

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

Abstract –

The world is at a crossroad today. There is so much we have no understanding of – dark energy, the hypothetical form of energy that permeates all of space and tends to accelerate the expansion of the universe, is perhaps the best known example. If humanity is going to steer the future, we need to remove ourselves from the darkness we're immersed in and discover the light. I believe this light will reveal what dark energy is, where it comes from, and how it originated. Further, the light could give us a new perspective on where WE came from, how the human race was born, and the role of present humankind in the grand scheme of not only our own, but the universe's, origin and destiny.

The basic outline for a different perspective on the Theory of Evolution has been described in this article. When contemplating the theory of evolution, people assume evolution belongs exclusively to the biological sciences. I maintain complete comprehension also requires physics.

Without a conviction that time travel is possible, I'd have to totally agree with the evolutionary concepts Darwin proposed. But since I have no doubt that time doesn't exclusively operate in a straight line (my reasons are explained below), I can propose a different origin of species – though all the species subsequently undergo adaptations throughout the centuries. In 1870, Wallace (one of Darwin's major "disciples" and the man who is often reported to have independently reached the same conclusions about evolution that Darwin did) suddenly converted to spiritualism. "Darwin's Armada" (26) states –

"Wallace surmised ... that man must have been programmed for civilisation by some higher intelligence." (27)

Assuming Wallace's "higher intelligence" happens because, as this article puts it near the end, "eternal God and humanity of the far future are not separate in any sense but are the same thing", I wonder what Wallace (as well as Darwin and his other disciples) would think of this article if they were on Earth today. 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).

PART 1 NON-DARWINIAN ORIGINS OUTLINED

A concept like time travel, which is central to my essay and has long had support in the theoretical physics community, is nevertheless regarded as pure science fiction by many people in the public. As will be seen shortly when discussing the "Cosmic DVD", I seriously doubt that it can ever be comprehended in the current non-unified understanding of the cosmos. So at this point, Einstein's Unified Field must be briefly addressed –

In the 19th century, Scottish mathematician and physicist Maxwell unified electricity and magnetism into electromagnetism (3). 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 Rainich (1886 -1968) (4). England's 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 (5).

Let's slightly adapt a 1919 paper by Einstein (6) to conclude gravitation actually forms particles of matter. If he was also correct about gravitation being the warping of space-time, it is logical that both gravitation and the warping of space-time that produces gravity would form elementary particles, their masses and the forces (nuclear and electromagnetic) associated with those particles. Therefore, time is unified with the gravitational field, which produces electricity and magnetism (the electromagnetic field – see **WHY IS GRAVITY WEAK?**) 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 Wheeler and Misner claimed (8).

This overcomes the 50-year-old objection to Einstein's Unified Field which was put forth by Penrose. Physicists also argue that a unified theory must now address the strong and weak nuclear forces in the atom, as well as dark matter and dark energy. All of these subjects will be dealt with.

Returning to a theory of the origin and evolution of life, consider the Miller-Urey Experiment of 1952 (10). 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 Miller and Urey from the experiment, and the experiment would obviously fail. 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 (1). 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.

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 in a sense (quantum fluctuations actually happen because they're temporary changes in the amount of energy at points in space). But this doesn't mean the universe can be created from nothing. I think the universe, and life, began because brains acquire knowledge from the 4 dimensions of space-time. Then brains interact with a 5th-dimensional hyperspace to purposely switch the binary digits composing the universe (see **"Digital" String Theory**) from 1 to 0 or vice versa. Where have you heard of binary digits before? Computers and all forms of electronic devices use them.

Prykarpatski says (9),

"The force exerted by any small mass object on the Earth is exactly THE SAME as the force exerted by the Earth on this body (The Newton's law...)"

Newton's 3rd law of motion states that there's an equal and opposite reaction to every action, so the gravitational force exerted by the relatively huge mass of the Earth could only be equal to the force exerted by any small-mass object if gravitation does not depend on mass (making the force from Earth, and the small mass, both

equal to zero). Instead, mass would depend on gravitation - this agrees with Einstein's paper. [7]

If space-time (whose warping is gravity) forms mass, there could be "currents" of space-time flowing in the "oceans" between the galaxies. Space-time 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 (just as some of the waves passing an island are refracted toward the shore by the island's mass). Along their course, the refracted gravitational waves are concentrated 10^{24} times # in the intense warping we call matter.

WHY IS GRAVITY WEAK? (C^2 AND THE ATOM)

When gravity waves concentrate to form matter, gravity travels from external to matter: pushes against matter (repels). Repulsive gravity is dark energy*. Successive waves are re-radiated at unconcentrated strength from matter to external (opposite action to repelling wave) and attract – it must be remembered that attraction is merely a matter of perspective, since Einstein showed that attraction of two bodies of matter actually results from space-time's curvature pushing bodies. Calculating time using imaginary numbers makes distinctions between time and space disappear. Hypothetical negative 5th-dimension is described by imaginary numbers and motions of its negative particles (dark matter) are time, since time can be calculated using imaginary numbers. So imaginary numbers eliminate distinctions between space-time and 5th dimension, permitting dark matter to exist as "ordinary" matter's scaffold.

* Feeble gravity might push galaxy clusters apart in the same way that feeble sunlight propels a solar sail. In the 1970s, Forward proposed two beam-powered propulsion schemes using either lasers or masers to push giant sails to a significant fraction of the speed of light. These vastly magnify the power of sunlight via Light (or Microwave) Amplification by Stimulated Emission of Radiation. How is gravity's power boosted? When Einstein penned $E=mc^2$, he used c (c^2) to convert between energy units and mass units. The conversion number is 90,000,000,000 (300,000 km/s x 300,000 km/s) which approx. equals 10^{11} . After gravity forms matter, successive gravity waves are, via gravitational lensing, concentrated 10^{24} times (to 10^{25} , weak nuclear force's strength). Then they're further magnified by the matter's density to achieve electromagnetism's strength (10^{36} times gravity's strength) i.e. 10^{25} is multiplied by Einstein's conversion factor [10^{11}] and gives 10^{36} . Successive gravity waves are absorbed by the matter and radiated as longer-wavelength waves (both as electromagnetic waves - possibly gamma rays, or a microwave background – and as gravitational waves which have lost 10^{24} of their energy or strength (and are labelled " 10^1 ").** "If space comes from bits" (specifically, the energy responsible for the bits is converted into space), "then so does gravity (warping of space)." So as more and more energy is invested in bit production, more and more space and repelling gravity result. This causes accelerating expansion within the universe, as discovered in 1998 by Perlmutter, Schmidt, and Riess.

** During absorption, something occurs with gravitational waves besides interactions producing electromagnetic and nuclear forces. Does this picture of the atom conflict with the theories of electroweak interaction (electromagnetism combined with the weak nuclear force) which won the 1979 Nobel Prize in Physics for Weinberg, Glashow and Salam? (7) The warping of space-time in General Relativity is not separate from matter but gives an electron a mass of 0.511 MeV (mega electron volts) – technically, physicists say " $0.511 \text{ MeV}/c^2$ " because an electron volt is actually a measurement of energy, and mass units equal energy units divided by c^2 , or $m = E/c^2$ (which is $E=mc^2$ when both sides are multiplied by c^2). ($E=mc^2$ means a tiny amount of mass can be converted into a very large amount of energy. Similarly, $m=E/c^2$ means a very large amount of energy is converted into a tiny amount of mass.) E (energy) is measured in joules (J), m is the mass in

kilograms (kg; 1 kg = approx. 2.2 pounds), and c is the speed of light (about 186,282 miles/299,792.458 kilometres per second) measured in metres per second (m/s or ms⁻¹).

According to (28), "So from 1kg of matter, *any* matter, we get 9×10^{16} joules of energy. Writing that out fully we get: 90,000,000,000,000,000 joules (enough to power a 100 watt lightbulb for 28,519,279 years). From gravitational energy equivalent to a 100 watt lightbulb burning for 28,519,279 years, only a kilogram of matter is formed.

Suppose the unit ascribed to concentrated gravity's strength of 10^{25} is the hertz (Hz), a frequency of one cycle per second. If a gamma ray is emitted from an atom, that typically accounts for more than 10^{19} Hz of the 10^{25} Hz. The remainder's accounted for by radiation of gravitational and other electromagnetic frequencies.

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.)

HIDDEN VARIABLES/VIRTUAL PARTICLES CALLED BINARY DIGITS

Maybe binary digits are able to be called hidden variables - Einstein said hidden variables carry extra information about the world of quantum mechanics and complete it, eliminating probabilities and bringing about exact predictions (29). Energy from hyperspace (which is unified with space-time and forms its scaffold - see **WHY IS GRAVITY WEAK?**) creates the 1's and 0's in space-time's so-called vacuum that are usually labelled "virtual particles". And the intimate connection between everything which is a result of being produced by the digits – between matter, time, space, gravity, dark energy, etc. (see "**DIGITAL**" **STRING THEORY**) – is known as quantum entanglement. Maybe binary digits could also 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 .) Entering hyperspace with its negatives (energy, matter, distance, time) permits travel to the past since it would be impossible to travel 700 lightyears there, and only possible to travel minus 700 lightyears. Doing so instantly (see **INFINITY**) would enable a spaceship to arrive at a spot in the past which a light beam could only reach by traversing negative distance for 7 centuries.

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. These 1's and 0's correspond to the 1's and 0's of the pits and land (or pits and bumps) of a DVD or CD. Science's Law of Conservation has known since the 19th century that neither matter nor energy can ever be destroyed or created - they only change form. If nothing in any time can be destroyed (it only changes form at a different point on the DVD), all time might be like a DVD. All of the "cosmic" DVD always exists even though a very limited set of sights and sounds can be perceived at any point during its playing. In different parts of the cosmic DVD; people are forever being born, forever taking their first step (are they in perpetual motion in an eternal present?), forever resting in peace. I believe English physicist Barbour has the same understanding of time which this sentence speaks of (30). And I think medical science will someday advance so much (and in such unexpected ways) that we'll be able to say they're forever being resurrected. How could the time travel loved by theoretical physicists come to pass without this "cosmic DVD"?

* Kaku writes “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.” (2) In 1957, Bondi suggested that mass might be negative as well as positive (11)

Recall what was said concerning the Miller-Urey Experiment and “subtracting humans of the distant future from the origins of life ...” -

This seems to validate atheism, but I believe 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 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.

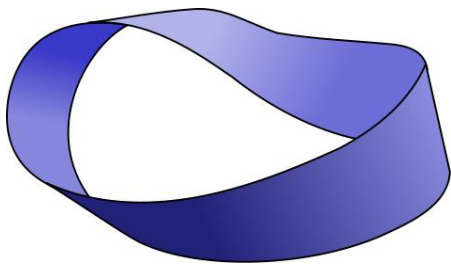
SOME COSMOLOGICAL EXPLANATIONS ENSUING FROM THE ABOVE PROPOSITIONS

“DIGITAL” STRING THEORY AND RENORMALIZATION

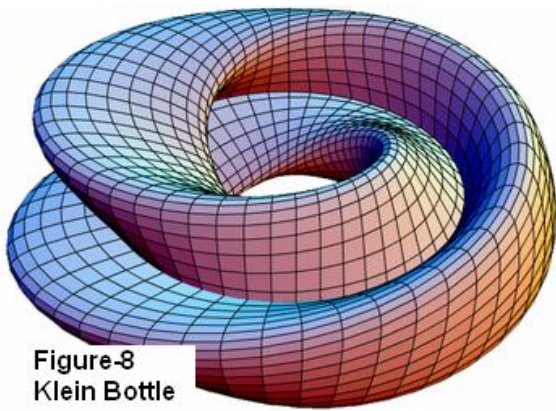
Let's borrow a few ideas from string theory's ideas of everything being ultimately composed of tiny, one-dimensional strings that vibrate as clockwise, standing, and counterclockwise currents in a four-dimensional looped superstring (12). We can visualize tiny, one dimensional binary digits of 1 and 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 Figure-8 Klein bottles which are, in fact, “subuniverses” (binary digits fill in gaps and adjust edges to fit surrounding subuniverses [similar to manipulation of images by computers]). 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.



Mobius Loop



**Figure-8
Klein Bottle**

STEADY STATE UNIVERSE, BIG BANG SUBUNIVERSES AND DNA’S DOUBLE HELIX

Each “subuniverse” (bubble or pocket universe) is one of a series (extending infinitely in every direction) 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 may have DOUBLE STRANDED, spiralling DNA because the universe is modelled on TWO twisted Mobius loops. Berman’s article "Infinite Universe" (13) 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." (31) and b) according to "The Early Universe and the Cosmic Microwave Background: Theory and Observations" (14), the shape of the Universe found to best fit observational data is the infinite flat model).

INFINITY

If infinity is the total elimination of distance in space-time (last paragraph in **HIDDEN VARIABLES ...**), there would be nothing to prevent instant intergalactic travel or time travel to the past and future. Infinity does not equal nothing - total elimination of distance, or space-time, produces nothing in a physical sense and reverts to theoretical physicist Smolin's imagining of strings as "not made of anything at all" (15). It also reverts the universe to the mathematical blueprint from which physical being is constructed (this agrees with cosmologist Tegmark's hypothesis that **mathematical formulas create reality** (16) and (17). So, infinity = something (mathematics).

DARK MATTER, DARK ENERGY AND ACCELERATING COSMIC EXPANSION

The average density of the Milky Way is much less than the solar system. 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).

Dark matter should not be considered purely as a gravitational phenomenon, but in terms of both gravitation and hyperspace's binary digits - much earlier in the article, we saw how dark matter can be regarded as the negative matter produced in hyperspace. Dark energy also has the gravitational component of being repulsive gravity. Don't think of cosmic expansion as the stretching of a finite quantity of space. Think of it as the production of "new" space by binary digits which is added to existing space and pushes that existing space farther and farther away. More bits make more [repulsive] gravity (18). So dark energy also has a hyperspatial component. The Law of Conservation says new space isn't created from nothing but is converted from something else. Continuing with the computer analogy, it may be speculated that new space is converted from the BITS (Binary digiT)S of 1 and 0. There's more about dark energy and dark matter (no maths or jargon) in my article at <http://vixra.org/abs/1303.0218>. (25) It relates dark energy and dark matter to tides, orbits, Kepler's 3 laws of planetary motion.

PART 3 SPECULATIONS CONCERNING FUTURE HUMAN EVOLUTION

BILLIONS OF YEARS IN THE PAST, TRILLIONS OF MILLENNIA IN THE FUTURE

Perhaps, in the 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, immaterial soul advocated by ancient Greek philosopher Plato and his followers; as well as from the belief of the Mormons that God has a glorified body of flesh and bone (19) which I hypothesize would be quantum entangled with all space and time. The portion referring to quantum entanglement says entanglement exists not merely in the present but also reaches into the past (20, 21) ... 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).

CONCLUSION – CARL SAGAN AND THE GODS

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 have the potential to 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 (at least in theory) is FAITH - an absolute, unshakeable knowledge that you can do what the early 21st century says is impossible.

Speaking of faith, consider what American astronomer and author Sagan (1934-1996) had to say in (22): "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 Lindsay's inspiring tribute to 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") (23). The "other Armstrong" - religious writer and broadcaster Armstrong (1892-1986) - may well have been correct when he said "God is reproducing himself through mankind." (24)

Combining these words of the other Armstrong with Sagan's reference to humans becoming divine alters the apparent meaning of words on p.5 ("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, 4 paragraphs ago, that the human body and brain 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 eternal 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 united 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.

The bottom line is that Einstein's Unified Field 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 asserts that Einstein's Unified Field is, for now, a vastly unappreciated success!

ENDNOTES - SUPPORT FROM THE AMPLITUHEDRON, CAUSAL SETS AND HOLOGRAPHY

Amplituhedron

Nima Arkani-Hamed's amplituhedron is a multidimensional, geometric shape that dramatically simplifies calculations of particle interactions and challenges the notion that space and time are fundamental components of reality. The multidimensional amplituhedron is outside space-time, providing a possible way to imagine a non-spacetime world as fundamental to reality, and from which the space-time we know could emerge. The geometric shape can be thus be equated with a 5th-dimensional hyperspace. And it can be equated with dark matter in this way - calculating time using imaginary numbers makes distinctions between time and space disappear. A negative 5th-dimension is described by imaginary numbers and motions of its negative particles (dark matter) are time, since time can be calculated using imaginary numbers. Time cannot be considered in isolation. Physics thinks of it as in a union with space. So imaginary numbers eliminate distinctions between space-time and the 5th dimension, permitting dark matter to exist as “ordinary” matter’s scaffold.

The amplituhedron assumption that space-time leads to mathematical inconsistencies could be revised through the picture of space-time which embraces “digital string theory”. Digital strings say the physical universe is founded on an infinite connection of transcendentals and irrationals, making space infinite (and its partner in the space-time union is automatically eternal). In a literally infinite universe, retaining the infinite values renormalization seeks to cancel might point the way to deeper understanding of the cosmos.

Causal Sets

For the info below on Causal Sets and Holography, I thank Zeeya Merali and her article “Theoretical physics: The origins of space and time” (“Nature” 500, 516–519 - 28 August 2013).

“Pioneered by Rafael Sorkin, a physicist at the Perimeter Institute in Waterloo, Canada, the theory (causal sets) postulates that the building blocks of space-time are simple mathematical points that are connected by links, with each link pointing from past to future.” This entry in fxi’s contest agrees that space-time’s building blocks are mathematical (base-2 maths’ binary digits of 1 and 0). Though the digits are programmed into Mobius loops in hyperspace, they form the physical universe and also, the distinction between space-time and the 5th dimension is meaningless. As Stephen Hawking writes (“A Brief History of Time”, p.139), “Which is real, ‘real’ or ‘imaginary’ time? It is simply a matter of which is the more useful description.” Earlier in that paragraph, he says, “In real time, the universe has a beginning and an end at singularities that form a boundary to space-time and at which the laws of science break down. But in imaginary time, there are no singularities or boundaries. So maybe what we call imaginary time is really more basic ...”

Back to Zeeya’s “origins of space and time” – “In the late 1980s, Sorkin used this framework to estimate the number of points that the observable Universe should contain, and reasoned that they should give rise to a small intrinsic energy that causes the Universe to accelerate its expansion. A few years later, the discovery of dark energy confirmed his guess.” This impresses me, but the part about “each link pointing from past to future” doesn’t agree with my conviction that the future can influence the past, and that humanity was born from time travel to the past coupled with biotechnology existing centuries from 2014 (“Retrocausal” Sets exist too).

Holography

“Imagine waking up one day and realizing that you actually live inside a computer game,” says Mark Van Raamsdonk, a physicist at the University of British Columbia in Vancouver, Canada. If it is true, he says, “everything around us — the whole three-dimensional physical world — is an illusion born from information encoded elsewhere, on a two-dimensional chip”. That would make our Universe, with its three spatial dimensions, a kind of hologram, projected from a substrate that exists only in lower dimensions.”

My entry’s emphasis on binary digits is consistent with this computer-game scenario. If we only accept that time goes in a straight line from past to future, believing this scenario leaves us and the universe at the whims of some god. But Einstein informs us that time is warped and curved - so besides the past affecting the future, the future can affect the past (and both times affect the present). If his Unified Field can be accepted, this god is not separate from humanity ... and we are the designers of our own computer game. The universe, and other worlds, are therefore “user friendly” to us. The information encoding our universe can’t be on a computer chip in my opinion – it originates in hyperspace (it also originates in space-time with the relatively primitive electronics of 20th and 21st century Earth). Nor can the information exist “only in lower dimensions” if hyperspace has 5 dimensions (4 of space, 1 of time).

Overcoming Instability in Extra Dimensions

Speaking of space dimensions and gravity, Stephen Hawking’s and Leonard Mlodinow’s book “The Grand Design” (Bantam Press 2010) says on pp. 160-161 - “In any but three dimensions even a small disturbance, such as that produced by the pull of the other planets, would send a planet off its circular orbit and cause it to spiral either into or away from the sun ...”

This notion of instability is based on the assumption that gravity is purely attractive. However, the essay above (the “body”) attempts to make it clear that gravity repels. Einstein showed that attraction of two bodies of matter actually results from space-time’s curvature pushing bodies.

There is a powerful statement in mathematical topology known as the fixed-point theorem, which was proved before World War 1 by the Dutch mathematician Luitzen Egbertus van Brouwer. It states that when a surface* is subjected to certain forms of continuous distortion, at least one point of the surface will remain fixed, or stationary. Such a stationary point is consistent with gravity pushing equally on a planet from every direction, causing the entire planet to maintain its orbit and not spiral into, or away from, its star. A large force from one direction acting over a short timespan, or a tiny gravitational disruption over eons, is necessary to change the orbit.

* Picture spacetime existing on the surface of the figure-8 Klein bottles (described above as subuniverses, and as similar to doughnuts). The Poincare conjecture has implications for the universe’s shape and says you cannot transform a doughnut shape into a sphere without ripping it. One interpretation follows: This can be viewed as subuniverses shaped like Figure-8 Klein Bottles gaining rips called wormholes when extended into the spherical spacetime that goes on forever (forming one infinite superuniverse which is often called the multiverse when subuniverses - which share the same set of physics' laws - are incorrectly called parallel universes which are wrongly claimed to each possess different laws). These rips (cosmic wormholes) provide shortcuts between points in space and time – and belong in a 5th-dimensional hyperspace. The boundary where subuniverses meet might be a Cosmic String (they’d be analogous to cracks that form when water freezes into ice i.e. cosmic strings would form as subuniverses cool from their respective Big Bangs and would move as subuniverses expand).

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