(9)}$. This phasing in and out effect creates detectable radio pulses in the frequency range from MHz to GHz; peaking in the GHz spectrum $^{(9)}$. Cosmic ray intensity on the moon peaks at ~ 10 km above its surface and ultra high energy neutrinos peak at 100 km above its surface $^{(9)}$.

Cherenkov radio emissions from the Moon

Cherenkov radiation is the result of numerous high energy particles consisting of neutrinos and cosmic rays. The cascades of particles caused by neutrinos and ultrahigh-energy cosmic rays impacting the moon's surface generate radiate Cherenkov radio emissions ⁽⁹⁾. These negative charges are known as the Askaryan effect ⁽⁹⁷⁾. Cherenkov particles have been theorized to travel faster than the speed of light ⁽¹⁰⁾.

A large scale joint collaborative research project involving the Department of Physics and Astronomy at UC Davis, the National Space Science Center, the Chinese Academy of Sciences in Beijing and the Astrophysical Institute in Brussels, Belgium published their findings in the January 2023 European Journal of Physics confirming Cherenkov radio emissions are indeed being emitted from the moon (91).

Intuition

Research at in2itivetech.com has stated from years of studying remote viewing, that neutrinos may act as the primary mechanism for conveying information through vast distances, including space-time. The location of these remote viewing sessions were conducted at a location where there was a large coral reef and numerous tropical fish. This is significant because as stated previously, certain marine animals spawn at first quarter moons. Neutrinos and Cosmic rays with energies of 1018 eV that impact the moon's surface, (the regolith) create a cascade of electrons and positrons that move close to the speed of light (92). These ultra high energetic particles that impinge at the moon's rim in the direction towards Earth have been found to emit detectable signals that exist at higher frequencies (92). However at lower frequencies, these impinging particles occurring anywhere in any direction upon the moon's surface also emit detectable signals. These ultra-high energies behave as messengers for energetic processes in our universe with, energies in excess of 1020 eV,

which is far more energy than can be produced by CERN today.

These ultra high energetic particles come from the Fermi acceleration reaction that states the energy increases through repeated interactions with shock waves ⁽⁹²⁾. The resulting radio pulses coming from the moon due to these reactions are so strong they can now be detected with sensitive radio telescopes on Earth.

Hadronic showers

Cosmic rays have a large interaction cross section, which when impacted with the moon's surface, allows for a conversion of their energy into a cascade of particles known as the hadronic shower, which takes place in the moon's uppermost layer (92). Ultra high energetic neutrinos that enter the moon's atmosphere traverse many kilometers throughout rocks before interacting. When they do, 20% of their energy is converted into a hadronic showers with the remaining energy being carried off by a single lepton. In both of these high energy states, the ultra high energy neutrinos emit coherent Cherenkov radiation (92). Due to the Compton scattering effect, excessive amounts of electrons are formed in the shower front and can be visualized as a vast moving cloud, with speeds close to the speed of light ⁽⁹²⁾. Using the Westerbork Synthesis Radio Telescope (WSRT) tuned to a frequency between 115 and 180 MHz these highest energies have been detected (92).

The effect of an orbiting Mass on Time

In order to look for clues in nature where the flow of time is more fluid, it is simply a matter of looking at the gravitational effects that objects on earth are subjected to. The two obvious choices are the sun and moon. Because the ability to prevent slips and falls involves unconscious reactions in the human nervous system, a person would be less likely to fall or injure themselves when nature is exhibiting more fluidity in space-time. To do this, one can search the literature for lunar phase and slipping injuries. A research study by Min Ah Yuh et al in Dec 2021 concluded that falling injuries occur less often during the first quarter moon (or half moon) (98).

As stated previously, when the moon is overhead objects directly below it weight slightly less. This slight reduction of weight may be enhancing the link of communication between nerve cells, allowing them to more throughly "sense the future".

While no studies have been done yet, there should exist a difference in how long a falling weight would hit the ground if dropped from a great height when the object was dropped when the moon was directly overhead (*zenith*) and when the moon was directly beneath the earth.

It is interesting to note that immune cells in the human body responsible for wound-healing use a similar processes to that of corals ⁽⁹⁹⁾ and sympathetic nerve cells of the body are responsible for healing wounds ⁽¹⁰⁰⁾. In immune system functioning, energy changes display a distinct circadian rhythm. The mitochondria of macrophages responsible for immune system functioning will split itself into two parts in order to generate energy. After a set time interval, it will reconnect with its former self. The timing of this activity is caused by changes in energy production resulting from the splitting and fusing of the mitochondria ⁽¹⁰¹⁾. Perhaps the process of wound healing involves retrocasual effects.

Future Studies

Therapeutic effects of Coral One study to examine the healing effects of coral would be to immerse patients in a salt water ocean that is surrounded by a coral reef. Studies have found that the

soft coral genus Sinularia demonstrates significant anticancer activity and also contains the neuroprotective chemical 11-dehydrosinularolide (102). This compound has been researched for its role in treating Parkinson's disease (102) and coral sand has been used to reduce blood pressure and improve gene expression regulating cardiovascular health (103).

Retrocasuality and academic records

The same protocols that were followed in the Beth Israel experiment (55) could be used to test the effects of retrocasualty on academic records that have not been "observed" for a number of years. An example would be students that had attendance issues etc.

Lunar Phase and Ability to Learn New Tasks

This study would be to review learning statistics or conduct a study to see if people learn faster or are able to recall more information during first quarter moons. This is due to the study referenced earlier showing GnRH, which is synthesized by the hypothalamus (177), is more active during first quarter moons. GnRH has been found in the scleractinian coral, Euphyllia ancora (104). The hypothalamus has been theorized to play a role in memory and learning (105).

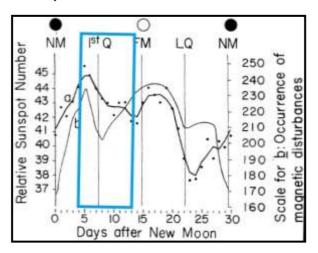
While no statistical studies have yet been documented, there should exist a correlation between certain sports and lunar phase, in which one's intention is more realized at specific lunar phases. For example, players of golf may be more inclined to hit holes in one during specific lunar phases. This same correlation may also exist for basketball players and similar sports

Discussion

During the lunar phase of full moon, the moon is behind the earth. When the moon is inside the magnetotail it is bathed in showers of highly charged particles, which gives its surface a strong negative charge. This may create a difference in charge accumulation at two different locations on the moon. For example, dust would have the tendency to move from the strongly-negative side of the moon that was covered by darkness to the less weakly-negative day side. The effects of this would be strongest at the dividing line between day and night. This region is called the moon's terminator and is the dividing line marking the edge between day and night or where the sun is setting or rising. It may be this excess charge that marine life is sensing during specific lunar phases. Electric charges are now used to build or save coral reefs (106) and lunar phases have been shown to affect the atmospheric electric field, peaking at the full moon, exhibiting a 5 to 9 day periodicity (107).

Geomagnetic activity may also play a major role, especially in humans. As stated in this paper lower geomagnetic activity has been associated with higher casino winnings ⁽²¹⁾ and that the pineal gland is affected by earth's geomagnetic activity ⁽¹³⁾. Sunspot activity creates geomagnetic storms on earth. The more sunspots there are the stronger the geomagnetic storm. These effects are compounded at solar maximum. As shown in this paper, statistics show a significant decline in geomagnetic activity on earth during the first quarter moon with extremely low activity taking place during the moon's last quarter. This means more cosmic rays

are interacting with earth and the moon during this lunar phase, which may help an organism to better adapt to its environment. Another time that more cosmic rays are showering the earth are when there are less sunspots.



Graph courtesy of Interaction of the Moon with the Earth's Magnetosphere. Otto Schneider. 1967.

People born during solar minimum live an average of 5.2 years longer than people born during solar maximum (108). I hypothesize that this is due to the same or similar field of energy that begins at the first quarter moon. Leading into solar maximum, geomagnetic storms are stronger than at solar minimum, which in turn creates above average geomagnetic activity on earth. This means that newly born animals and mammals born into this intense field of energy do not have time to properly adapt to their environment; to build defenses. This is in comparison to organisms born during solar minimum which find it easier to adapt and evolve due to a lower intensity of this field of energy. Support for this hypothesis comes from the fact that the marine mollusk orients itself in regards to geomagnetic fields and lunar cycles (Kohmann & Willows, 1987) and may be exhibiting this behavior as an adaption mechanism. This may be the reason Mollusks can live as long as 400 years or more (28).

The Sweet Spot of Geomagnetic Activity

Just as life in solar systems forms when planets are at the perfect distance from a sun, when geomagnetic activity is at a certain level it is beneficial for life. The main overall sweet spot takes place after a particularly large and suddenly unexpected geomagnetic storm that has just finished its cycle. This is often accompanied by declining sunspots and calmer solar wind speeds. (109) (110). This period is also usually accompanied by a more quiet Schuman Resonance. The effects of this sweet spot are experienced with more intensity during the Spring and Fall equinoxes. This sweet spot of activity just after above average solar activity has also been shown to be accompanied by a reduction in air pollution, as excessive sunspot activity has been found to cause more intense air pollution (111). Cleaner air is one of the primary fundamentals for an organism's ability to adapt.

Conclusion

Throughout history the moon has long been associated with emotions, especially the full moon. Certain charged emotional states may be producing retrocasual effects as a coping mechanism for an organism's survival. These or similar mechanisms may also exist in nature, operating at the quantum subatomic scale, exhibiting retrocasual effects. I propose that besides lunar light, a second mechanism exists that is responsible for the spawning of coral and other marine species and that is the effect of the moon as it passes earth's magnetotail, which begins approximately the first quarter moon and ends at the last quarter moon.

Because studies show that geomagnetic activity influences PSI, the earth's magnetic field interacting with the moon from first to last quarter may be one of the prime mechanisms for this field. As the first quarter moon is zenith at sunset with light from the sun coming in at a right angle creating a twin 90 degree of light, as the moon enters earth's magnetotail, perhaps the magnetic field is twisting these rays of light in such a way that it creates a minor ripple in time as proposed by Dr. Ronald L. Mallett of the University of Connecticut.

Certain individuals that carry specific genes related to enhanced intuition may be more inclined to experience an exchange of information between two points in time. It is a fact that many psychics have children that are also psychic, implying that a psychic gene may exist.

A research study published in May 2022 (112) involved high-functioning psychics to see if there was a difference in DNA between people who were psychic and people who had not developed their psychic gifts. The study involved a number of procedures, including tests of precognitive ability, remote viewing and another to test to determine psychic accuracy. The participants were also asked to complete three online tasks at www.GotPsi.org to further evaluate the accuracy of their psychic abilities. Results of the study revealed that the people with developed psychic ability, that the DNA adjacent to coding regions in exomes, which is the sequence of the exons in a genome that reflect the protein-coding portion of a genome, exhibited a variation. This variant was a modification from GG to GA and located in the intron region of the TNRC18 gene (Trinucleotide Repeat-Containing Gene 18 Protein) on chromosome 7 (rs117910193 position 5401412).

TNRC18 is found in the human brain with activity taking place in the isocortex (sensory perception), the olfactory bulb (sense of smell) and cerebellar cortex (information retrieval and signaling from parts of the body).

For future reference, participants who volunteer for retrocasuality studies should be screened for this specific type of gene to determine if retrocasuality influences exhibited by these participants during an experiment exhibit stronger effects, compared to a control group.

It is my hypothesis the reason animals presumed extinct make a reappearance is because animal reproductive cycles are possibly being influenced by lunar and solar activity, especially solar minimum and solar maximum. If cosmic rays are responsible for

Subwitted for the course of thousands and perhaps millions of years (30) (31) (32) and new offspring that occurs through reproduction contains new genetic traits compared to previous generations, than specific lunar phases must be playing a role in biological evolution. This effect may possibly be easiest to study in first generation marine species such as Prokaryotes, who were earth's earliest form of life which fed on carbon compounds in Earth's early oceans.

Retrocasual and retroactive processes observed in people who have had traumatic experiences may be occurring as a form of coping mechanism for severe trauma or stress. As past emotional trauma becomes neutralized through therapy, retrocasual effects begin to take effect which echo into the past, which complete the circuit of therapy. Because higher geomagnetic energy is thought to enhance the effects of PK (e.g., Gearhart & Persinger, 1986), the catalyst for genes exchanging information across two points in space and time may be related to earth's geomagnetic field and lunar phase. This may also involve specific magnetic signatures contained within magnetic fields present in earth's magnetotail. This exchange of information may be taking place at the quantum level as backward causation effects have been documented in numerous double split quantum interference experiments conducted by Wheeler (Meijer, 2015).

The craft encountered at Rendlesham Forest by military personnel was most likely partly organic with an advanced artificial intelligence operating system. The craft's time machine engineering system was likely made in the likeness of or similar genetic structure that allows for 2-way communication of genes across two points in space and time, possibly utilizing ultra high energy particles. This communication link between distant points in time may possibly be regulated by geomagnetic activity via specific genes. Because the effects of PK are stronger when geomagnetic activity is stronger (e.g., Gearhart & Persinger, 1986) geomagnetic activity may be responsible for the retrocasual effects witnessed by a patient (seeing or sensing a version of themselves from the future). Patients undergoing therapy for past trauma may find their therapy more effective during solar maximum because geomagnetic activity is stronger on average during this period, allowing the affects of therapy to echo into the past,

creating a more profound and lasting healing application. The opposite is also true, some patients may have experienced a shadow form of their future self more often during solar minimum.

In final closing, as a person ages, the biochemical process that drives retrocasuality at the quantum level begins breaking down leading to less effective retrocasual effects taking place at the quantum level necessary to sustain healthy DNA. Evidence to further support my hypothesis that DNA is acting as an antenna is shown in the paper by Marco Ruggiero and Stefania Pacini (113), who state that quantum entanglement is taking place between electron clouds in DNA which allows DNA to retain and transmit information. They describe that DNA functions as a fractal antenna using electromagnetic waves and quantum processes and that early hunter gatherers who consumed foods containing probiotics / chondroitin sulfate, which are synergistic (114) may have enhanced quantum effects at the microbe level, leading to evolution of the human brain and consciousness. They further describe that this process creates relativistic time dilation effects in DNA and how this process can lead to new approaches in disease prevention and cure.

Authors' information

Scott Rauvers is an author and researcher of space weather. He was the first to publish his findings that solar weather affects human health and biological processes in his 2012 book, Solar Flares and its Effects on Behavior and Human Health (ISBN-13: 978-1478216018). Scott spent 10 years researching Tablet Number 13. The Keys of Life and Death by Thoth the Atlantean. He has published his findings in the book titled: Deciphering Tablet Number XIII The Keys of Life and Death by Thoth the Atlantean (ISBN 9781478256724). Scott also pioneered 25 remote viewing studies of future stock prices of whose results are publically available at www.in2itivetech.com and is the author of 4 books on Remote Viewing.

Consent for publication

All authors approved the manuscript and this submission.

Competing interests

The authors declare that they have no competing interests.

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