

Title - ***NEW PHYSICS SUGGESTS DARWIN'S ORIGIN OF SPECIES IS INCOMPLETE, AND THAT GODLIKE HUMANITY WILL EMERGE***

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Abstract –

The basic outline for a different perspective on the Theory of Evolution has been described in this article. It includes many elements that the average person might call nonsense, fantasy or science fiction. I don't want this hypothesis to be tossed in the nearest rubbish bin, so I'll explain each element in Part 2 which proposes that the origin of life, and its evolutionary adaptations, cannot be comprehended through biology alone. Comprehension also requires physics.

When contemplating the theory of evolution, people almost universally start with an error. They assume evolution belongs exclusively to the biological sciences. Upon reading the previous sentence, some people will compound that error by assuming evolution will not be addressed in terms of science by this article – but perhaps in terms of religion. To quote from the webpage offering the "\$25,000 Cosmology Prize in Evolutionary Theory" (<http://cosmology.com/>),

"Darwin evokes or praises and makes reference to the powers of "God" and the "Creator" eleven times in his famous book and repeatedly attributes natural selection to a living "spirit" and to benevolent quasi-supernatural "powers" which keep watch over the works of the "Creator," and which actively strives for the "good" and fights against the "bad;" and this may come as a surprise to those who never read his book, but it is not surprising given that Darwin trained to be a minister of religion."

This article consists of 3 parts - NON-DARWINIAN ORIGINS OUTLINED, CONVERTING FANTASY AND SCIENCE FICTION INTO COSMOLOGY AND SCIENCE, and SPECULATIONS CONCERNING FUTURE HUMAN EVOLUTION (the speculation is backed up with science and references).

Content -

PART 1

NON-DARWINIAN ORIGINS OUTLINED

The basic outline for a different perspective on the Theory of Evolution has been described below. It includes many elements that the average person might call

nonsense, fantasy or science fiction. I don't want this hypothesis to be tossed in the nearest rubbish bin, so I'll explain each element in Part 2 which proposes that the origin of life, and its evolutionary adaptations, cannot be comprehended through biology alone. Comprehension also requires physics.

When contemplating the theory of evolution, people almost universally start with an error. They assume evolution belongs exclusively to the biological sciences. Upon reading the previous sentence, some people will compound that error by assuming evolution will not be addressed in terms of science by this article – but perhaps in terms of religion. To quote from the webpage offering the "\$25,000 Cosmology Prize in Evolutionary Theory" (<http://cosmology.com/>),

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There is, in fact, scientific support for God the Creator. God's existence cannot possibly be scientifically comprehended in the current non-unified understanding of the cosmos. Thus, many scientists need to invoke the existence of an unlimited number of parallel universes having limitless combinations of the laws of physics (so one of those universes would produce all the correct laws that enable beings such as ourselves to exist). A non-supernatural God is proposed via the inverse-square law's infinite aspect coupled with eternal quantum entanglement, but Einstein taught us that time is warped. Warped time is nonlinear, making it at least possible that the binary digits composing space-time and all particles originate from the computer science of humans. Binary digits (BITS) only suggest existence of the divine if time is linear. The inverse-square law states that the force between two particles becomes infinite if the distance of separation between them goes to zero. Remembering that gravitation partly depends on the distance between the centres of objects, the distance of separation between objects only goes to zero when those centres occupy the same space-time coordinates (not merely when the objects' sides are touching). That is, infinity equals the total elimination of distance – the infinite cosmos could possess this absence of distance in space and time via the electronic mechanism of binary digits, which would make the universe as malleable and flexible as any image on a computer screen. Zero separation is the case in quantum-entangled space-time and physicist Michio Kaku says in his book "Physics of the Impossible" that modern science thinks the whole universe has been quantum-entangled forever. This means there's still room for the infinity known as God. God would be a suprapantheistic union of the universe's spatial, temporal, hyperspatial, material and conscious parts; forming a union with humans in a cosmic unification, and forming a universal intelligence.

There is much in that paragraph which demands further explanation, and those explanations will be supplied as this article progresses. It does, however, suggest where the true nature of evolution lies – by speaking of “the current non-unified understanding of the cosmos”. At this point, Albert Einstein’s Unified Field Theory must be briefly addressed –

In the 19th century, Scottish mathematician and physicist James Clerk Maxwell unified electricity and magnetism into electromagnetism. Albert Einstein's equations say that in a universe possessing only gravitation and electromagnetism, the gravitational fields carry enough information about electromagnetism to allow the equations of Maxwell to be restated in terms of these gravitational fields. This was discovered by the mathematical physicist George Yuri Rainich (1886 -1968). England’s Professor Penrose has argued that the gravitational fields, if known everywhere but only for a limited time, do not contain enough information about their electromagnetism to allow the future to be determined, so Einstein's unified theory fails.

Suppose Albert Einstein was correct when he said gravitation plays a role in the constitution of elementary particles (in “Do Gravitational Fields Play An Essential Part In The Structure Of The Elementary Particles Of Matter?”, a 1919 submission to the Prussian Academy of Sciences). And suppose he was also correct when he said gravitation is the warping of space-time. Then it is logical that 1) gravitation would play a role not only in elementary particles and their masses but also in the constitution of the forces associated with those particles i.e. the nuclear strong force and the electroweak force (combination of electromagnetism and the weak nuclear force), and 2) the warping of space-time that produces gravity means space-time itself plays a role in the constitution of elementary particles, their masses, and in the forces. Therefore, time is unified with the gravitational and electromagnetic fields (overcoming the 50-year-old objection to Einstein's Unified Field Theory which was put forth by Penrose).

It's tempting to dismiss these references to the physical sciences, and to believe that the story of life must be one of biology and nothing else. Or we might expand our view slightly and prefer a perspective that embraces biology and outer space (not just Earth). Then it would be concluded that life originated on other planets, came to Earth in meteors and comets, and evolved into the living world we see. But that's no conclusion at all. Ultimately, the mystery of how life began on those other worlds remains.

Returning to a theory of the origin and evolution of life which is based in physics (but also includes biology):

1) Science's own Law of Conservation says the total mass (or matter) and energy in the universe does not change, though the quantity of each varies (I interpret this Law as saying – to get matter and energy, you have to start with

matter and energy), and

2) By actual experimentation the great 19th-century French scientist Louis Pasteur disproved the false theory of spontaneous generation of life, and proved biogenesis (that living things descend only from living things) – see “The Microbial World – A Look At All Things Small”

http://www.microbiologytext.com/index.php?module=Book&func=displayarticle&art_id=27

and “ Biogenesis and Abiogenesis: Critiques and Addresses”

<http://aleph0.clarku.edu/huxley/CE8/B-Ab.html>

In relation to biogenesis, consider the Miller-Urey Experiment of 1952. Here, amino acids (which are relatively simple, and are the building blocks of protein) were made from inorganic material and by natural causes in a lab. Subtract Stanley Miller and Harold Urey from the experiment, and the experiment would obviously fail (because it would never have been started). Similarly, subtracting humans of the distant future from the origins of life makes it impossible for amino acids and inorganic materials to be bioengineered to form complex plants and animals, whose adaptations are often called evolution. The future humans could use time travel to the distant past, terraforming (creation of Earthlike planets) and bioengineering that can hardly be imagined at present. This life could spread to other planets etc. in space –

These colonies throughout space and time would be composed of what we'd call aliens or extraterrestrials. I may be wrong but I think they'd be our descendants (our descendants could only exist before us if time is not exclusively linear). I've heard it said that angels rejoiced at the creation of the Earth. I don't think this necessarily has a religious meaning. I suspect it indicates an unconscious belief in every mind, ancient or modern, that Earth really is important ... that we're not just an insignificant rock orbiting an average star. Maybe life on Earth is the starting point for development of the magnificent Universe that awaits us... and for extraterrestrial life that descends from us, wherever and whenever it may be found. They might be separated from Earth of the early 21st century by billions of light years and could also be billions of years in either our past or future.

PART 2

CONVERTING FANTASY AND SCIENCE FICTION INTO COSMOLOGY AND SCIENCE

I think the Roman philosopher Lucretius was correct 2,000 years ago when he said, "nothing can be created from nothing". The idea of quantum fluctuations - which are proposed in order to create the universe from nothing - is valid (a quantum fluctuation is the temporary change in the amount of energy at a point in

[2] Suppose Albert Einstein was correct when he said gravitation plays a role in the constitution of elementary particles (in "Do Gravitational Fields Play An Essential Part In The Structure Of The Elementary Particles Of Matter?", a 1919 submission to the Prussian Academy of Sciences). And suppose he was also correct when he said gravitation is the warping of space-time. Then it is logical that a) gravitation would play a role not only in elementary particles and their masses but also in the constitution of the forces associated with those particles i.e. the nuclear strong force and the electroweak force (combination of electromagnetism and the weak nuclear force), and b) the warping of space-time that produces gravity means space-time itself plays a role in the constitution of elementary particles, their masses, and in the forces. Therefore, time is unified with the gravitational and electromagnetic fields (overcoming the 50-year-old objection to Einstein's Unified Field Theory which was put forth by England's Professor Penrose viz. the gravitational fields, if known everywhere but only for a limited time, do not contain enough information about their electromagnetism to allow the future to be determined, so Einstein's unified theory fails. If time is unified with the gravitational and electromagnetic fields, the gravitational fields are not known for only a limited time but do contain enough information and Einstein succeeded, just as John Wheeler and Charles Misner claimed in the journal "Annals of Physics" in 1957).

Einstein's paper will be regarded as erroneous and useless speculation, some kind of misunderstanding, nothing of interest, and not really useful as long as the Standard Model of interactions between particles and forces dominates scientific thinking. I'll merely say that if I was placing a bet, my money would be on the Standard Model going extinct one day and Einstein then being given credit for a deeper understanding of the relation between mass and gravity.

If space-time forms mass, there could be "currents" of space-time flowing in the "oceans" between the galaxies. Space-time (warped into gravity) would form the matter in the galaxies, and it would form the Earth/objects on this planet. How? By some of the currents of space-time or gravity which pass the solar system's outer boundary being diverted towards the massive Sun's centre and, along their course, being concentrated 10^{24} times (this number's explained later) in the intense warping we call matter.

We must not violate any conservation laws in creation of the universe i.e. neither matter nor energy can ever be created or destroyed, and changes must add up to zero. So what is the component of the universe possessing negative energy? (When this is added to the positive energy of gravitation/matter, the result is zero.)

Maybe hidden variables called binary digits (binary digits would be the hidden variables which Einstein said carry extra information about the world of quantum mechanics ... and complete it, eliminating probabilities and bringing about exact predictions) could permit time travel into the future by warping positive space-

time. And maybe they'd allow time travel into the past by warping a 5D hyperspace that is translated 180 degrees to space-time, and could be labelled as negative* or inverted. This means it would have negative energy, negative mass, negative distances and negative time – these things are impossible and meaningless in the universe we know, but are definitely possible and full of meaning in a universe based on mathematics. (The space-time we live in is described by ordinary [or “real”] numbers which, when multiplied by themselves, result in positive numbers e.g. $2 \times 2 = 4$, and -2×-2 also equals 4. Inverted “positive” space-time becomes negative hyperspace which is described by so-called imaginary numbers that give negative results when multiplied by themselves e.g. i multiplied by itself gives -1 .) The past can never be changed from what occurred, and the future can never be altered from what it will be. Both are programmed by the 1's and 0's. The programming is not imposed dictatorially by some external influence, but is developed by time-travelling, terraforming humans of the future who use ultra-advanced (by 21st-century standards) bioengineering, and act in partnership with universal intelligence - see 2 and 3 paragraphs ahead (this partnership is where the laws of physics which govern the universe come from). **Time-travelling, terraforming, and bioengineering humans from the future certainly sounds like science fiction. But these concepts can be supported scientifically, and thus offer a way out of the dilemma phrased by Alexander Vilenkin - Professor of Physics and Director of the Institute of Cosmology at Tufts University, Boston, U.S.A. – “We don't even know how to approach it (the origin of the laws of physics)”.**

* On p.205 of "Physics of the Impossible" by Michio Kaku – Penguin Books 2008, it is stated “Traditionally, physicists have dismissed negative energy and negative mass as science fiction. But we now see that they are indispensable for faster-than-light travel, and they might actually exist.” (In 1957, Hermann Bondi suggested in a paper in “Reviews of Modern Physics” that mass might be negative as well as positive.) That page in “Physics of the Impossible” also says, “(Negative matter) would be repelled, not attracted, by large bodies such as stars and planets. Hence, although negative matter might exist, we expect to find it only in deep space, certainly not on Earth.” As we saw a couple of paragraphs ago, we must not violate any conservation laws in creation of the universe i.e. neither matter nor energy can ever be created or destroyed, and changes must add up to zero. What if changes add up to zero in each body? In regard to mass with positive energy - positive charge could be added to negative charge e.g. mixing protons and electrons, or matter can be added to antimatter (which is identical but has reversed electric charge – to avoid mutual annihilation, keep the particles and antiparticles separate!) But whichever method is used, the positive energy-mass must equal zero by combining with the negative energy-mass of hyperspace. This article proposes that the universe must obey the rules of fractal geometry so particles (including those on Earth) would contain both positive space-time and negative hyperspace (which exist on both astronomical and quantum scales). There would be no repulsion which, according to Prof. Kaku, occurs between matter and negative matter. Matter-**negative** matter repulsion follows from the idea of gravitational pull causing attraction between matter and

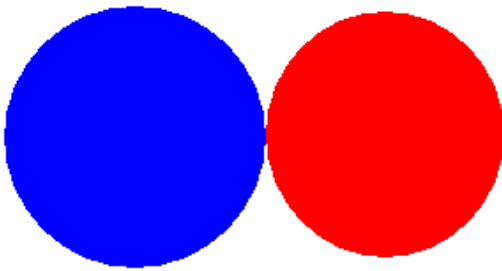
positive matter. But Einstein showed that attraction of two bodies of matter actually results from space-time's curvature pushing bodies together – the reverse of what is normally accepted (a push instead of a pull). So interaction of matter-negative matter could be the reverse of expectations – they could attract and, consistent with fractal geometry, positive space-time with its positive gravity/mass and negative hyperspace with its negative mass could cause particles (including those on Earth) to contain both space-time and hyperspace. Naturally, these positive and negative entities cannot be in direct contact or they would, in the words of physicist and aerospace engineer Robert Forward (1932-2002) as reported by Wikipedia's article "Negative mass", "cancel-out" or "nullify" each other's existence.

So hyperspace can exist. But is there a plausible means of entering it?

LOCALIZED UNIFIED FIELD

Instantly travelling to a planet 700 light years away and instantaneously arriving at a spot in the future which a light beam could only reach by travelling for 7 centuries can be likened to a wave which spreads out from the point of departure. This is because of quantum mechanics' wave-particle duality which can view the spaceship not as a collection of particles but as a wave, or collection of waves.

shape of waves when viewed from the centres
where they begin spreading out is
CONVEX

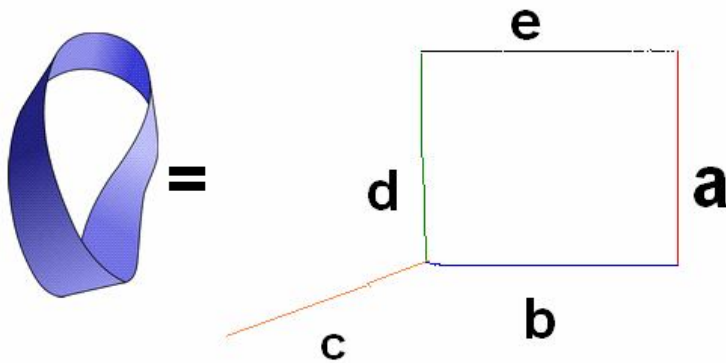


shape of waves when viewed from the planet
where they collide is
CONCAVE

At the destination, the convex shape of the spreading wave arrives instantly (meaning the ship and planet are quantum entangled). This situation is equivalent to space being translated (shifted) by 90 degrees so that the ship is perpendicular to length, width and height simultaneously. What if the spaceship is simultaneously quantum entangled with another wave arriving

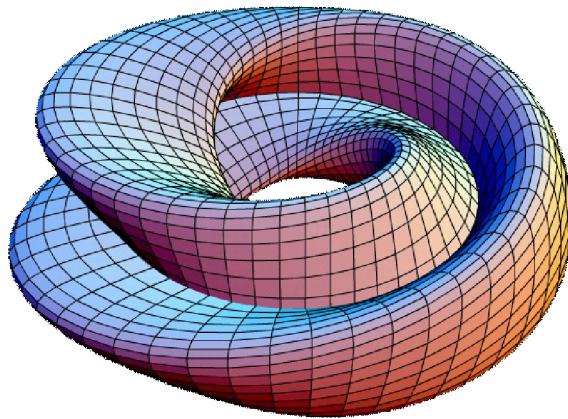
at the planet from the other side of the universe? Since the waves are entangled and unified, their motions are instant and this situation is equivalent to space being translated by 180 degrees. It's inverted and becomes 5th-dimensional hyperspace.

THE MATRIX AND THE FIGURE-8 KLEIN BOTTLE



Width a is perpendicular to the length (b or e) which is perpendicular to height c . How can a line be drawn perpendicular to c without retracing b 's path? By positioning it at d , which is then parallel to (or, it could be said, at 180 degrees to) a . d (the spaceship) is already at 90 degrees to length b and height c . To be at right angles to length, width and height simultaneously; it has to also be perpendicular to (not parallel to) a . This is accomplished by a twist, like on the right side of the Möbius loop pictured above, existing in a . Then part of a is indeed at 180 degrees to d , but part of a is at 90 degrees to d . This situation requires a little flexibility or "fuzziness" which allows the numbers to deviate slightly from their precise values of 90 and 180. The fuzziness is represented in nature by past, present, future, space, time, and hyperspace existing everywhere rather than being confined to particular locations. Thus, $90+90$ (the degrees between b & c added to the degrees between c & d) can equal 180, making a & d parallel. But $90+90$ can also equal 90, making a & d perpendicular. (Saying $90+90=90$ sounds ridiculous but it has similarities to the Matrix [of mathematics, not the action-science fiction movie] which is an array of numbers placed in rows and columns. It was worked out in the mid-nineteenth century by British mathematician Arthur Cayley, matrix mechanics is a version of quantum mechanics discovered by Werner Heisenberg in 1925, and matrices say X multiplied by Y does not always equal Y times X . In this paragraph, the first 90 plus the second 90 does not always equal the second 90 plus the first 90 because $90+90$ can equal either 180 or 90.) If the infinite universe is composed of subuniverses

shaped like figure-8 Klein bottles (diagram at end of paragraph - 2 Mobius loops are joined on their sides to form Bottle), in each subuniverse there would be 2 perpendicularities to the twist (one lot of $90+90$, then another $90+90$). $180+180$ could equal 360 – represented in physics as a subuniverse, a galaxy, or one of the spherical waves above producing quantum entanglement and translating space by 90 degrees. $180+180$ could also equal 180 – represented in physics by both of the above spherical waves interacting to produce inversion (translation by 180 degrees) of space which permits the spaceship to enter hyperspace. Since a fuzzily spherical figure-8 Klein bottle is necessary to form $(90+90) + (90+90)$, any spherical or fuzzily spherical thing in this fractal universe (subuniverse, galaxy, black hole, asteroid, subatomic particle, or anything made of either fermions or bosons) would be an example of altered or warped space-time and must include hyperspace in its composition.



With a single extra dimension of astronomical size, gravity is expected to cause the solar system to collapse (“The hierarchy problem and new dimensions at a millimetre” by N. Arkani-Hamed, S. Dimopoulos, G. Dvali - Physics Letters B - Volume 429, Issues 3–4, 18 June 1998, Pages 263–272, and “Gravity in large extra dimensions” by U.S. Department of Energy - <http://www.eurekalert.org/features/doe/2001-10/dbnl-gil053102.php> However, collapse never occurs if gravity accounts for repulsion as well as attraction on both subatomic and astronomical scales (accounts for dark energy * and familiar concepts of gravity, as well as repelling aspects of the electroweak force [such as placing two like magnetic poles together] and attracting electroweak/strong force aspects). “Electroweak” and “strong” force can be united in that sentence because gravitation and space-time are united with both the (electro)weak and strong nuclear forces (see “Explanations ensuing...”)

* See comments referring to a webpage by Dr. Adam Riess, under the heading “Poincare + Cosmic Strings, Wormholes And Hologram”

~~~~~ end of [1] ~~~~~

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amino acids (which are relatively simple, and are the building blocks of protein) were made from inorganic material and by natural causes in a lab. Subtract Stanley Miller and Harold Urey from the experiment, and the experiment would obviously fail (because it would never have been started). Similarly, subtracting humans of the distant future from the origins of life makes it impossible for amino acids and inorganic materials to be bioengineered to form complex plants and animals, whose adaptations are often called evolution. The future humans could use terraforming (creation of Earthlike planets) and bioengineering that can hardly be imagined at present.

This seems to validate atheism, but I say God must exist. God's existence cannot possibly be scientifically comprehended in the current non-unified understanding of the cosmos. Thus, many scientists need to invoke the existence of an unlimited number of parallel universes having limitless combinations of the laws of physics (so one of those universes would produce all the correct laws that enable beings such as ourselves to exist). A non-supernatural God is proposed via the inverse-square law's infinite aspect coupled with eternal quantum entanglement, but Einstein taught us that time is warped. Warped time is nonlinear, making it at least possible that the binary digits composing space-time and all particles originate from the computer science of humans. Binary digits (BITS) only suggest existence of the divine if time is linear. The inverse-square law states that the force between two particles becomes infinite if the distance of separation between them goes to zero. Remembering that gravitation partly depends on the distance between the centres of objects, the distance of separation between objects only goes to zero when those centres occupy the same space-time coordinates (not merely when the objects' sides are touching). That is, infinity equals the total elimination of distance – the infinite cosmos could possess this absence of distance in space and time via the electronic mechanism of binary digits, which would make the universe as malleable and flexible as any image on a computer screen. Zero separation is the case in quantum-entangled space-time and physicist Michio Kaku says in his book "Physics of the Impossible" that modern science thinks the whole universe has been quantum-entangled forever. This means there's still room for the infinity known as God. God would be a suprapantheistic union of the universe's spatial, temporal, hyperspatial, material and conscious parts; forming a union with humans in a cosmic unification, and forming a universal intelligence.

## **SOME COSMOLOGICAL EXPLANATIONS ENSUING FROM THE ABOVE PROPOSITIONS**

### **“Digital” String Theory**

Let's borrow a few ideas from string theory's ideas of everything being ultimately composed of tiny, one-dimensional strings that vibrate as clockwise, standing, and counterclockwise currents in a four-dimensional looped superstring (“Workings of the

Universe” by Time-Life Books – 1991, p.84). We can visualize tiny, one dimensional binary digits of 1 and 0 (base 2 mathematics) forming currents in a two-dimensional program called a Mobius loop – or in 2 Mobius loops, clockwise currents in one loop combining with counterclockwise currents in the other to form a standing current. Combination of the 2 loops’ currents requires connection of the two as a four-dimensional Klein bottle. This connection can be made with the infinitely-long irrational and transcendental numbers. Such an infinite connection\* translates - via bosons being ultimately composed of the binary digits of 1 and 0 depicting pi, e,  $\sqrt{2}$  etc.; and fermions being given mass by bosons interacting in matter particles’ “wave packets” – into an infinite number of (possibly Figure-8) Klein bottles [3]. Slight imperfections in the way the Mobius loops fit together determine the precise nature of the binary-digit currents (the producers of space-time-hyperspace, gravitational waves, electromagnetic waves, the nuclear strong force and the nuclear weak force) and thus of exact mass, charge, quantum spin. They would also produce black holes - whose binary digits could, in the case of the sun, come from our star being compressed to 2.95 kms, in which case the pressure increase “shreds” the sun into its binary digits (its mass is relativistically converted into the energy of binary digits). Referring to a Bose-Einstein condensate, the slightest change in the binary-digit flow (Mobius loop orientation) would alter the way gravitation and electromagnetism interact, and the BEC could become a gas (experiments confirm that it does).

\* If the material and immaterial universe consists of an infinite connection of transcendentals and irrationals, renormalization might be unnecessary in certain circumstances. This mathematical procedure is regarded as prerequisite for a useful theory and is used in attempts to unite general relativity with quantum mechanics to produce Quantum Gravity and the Theory of Everything. Renormalization seeks to cancel infinities – but in a literally infinite universe, retaining the infinite values might point the way to deeper understanding of the cosmos.

### **Poincare + Cosmic Strings, Wormholes and Hologram**

[3] Discovery.com (March 18, 2010) says: "The universe is not only expanding -- it's being swept along in the direction of constellations Centaurus and Hydra at a steady clip of one million miles per hour, pulled, perhaps, by the gravity of another universe." (this is called “the dark flow”) Could this be describing evidence of an idea suggested by mathematics’ “Poincare conjecture”, which has implications for the universe’s shape and says you cannot transform a doughnut shape into a sphere without ripping it. This can be viewed as subuniverses [4] shaped like Figure-8 Klein Bottles (similar to doughnuts) gaining rips called wormholes when extended into the spherical spacetime that goes on forever (forming one infinite superuniverse). Picture spacetime existing on the surface of this doughnut [5] which has rips in it. These rips loop from, and back to, space-time; providing shortcuts between points in space and time – and belong in a 5<sup>th</sup>-dimensional hyperspace. A journey along these loops might, at first, appear to take longer – but remember, that trip doesn’t take place in space or time.

Is the boundary where subuniverses meet could be called a Cosmic String?

Analogous to cracks that form when water freezes into ice, cosmic strings were first contemplated by the theoretical physicist Tom Kibble in the 1970s. They are “cracks” in spacetime formed as subuniverses cool from their respective Big Bangs, are extremely thin (the diameter of a proton, or smaller), and have immense density ( $10^{19}$  kg/cm, according to Penguin Encyclopedia, Edited by David Crystal – Penguin Reference Library 2006). This density would vary between any two subuniverses since it depends on the mass and energy content of the boundary regions of the two subuniverses added together, as well as movement of their boundary (the cosmic string) caused by expansion of the subuniverses – because the relativistic motion of a boundary converts a lot of energy and mass.

[5] British quantum physicist David Bohm (1917-1992) said “Our brains mathematically construct objective reality by interpreting frequencies that are ultimately projections from another dimension, a deeper order of existence that is beyond both space and time.” (<http://www.spaceandmotion.com/Physics-David-Bohm-Holographic-Universe.htm>) In “The Hidden Reality” - Knopf (January 25, 2011), Brian Greene writes “... reality ... may take place on a distant boundary surface, while everything we witness in the three common spatial dimensions is a projection of that faraway unfolding. Reality, that is, may be akin to a hologram. Or, really, a holographic movie.” Brian Greene’s “...projection of that faraway ... reality that is ... akin to a holographic movie” and David Bohm’s “...projections from another dimension ... that is beyond both space and time” could be interpreted as projections of binary digits from a 5<sup>th</sup>-dimensional hyperspace which become matter, energy, force and space-time in the known 4 dimensions. How could “space-time itself play a role in the constitution of elementary particles, their mass, and the nuclear forces”? Because gravitation and electromagnetism interact to form particles (see “ $c^2$  and the Atomic Nucleus”) and gravitation is the warping of space-time while electromagnetism is not separate from space-time but is waves in it.[6]

[6] **The universe is often compared to an expanding rubber balloon. In my opinion, a better metaphor would be to compare the universe to a rubber balloon that is 100% embedded with built-in rubber springs i.e. our universe would be a springy rubber balloon. If we just think of an expanding rubber balloon, that could be compared to space-time’s expansion within a subuniverse and the balloon’s curvature could represent gravitation, the warping of space-time. If we think of a springy rubber balloon, the springs could represent the waves that are part of space-time and are identified as electromagnetic.** The size of a spring represents the speed of light (approximately 299,792 kilometres [186,282 miles] per second) (frames are created in the 5th dimension by binary digits and their very rapid display is what we call motion). When space expands (when the balloon stretches), the springs aligned in the direction of expansion - all springs/waves, since expansion is in every direction – expand or stretch by the same amount i.e. the electromagnetic waves increase their wavelength. They

also appear to increase their speed because they cover, in the same period of time, more distance on the balloon's surface after it has been stretched than they would have prior to the stretching. However, the increase is relativistic – the increased speed is entirely due to the stretching of space (electromagnetic waves cover more distance because their own speed is added to the stretching of space-time). The speed of waves can vary because space-time itself plays a role in the constitution of elementary particles, which means the motions of particles may be viewed as expansion and contraction of space. Light's speed in vacuum is  $3 \times 10^8$  metres\second,  $2.26 \times 10^8$  m\second in water and  $1.97 \times 10^8$  m\second in glass.

Binary digits in hyperspace control the space-time that produces particles, much as binary digits in a computer control the motors that produce work. The work contains both the computer and motors (without either of these, no work is done). Similarly, all particles contain both space-time and hyperspace. (In a universe described by fractal geometry, the 5<sup>th</sup> dimension wouldn't exist only on a cosmic scale but also as a hyperspace in every fermion and boson.) Mobius loops are the foundation of particles. The 3 familiar dimensions of length, width and height along, for example, the left side of a Mobius loop – for convenience, the relative positions of the 2 Mobius loops previously referred to can be thought of as the orientation of a single loop - would have a 4<sup>th</sup> dimension (time) perpendicular to them (at the top). And there would also exist a 5<sup>th</sup> dimension called hyperspace, at right angles to the 4<sup>th</sup> and 180 degrees from the length/width/height i.e. on the right. Hyperspace is extended from the side along the loop's bottom – and even “invades” the spatial and temporal dimensions which it produces - because the WMAP space probe (Wilkinson Microwave Anisotropy Probe) and Planck space probe have determined that a very large 70% of the universe is dark energy ... and **transmissions of binary digits from hyperspace (the mechanism of space-time and particle production) are an interpretation of dark energy since dark energy is a property of space-time. When discussing conservation laws in relation to the universe's creation, it was pointed out that 5<sup>th</sup>-dimensional hyperspace is negative (has negative energy). Dr Adam Riess, co-discoverer of the universe's accelerating expansion (according to this article, increased space-time and particle production), writes at <http://www.stsci.edu/~ariess/darkEnergy.htm> - “Indeed, all incarnations of energy with negative pressure are called dark energy” and “Vacuum energy has negative pressure (you must do work to expand the Universe's inventory of the vacuum), and it is this property which gives rise to repulsive gravity.” (In the context of the present article, vacuum energy is the negative energy of hyperspace and it gives rise to repulsive gravity through its work of transmitting binary digits - frames [comparable to movie frames] are created in the 5<sup>th</sup> dimension by binary digits and their very rapid display is what we call motion, or transmission.)** The elimination of distance, both in time and in space, by electronic infinity or  $e\infty$  (addressed later) supports the idea of Professor Greene's “distant” and “faraway” unfolding / David Bohm's “dimension beyond space and time” being as near as the quantum

space of a subatomic particle in your or my brain.

### **Steady State Universe, Big Bang Subuniverses and DNA's Double Helix**

[4] Each one is a "subuniverse" (bubble or pocket universe) composing the physically infinite and eternal space-time of the universe. The infinite numbers make the cosmos physically infinite, the union of space and time makes it eternal, and it's in a static or steady state because it's already infinite and has no room for expansion. Our own subuniverse has a limited size (and age of 13.8 billion years), is expanding from a big bang, and has warped space-time because it's modelled on the Mobius loop, which can be fashioned by giving a strip of paper a 180-degree twist before joining the ends. (It also has DOUBLE STRANDED, spiralling DNA because the universe is modeled on TWO twisted Mobius loops. Agreeing with a 1919 paper which Einstein submitted to the Prussian Academy of Sciences ["Do Gravitational Fields Play An Essential Part In The Structure Of The Elementary Particles Of Matter?"], DNA is made of remarkably warped space-time / extremely intense gravity). Referring to the universe's infinity -"The universe IS something" ("Astronomy" magazine – March 2013, p.66) is interesting. This letter and its reply continue on from Bob Berman's article "Infinite Universe" ("Astronomy" – Nov. 2012) which says, "The evidence keeps flooding in. It now truly appears that the universe is infinite" and "Many separate areas of investigation – like baryon acoustic oscillations (sound waves propagating through the denser early universe), the way type 1a supernovae compare with redshift, the Hubble constant, studies of cosmic large-scale structure, and the flat topology of space – all point the same way." Support for the article – a) after examining recent measurements by the Wilkinson Microwave Anisotropy Probe, NASA declared "We now know that the universe is flat with only a 0.4% margin of error." -

[http://map.gsfc.nasa.gov/universe/uni\\_shape.html](http://map.gsfc.nasa.gov/universe/uni_shape.html);

and b) according to "The Early Universe and the Cosmic Microwave Background: Theory and Observations" by Norma G. Sánchez, Yuri N. Parijskij [published by Springer, 31/12/2003], the shape of the Universe found to best fit observational data is the infinite flat model).

### **Newtonian / Einsteinian Space-Time Warping**

Since the warping of space-time is modelled on two Mobius loops, the first impression is that it should be twice what Einstein calculated. His figure of 1.75 seconds of arc for the deflection of starlight by the Sun has been experimentally proven because starlight which grazes the sun is indeed deflected at 1.75 arcseconds. However, this is only the electromagnetic aspect and represents the warping of space that is created by one Mobius – the other Mobius accounts for the gravitational aspect of space warping, agreeing with Einstein's claim that gravitation and electromagnetism are related [7].

[7] How is passing starlight deflected towards the Sun? The refracted

gravitational wave heading for the sun “captures” [8] the light from distant stars that appear close to the rim of the sun before the gravity wave’s diverted to the centre of our star (string theory predicts that gravity’s gravitons interact with light’s photons). Acting as a gravitational attractor, the refracted wave carries the light with it as it bends towards the sun’s centre. The light is not carried all the way but breaks free since photons have their own energy and momentum. However, the light is carried far enough to be deflected a tiny amount from its original path. According to Newton’s 3rd Law of Motion (to every action there is an equal and opposite reaction), the light will be deflected toward the sun by an equal and opposite amount to the gravity wave’s deflection to the solar interior. “Opposite” means the light wave travels away from the sun at approx. 186,282 miles per second and the gravity wave travels into the sun at the same velocity. “Equal” means, since experiments have shown the bending of starlight to be 1.75 seconds of arc (in geometry 60 seconds = 1 minute, 60 minutes = 1 degree, and there are 360 degrees in a circle), the refraction of gravitation from the solar rim is also 1.75 arcseconds (as density increases the deeper the gravity wave goes, the greater its refraction becomes).

[8] Gravitons and photons interact via Einstein’s mass-energy relation. A gravitational wave acts as an attractor and captures light by feeling friction with the mass-energy of the photons. This causes gravitational refraction or bending in which part of the gravity pushes a photon by travelling in the direction of the centre of each photon in the light (as it progresses to the centre, the 3rd Law of Motion accounts for the photons’ reaction of being attracted to the gravitons). Compared to the other forces we know; gravity is incredibly weak (after mass formation) and the weak “equal but opposite” reaction cannot overcome the heaviness of macroscopic objects which consequently don’t float off towards the gravity doing the pushing. Photons, when pushed towards the surface of Earth, are so tiny and light that they do recoil from the push – they “reflect”.

### **Cosmic Rays, Ultra-High-Energy Cosmic Rays & Today’s Speed of Light**

The binary digits in space-time (assumed by modern science to be “virtual particles”) confer energy (and mass) on cosmic rays that travel far through space, turning them into UHECRs (ultra-high-energy cosmic rays). Naturally, this process does not apply to cosmic rays that have already been emitted as UHECRs from pulsars, gamma-ray bursts, active galactic nuclei, colliding galaxies, etc. (“Ultra High Energy Cosmic Rays: origin and propagation” by Todor Stanev - 30th International Cosmic Ray Conference, 2007 - <http://arxiv.org/pdf/0711.2282v1.pdf>). Similarly, the digits give energy to a star’s photons – which has the potential to cause scientific instruments to overestimate the energy released from distant stars. However, this increase in energy of the light photons may be balanced by the stretching of space, which causes decrease of energy (as of 21 March 2013, the Hubble constant, as measured by the Planck Mission, is  $67.80 \pm 0.77$  km/s/Mpc –“Planck Mission Brings Universe Into Sharp Focus” - <http://www.jpl.nasa.gov/news/news.php?release=2013->



[109&rn=news.xml&rst=3739](#)). Thus, the speed of light in today's vacuum would be a constant.

Why doesn't the stretching of space cause all UHECRs to lose energy and change back to regular cosmic rays? If a UHECR travels through space that is extremely warped (for example, the "coherent space" we call matter, which re-radiates a UHECR as a lower-wavelength cosmic ray upon interaction), it does change. But if its journey is through relatively unwarped and flat space, it remains a UHECR. (Regarding particles as the basis of the universe leads to the interpretation of a UHECR interacting with matter and being re-radiated as a regular-energy cosmic ray. Regarding space-time itself as playing a role in the constitution of elementary particles leads to the interpretation that the stretching of space turns a UHECR into a cosmic ray.)

### **Electronic Infinity**

The inverse-square law states that the force between two particles becomes infinite if the distance of separation between them goes to zero. Remembering that gravitation (associated with particles) partly depends on the distance between their centres, the distance of separation only goes to zero when those centres occupy the same space-time coordinates (not merely when the particles' or objects' sides are touching i.e. infinity equals the total elimination of distance [9] ). The infinite cosmos could possess this absence of distance in space and time, via the electronic mechanism of binary digits (this would enable it to be as malleable and flexible as anything on a computer screen). To distinguish this definition from "the universe going on and on forever", we can call it "electronic infinity or e infinity".

[9] If infinity (not physical infinity, but e infinity) is the total elimination of distance in space-time, there would be nothing to prevent instant intergalactic travel or time travel to the past and future [10]. Infinity does not equal nothing - total elimination of distance, or space-time, produces nothing in a physical sense and reverts to theoretical physicist Lee Smolin's imagining of strings as "not made of anything at all" (p.35 of Dr. Sten Odenwald's article "What String Theory Tells Us About the Universe": Astronomy – April 2013). It also reverts the universe to the mathematical blueprint from which physical being is constructed (see <http://vixra.org/abs/1307.0072> – this agrees with cosmologist Max Tegmark's hypothesis that **mathematical formulas create reality**, <http://discovermagazine.com/2008/jul/16-is-the-universe-actually-made-of-math#.UZsHDalwebs> and <http://arxiv.org/abs/0704.0646>). So, infinity = something (mathematics), agreeing with Dr. Sten Odenwald's statement on p.32 of his article, that "The basic idea is that every particle of matter ... and every particle that transmits a force ... is actually a small one-dimensional loop of something.

### **Interstellar and Intergalactic Travel**

[10] In July 2009, electrical engineer Hong Tang and his team at Yale University in the USA demonstrated that, on silicon chip-and transistor-scales, light can attract and repel itself like electric charges/magnets. This is the “optical force”, a phenomenon that theorists first predicted in 2005 (this time delay is rather confusing since James Clerk Maxwell showed that light is an electromagnetic disturbance approx. 150 years ago). In the event of the universe having an underlying electronic foundation, it would be composed of "silicon chip-and transistor-scales" and the Optical Force would not be restricted to microscopic scales but could operate universally. Tang proposes that the optical force could be exploited in telecommunications. For example, switches based on the optical force could be used to speed up the routing of light signals in fibre-optic cables, and optical oscillators could improve cell phone signal processing. From 1929 until his death in 1955, Einstein worked on his Unified Field Theory with the aim of uniting electromagnetism (light is one form of this) and gravitation. Achievement of this (see [2] ) means warps of space (gravity, according to General Relativity) between spaceships/stars could mimic the Optical Effect and could be attracted together, thereby eliminating distance (similar to traversing a wormhole between two folds in space). And "warp drive" would not only come to life in future science/technology ... it would be improved tremendously; even allowing literally instant travel to points many, many billions of light years away. This reminds me of the 1994 proposal by Mexican physicist Miguel Alcubierre of a method of stretching space in a wave which would in theory cause the fabric of space ahead of a spacecraft to contract and the space behind it to expand - Alcubierre, Miguel (1994). "The warp drive: hyper-fast travel within general relativity". *Classical and Quantum Gravity* 11 (5): L73–L77. Therefore, the ship would be carried along in a warp bubble like a person being transported on an escalator, reaching its destination faster than a light beam restricted to travelling outside the warp bubble. There are no practical known methods to warp space – however, this extension of the Yale demonstration in electrical engineering may provide one. (And if infinity is the total elimination of distance in space-time, there would be nothing to prevent time travel to the past and future.)

## **c<sup>2</sup> and the Atomic Nucleus**

When Einstein penned  $E=mc^2$ , he used  $c$  ( $c^2$ ) to convert between energy units and mass units. When I wrote  $E=mE$  (gravitational energy equals formation of stellar mass equals formation of electromagnetic energy), I split the conversion into two parts (Energy to Mass, and Mass to Energy), in an attempt to be more precise. The conversion number is 90,000,000,000 (300,000 km/s x 300,000 km/s). Since we'll be dealing with numbers in the trillions of trillions, and since the many particles and atoms require varying amounts of gravity for their formation, a good approximation will be to round up the conversion factor to  $10^{11}$ . When gravity forms mass (we can say space-time forms mass since gravity is merely space-time's warping), it loses  $10^{24}$  of its energy or strength (this number isn't randomly chosen but was selected because it fits in with later statements). Though it starts with a strength of  $10^{25}$ , it finishes with far less energy, a much

longer wavelength, and a strength labeled "1" (**is this energy decrease related to experiments stating that dark energy and gravity – hypothesized by this article to be repelling and attracting facets of the same thing – are unequal in strength viz. that dark energy is weaker than gravity?**) After the matter is formed, following gravity waves retain their strength of  $10^{25}$ . Looking at the example of astronomy's gravitational lensing, we can deduce that the amplitudes of the succeeding gravity waves are magnified by the matter's density so they achieve EM's strength ( $10^{36}$  times gravity's strength) i.e.  $10^{25}$  is multiplied by Einstein's conversion factor [ $10^{11}$ ] and gives us  $10^{36}$ . Just as visible light can be absorbed by interstellar dust and re-radiated at infrared wavelengths, the following gravity waves are absorbed by the matter and radiated as longer-wavelength EM waves (possibly gamma rays).

What happens when gravity and electromagnetism interact within an atomic nucleus? If  $10^2$  gravitons interact with each photon (or 100 photons with each graviton), the strong force is produced (it's  $10^{38}$  times gravity's strength). There are two ways to produce the weak force ( $10^{25}$  times as strong as gravity). It could be 1) the normal function of gravity in  $10^{25}$  mode when acting over a distance of  $10^{-18}$  metres (the weak force's range) i.e. the weak force IS gravity in  $10^{25}$  mode, or 2) the result of EM's photons interacting with  $10^{11}$  **anti-gravitons** i.e.  $10^{36}$  would be divided by Einstein's speed-of-light conversion and give  $10^{25}$ . **Not only does 2) relate gravity and electromagnetism, but it suggests electromagnetism is converted retrocausally i.e. "backwards" (from  $10^{36}$  to  $10^{25}$ ), and also plays a part in mass formation along with gravitation (as Einstein's 1919 paper stated).** Let's consider number 1). The weak force is responsible for the emission of particles in radioactivity. Such emission could be regarded as repulsion from the radioactive material. How can we reconcile this with the teaching that gravity always attracts, never repels. There is no dogma in science, and everything should always be questioned. Let's be rebels for a moment and assume gravity accounts for repulsion as well as attraction on the subatomic scale.

### **Dark Energy and Fractal Geometry**

For example, the strong force would represent gravity's subatomic attraction while gravity's subatomic repulsion could be viewed as the emission of particles in radioactivity. If the universe obeys the laws of fractal geometry [11], gravity would also account for repulsion and attraction on astronomical and macroscopic scales (it would account for the dark energy pushing galaxy clusters apart as well as familiar concepts of gravity such as attraction of a falling apple to the ground). **Remember – dark energy should not be considered purely as a gravitational phenomenon, but in terms of both gravitation and hyperspace's binary digits.**

[11] French mathematician Benoit Mandelbrot developed this fractal geometry and coined the word fractal. The diminishing size of spheres may be seen as

representing cosmic, galaxy cluster, stellar, quantum-particle scales. We may have varying speed of flow of time during our life because of the accelerating expansion of space-time in the universe. Space is expanding but time is also expanding (and at an accelerating pace). In our youth, it proceeded at a very slightly reduced pace whereas it's going a tiny bit faster now that we've gained experience. So the increased pace is not subjective. If things in space and time were separate, we certainly could never be aware of this accelerating time - the change in our lifetimes is infinitesimal. But things are different if we humans, and the entirety of space-time, are different aspects of the fractal geometry i.e. of the unified field. We are unified with every step of the universe's past and future expansion. Therefore, we can perceive its accelerating expansion ... which we interpret as our having more time in our youth. Our perception of time moving faster will be interpreted by most people as purely subjective and psychological. But in fact, it appears to support the idea of fractals - of gravity accounting for repulsion and attraction not merely on quantum scales but, fractally, also on astronomical and macroscopic scales.

## **Dark Matter**

The average density of the Milky Way is much less than the solar system. Picture the galaxy, except for the central dense bulge that may be roughly 10,000 light years in diameter, made up of solar systems like ours and separated by 4 or 5 light years (the closest star to the Sun is Proxima Centauri, 4.2 light years away). Within those systems, there is a lot of mass and density in the form of stars, planets, moons, asteroids, comets, gas, and dust (more than 99% of our own solar system's mass is in the Sun). But the vast reaches of near vacuum between systems lowers average density enormously – the MacMillan Encyclopedia of Physics says the average density of matter between the stars of the Milky Way is 0.1 neutral hydrogen atoms per cubic centimetre. Since density corresponds to concentration of wave packets – a term from quantum mechanics describing, here, matter's gravitational building blocks - and magnification of gravitational waves, there would be extremely little magnifying of gravity waves in interstellar space (a process related to gravitational lensing). And there would be insufficient gravitational magnification to push or accelerate the stars near the central core or bulge beyond the orbiting speeds of the galaxy's outermost stars (the outermost stars were expected to orbit the galaxy's centre more slowly than stars further in, but have been found to possess very similar orbiting speeds).

In the 1970s, astronomer Vera Rubin concluded outer stars were being sped up by the gravitational attraction of unseen Dark Matter in a halo well beyond the galaxy. This explanation of dark matter in terms of gravity states there would be no such thing as dark matter of this nature. However, the term "dark matter" could be used to describe particles in a 5th-dimensional hyperspace, or travelling through time, that would be invisible but still exert gravitational influence).

There's more about dark energy and dark matter (no maths or jargon) in my article "Unified Field, Relativity and Quantum Mechanics Meet String Theory,

Parallel Universes, the Mathematical Universe, and TOE” if you click on PDF at <http://vixra.org/abs/1303.0218> It relates DE and DM to tides, orbits, Kepler’s 3 laws of planetary motion ...

## PART 3

# SPECULATIONS CONCERNING FUTURE HUMAN EVOLUTION

$E=mc^2$  (Albert Einstein’s formula unifying energy [E] with mass [m] and relating both to the velocity of light squared [ $c^2$ ] ) makes a person suspect the apparently solid world of matter is really an illusion, and you and I are actually made of insubstantial energy. String theory, which rose to the forefront of physics during the 1980s, proposed that the fundamental constituents of nature are not particles but one-dimensional structures called strings. This heightens previous suspicions, and we wonder if the one-dimensional structures are in fact pulses of energy. Then along comes “TIME Australia” magazine’s Feb. 26, 1996 article “What’s Hiding in the Quarks?” (which says quarks seem to be made of even tinier things). Finally, we might feel justified in assuming our suspicions were correct and that these “even tinier things” MUST be pulses of electromagnetic energy (meaning all substances are indeed insubstantial).

If this article is correct, pulses are the basis of not only waves but also matter (recall Einstein’s 1919 paper – and how gravitational waves are unified with electromagnetic waves). Therefore, matter and energy would be digital in nature. Can this be extended, via strings, to space itself as well as to time (the 4th dimension - what I’ll term “subspace”, since I’m a fan of science fiction)? In 1917, Einstein calculated that 3 universes could exist in the cosmos (“Albert Einstein: Creator and Rebel” by Banesh Hoffman and Helen Dukas – Viking Press, 1972). Can strings extend the digital cosmos of 3-dimensional space and 4th-dimensional time into a 5th dimension (let’s call it hyperspace)? Assuming we live in a digital cosmos, we are reminded of that other digital entity called the computer - and must wonder if all those pulses of energy result in a cosmic intelligence (“What Is Life?” by Erwin Schrodinger – Cambridge University Press, 1944) that is all-powerful and present not just everywhere in space and time, but also “outside the universe” i.e. in hyperspace. The existence of such a “cosmic computer” would imply that both living and nonliving matter may be altered by programming, when people learn how to do this. Invasive procedures such as surgery would become obsolete.

The waves of energy which compose matter could be digitised and transmitted over the Internet - and the receiver’s computer could be equipped with sensors to decode the mix of frequencies, as well as an assembler that reproduces this mix

and radiates it to create products indistinguishable in any way from the original product (the frequency mix could also be electronically recorded). The difference between life and nonlife appears to be merely one of complexity. So after inanimate objects and parcels have been successfully produced and emailed (today's electronically controlled 3D printers – Thingiverse: <http://www.thingiverse.com/> - may be the first step to these Star-Trek-like replicators), more advanced software will be developed and allow things like fruit and vegetables, or living animal/human tissues, to be transmitted (or transported) between places i.e. in space; and between times (I believe time will be navigated in the future just as ordinary space is today).

This advanced software could also be used to genetically engineer people whose genes have been disassembled into subatomic pulses and manipulated by computers. An opportunity to possess an eternally youthful body and a brain free of criminal tendencies may therefore exist. When we develop this electronic hardware and software, and also acquire the science-fiction-like technology of time travel, everyone who has long since died could have their minds downloaded into reproductions of their bodies\* and be resurrected (establishing colonies throughout space and time would prevent overpopulation).

\* See “The Endless Frontier and The Thinking Machine” by Hans Moravec, edited by Jerry Pournelle - Grosset & Dunlap, Ace books (January 1982, pp. 374-397), which speaks of downloading minds into robot bodies.

**What kind of technology could manipulate the unification and zero separation of all space-time? Band-gap structures ... these are more advanced than replicators, transporters and starships. While these things can do what band-gap implants do, the implant technology is not external but is located solely within the brain. An even more advanced system - one that has the advantage of seeming more natural to many people – may be possible. That system would do everything band-gap implants do, but would rely solely on the entire universe and all space-time-hyperspace being a unification or unified field. Whatever anyone can think of can be done – as long as it doesn't violate the laws of physics (and the limits of physical law won't be understood for maybe a thousand years).**

Morpho butterflies create colour by selectively adding and deleting certain wavelengths of light. Physicists have only recently devised comparable materials, called photonic band-gap crystals; and are now exploring their use in phone switches, solar cells and antennas. No surprise, then, that some engineers are looking to the living world for the next generation of optic inspirations. (“Illuminated Life - Meet the true masters of optics: Animals that know a lot more about slicing, dicing, and twisting beams of light than we do” By George M. Whitesides, Felice Frankel – Discover Magazine, AUGUST 2005 ISSUE). I believe advances in engineering and biology will enable humans, like the morpho

butterfly, to selectively add and delete certain wavelengths of light. But the word “light” need not only refer to visible wavelengths. It can be extended and refer to any wavelength of the electromagnetic spectrum. Science accepts that radio, infrared, ultraviolet waves and X-rays as well as gamma radiation are all forms of light. Suppose matter acquires all its properties (including mass) by the superimposing of electromagnetic and gravitational waves (computer-generated in a 5th dimension and projected into the hologram of 3+1 dimensions which we call space-time). So the day will come when we can add or delete wavelengths of matter anywhere and anytime we choose!

I anticipate people will oneday have band-gap structures in their brains that are no bigger than a computer chip\* (these won't require surgical implantation, but simply downloading, because of the pre-existing unified and digital nature of all parts of the universe). Photonic band-gap crystals would, of course, only deal with light in its photonic forms (energy forms such as visible light or radio waves). The band-gap structures I have in mind would need to deal with forms like genes, so they could add or delete anything and everything we choose. They might accomplish this by acting similarly to a modem that acts on a scale billions of times smaller than a modem manufactured by nanotechnology, and would be capable of manipulating digitised matter. Then they could emulate computers' copy/paste function to add things; as well as their delete function, to remove things (now that's what I call genetic engineering!) This ability must only come to fruition in a future, ideal society: it would only be wasted and abused in the present warring and selfish world!

\* This procedure would be distantly related to that described in “New Electronics Can Stretch, Flex and Even Dissolve in the Body” by Ed Yong, Valerie Ross - <http://discovermagazine.com/2013/september/12-stretchy-flexy-future#.UmEBuHCBIk>

### **Variable Speed of Light**

Increase in energy of the light photons is balanced by the stretching of space, which causes decrease of energy (as of 21 March 2013, the Hubble constant, as measured by the Planck Mission, is  $67.80 \pm 0.77$  km/s/Mpc – “Planck Mission Brings Universe Into Sharp Focus” - <http://www.jpl.nasa.gov/news/news.php?release=2013-109&rn=news.xml&rst=3739>). Thus, the speed of light in the vacuum of today's space is a constant. Energy from “virtual particles” is gained at a constant rate, while energy lost by expanding space stretching wavelengths is increasing due to space's accelerating expansion. If this acceleration continues, visible light will lose more and more energy, and its photons will slow down and even stop. This recalls the Variable Speed of Light theories – Albert Einstein in 1911, Robert Dicke in 1957, Jean-Pierre Petit in 1988, John Moffat in 1992, and the two-man team of Andreas Albrecht and João Magueijo in 1998.

## **Billions of Years in the Past, Trillions of Millennia in the Future**

Talking about energy increase and decrease - it was necessary for the early universe to undergo inflation (extremely rapid expansion by a factor of at least  $10^{78}$  in volume,  $10^{-36}$  of a second after the big bang). Recent cosmology text books with extensive discussions of inflation are by Liddle and Lyth (2000), Mukhanov (2005), Kolb and Turner (1988), Linde (1990), Peebles (1993), Lyth and Riotto (1999), Linde (2012), Guth (1997) and Hawking (1998). This rapid expansion converted short wavelengths (such as gamma rays produced in the big bang) into useful and necessary longer-wavelengths (like visible light). Eventually, this subuniverse will increase its size another  $10^{78}$  times. Then the curving lines of waves will be stretched flat and light's photons will stop, possessing no energy at all. There's no need to worry and speak of cosmic death, however. This subuniverse will have dispersed into, and mingled with, many other subuniverses by then (it'll be dispersed into WMAP's infinite, flat universe). Maybe we'll rejuvenate our subuniverse with another big bang many trillions of millennia before this happens. Maybe we'll go live in some other subuniverse and let this one disperse.

Perhaps, in this distant future, we can all have an immaterial body designed in the far future to overcome physical limitations (and that body might be quantum entangled with all space and time). The portion of that sentence referring to the body anticipates possible developments from the concept of an immortal soul advocated by ancient Greek philosopher Plato and his followers; as well as from the belief of the Mormons (Church of Jesus Christ of Latter-Day Saints) that God has a glorified body of flesh and bone. The portion referring to quantum entanglement says entanglement exists not merely in the present but also reaches into the past (see "Experimental delayed-choice entanglement swapping" by Xiao-song Ma, Stefan Zotter, Johannes Kofler, Rupert Ursin, Thomas Jennewein, Časlav Brukner & Anton Zeilinger - Nature Physics 8, 479–484 [2012] and "Weird! Quantum Entanglement Can Reach into the Past" by Clara Moskowitz, LiveScience Senior Writer | April 30, 2012 - <http://www.livescience.com/19975-spooky-quantum-entanglement.html>).

... and the Unified Field extrapolates this entanglement to perception of the future (which could never be perceived unless it already exists – and that would permit time travel).

## **Neil Armstrong in Perpetual Motion**

I'm so sorry about Neil Armstrong's death. I feel as though I knew him, but I never had any contact with him. However, I think he's still alive - in a different form, somewhere in the universe ... somewhere in time. After all, science's Law of Conservation has known since the 19th century that neither matter nor energy (including the matter/energy of the first person on the moon) can ever be destroyed or created - they only change form, as in the death of an existing form



and birth (from a pre-existing form?) of a man named Armstrong. Before you say science's Law of Conservation cannot be personalized, please read the next paragraph.

If we stop thinking about death at that point where Armstrong dies; we'd assume that at death, his body became disorganized and returned to dust - and that his mind simply ceased to exist when his brain stopped functioning. But let's keep thinking. If nothing in any time can be destroyed, all time might be like a DVD. All of the DVD always exists even though a very limited set of sights and sounds can be perceived at any point during its playing. Similarly, Neil always exists even though we can't physically perceive him at this time. In different parts of the cosmic DVD; he's forever being born, forever taking that first step on the moon (is he in perpetual motion?), forever resting in peace (I believe English physicist Julian Barbour has the same understanding of time which this sentence speaks of). And I think medical science will someday advance so much (and in such unexpected ways) that we'll be able to say he's forever being resurrected. How could the time travel loved by theoretical physicists come to pass without this "cosmic DVD"?

## **Conclusion**

Do you know what all this means when it's condensed into a few sentences? It means mathematics is united with the physical world, and miracles can occur. Computer programs are written with the binary digits of 0 and 1 - and these digits compose a form of maths. So anything you see on a computer screen can happen in real life. You can do anything you can imagine, as long as the laws of physics don't forbid it (we may not completely understand what those laws actually forbid for at least another thousand years).

You don't even need to be a mathematician or computer programmer. All things (matter, energy, space, time, etc.) are part of Einstein's Unified Field. Your mind is already entangled and united with all maths and all computers. Performing miracles is no more difficult than pressing a button to switch your computer on. All you need is FAITH - an absolute, unshakeable knowledge that you can do what the early 21<sup>st</sup> century says is impossible.

Speaking of faith, consider what American astronomer, astrophysicist, cosmologist and author Carl Sagan (1934-1996) had to say on p. 382 of "Pale Blue Dot – A Vision of the Human Future in Space" (Headline Book Publishing, 1995): "Many religions, from Hinduism to Gnostic Christianity to Mormon doctrine, teach that – as impious as it may sound – it is the goal of humans to *become* gods." Humans becoming God brings to mind "A Man Named Armstrong" (a reference to Australian country singer Reg Lindsay's inspiring tribute to Neil Armstrong's 1969 walk on the Moon, with the lines "But the world all stopped to watch, on a July afternoon, watched a man named Armstrong walk upon the moon ...and I wonder if a long time ago, somewhere in the universe, they watched a man named Adam walk upon the Earth"). The "other Armstrong" -

religious writer and broadcaster Herbert W. Armstrong (1892-1986) - may well have been correct when he said "God is reproducing himself through mankind."

**COMBINING THESE WORDS OF THE OTHER ARMSTRONG WITH CARL SAGAN'S REFERENCE TO HUMANS BECOMING DIVINE ALTERS THE APPARENT MEANING OF THE END OF THE 4<sup>TH</sup> PARAGRAPH IN PART 1 ("THIS MEANS THERE'S STILL ROOM FOR THE INFINITY KNOWN AS GOD. GOD WOULD BE A SUPRAPANTHEISTIC UNION OF THE UNIVERSE'S SPATIAL, TEMPORAL, HYPERSPATIAL, MATERIAL AND CONSCIOUS PARTS; FORMING A UNION WITH HUMANS IN A COSMIC UNIFICATION, AND FORMING A UNIVERSAL INTELLIGENCE.") WHEN FIRST READING THAT PARAGRAPH, WE'RE LEFT WITH THE IDEA THAT GOD AND HUMANITY ARE PARTNERS AND SOMEHOW SEPARATE, DESPITE USE OF THE WORD "UNION". BUT WE SAW, SIX PARAGRAPHS AGO, THAT THE HUMAN BODY MIGHT BECOME IMMATERIAL AND QUANTUM ENTANGLED WITH ALL SPACE AND TIME (NO DOUBT MANY PEOPLE, EVEN TODAY, WOULD CALL SUCH INVISIBLE, ENDLESSLY POWERFUL, ENTANGLED BEINGS "SUPERNATURAL"). THIS MEANS GOD AND HUMANITY OF THE FAR FUTURE ARE NOT SEPARATE IN ANY SENSE BUT ARE THE SAME THING. THE "UNION WITH HUMANS" REFERS TO THE ABILITY OF THESE BEINGS TO AFFECT THE PAST AND THUS HAVE A RELATIONSHIP WITH PEOPLE LIVING IN EARLIER TIMES. A NAME USED FOR GOD IN THE OLD TESTAMENT IS ELOHIM, WHICH MEANS THE "PLURAL MAJESTY OF THE ONE GOD" I.E. THE BILLIONS OF EARTH'S INHABITANTS ENTANGLED WITH, AND DISPERSED THROUGHOUT, THE ENTIRE INFINITY OF THE UNIVERSE AND ETERNITY OF TIME. SUCH ENTANGLEMENT SUGGESTS EXTRASENSORY PERCEPTION AND TELEKINETIC INDEPENDENCE FROM TECHNOLOGY IS POSSIBLE, DESPITE MODERN SCIENCE'S OBJECTIONS WHICH APPEAR TO BE BASED ON NON-UNIFICATION (SINCE ALL SPACE AND TIME IS UNIFIED, ESP AND TELEKINESIS [PSYCHOKINESIS] ARE EVEN POSSIBLE FOR EVERYONE LIVING IN THOSE EARLIER TIMES.)**

The bottom line is that Einstein's Unified Field Theory has apparently been reconciled with the concerns raised by modern science. Despite most of the world considering the unified field to be a failure, this article reviewing it and the Misner/Wheeler article in "Annals of Physics" that supports it asserts that Einstein's Unified Field is, for now, a vastly unappreciated success!

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