Jerry Bayles' <u>Electrogravitation as a Unified Field Theory</u> and OP
by
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This is a preliminary list comparing the findings of Bayles in his theory of Electrogravitation (EG) and the findings of Dr. White in Observer Physics (OP). It appears that, although the notation systems are a bit different, these two researchers have many points of agreement in both theory and calculation. The two systems seem compatible and comparison throws light on each due to the common interest in the fundamental constants. On the other hand, Dr. White has reservations about the use of the permeability constant as a substitute for the G constant in Newton's Law That and some of his derived constants may need rethinking.

1. The so-called "electrogravitational force equation" does not actually express a force but is in the units H N^2 / m. Bayles essentially describes the interaction (hf / r_x) (μo) (hf / r_x), where f is about 10 Hz and r_x seems to be *ao* which is the Bohr radius. He inserts the permeability constant in between to act like a gravitational constant. It is still not clear to Dr. White what the motivation is for the frequency chosen and what the permeability constant has to do with the gravitational constant. The parallel to Newton's gravity equation $Fg = G M_1 M_2 / r^2$ is clear, but it is not clear how this quantum level statement of (F_1) (μo) (F_2) turns into Newton's law at the macroscopic level, if that is what Bayles is implying. Dr. White derives the gravitational constant in terms of electromagnetism as follows:
    $G = (a \kappa e)^2 (Ss As / \varepsilon o \pi^2 b^{11})$, or
    $G = (16 / 3 \varepsilon o) (a \kappa e / b^3)^2$,   where $\kappa = (4 \pi \varepsilon o)^{-1}$.
    See item #25 for details of Dr. White's proposed approach to electrogravity.

2. Bayles (EG, p. 41) proposes a point in hyperspace that has "the same interval distance to all of normal space, and that interval is very small indeed." That is his version of the Observer's Transcendental Viewpoint that White refers to. It also corresponds to a straight line's point at infinity in projective geometry. White points out that all that you can observe at any one moment is all that you can observe, and that's it. The mass, space, and time that we project into a vast universe is totally dependent on the viewpoint that we as observers choose. That viewpoint is always transcendental. Only so many points of light are available to contain information. We can calculate that information density or resolution. We can also determine the limits of the transformations of information that are possible within that framework of the physiology that we

choose to perceive our world with. A computer with a screen is a simple analogy to the way Observer Physics works. What you experience is what you experience, and that is it. What you believe determines what you experience. Therefore anything is possible as long as you can define a belief that precisely describes the experience and that belief does not conflict with any prior belief that you still hold.

3.   Bayles believes (EG, p. 41) that "the so-called missing mass effect is simply the accumulation of the mass equivalent of the magnetic vector potential energy that is slowly filling space due to the fact that after each graviton is emitted only some actually ever interact again with other matter and further after reacting with other matter it is simply re-emitted to help stabilize the atomic system." Dr. White does not understand this statement. He accounts for most of the "missing mass" by showing that Newton's law as is describes galactic behavior when we account for an observer viewpoint shift that differs fundamentally from solar systems. This simple viewpoint shift (that reverses a sign in Newton's equation) accounts for most of the "Dark Matter" problem facing cosmologists.

4.   Bayles (EG, p. 41) defines gravity as "generated primarily by the magnetic vector potential acting on the electrical potential of particles at the particle Compton Wavelength." On p. 51 he further elaborates his definition: "Gravity is the result of a rotational magnetic vector having a basic frequency of f_{LM} and a basic radius related to its quantum wavelength of λ_{LM}." He also posits a particle (in his equations 80a and b on p 36) that looks very much like an electron to carry that action. Dr. White defines gravity as a reflection of abandoned observer resistance. He also defines it as the tendency of the universe to return to its fundamental state of unity as reflected in abandoned attention particles.

5.   Bayles in EG points to the similar form of the Coulomb law of electricity and the Newton law of gravity as a clue pointing to the unity of these forces. Dr. White also takes this observation as a starting point from which to derive his unifying principle.

6.   Bayles emphasizes the key concept of a Magnetic Force. White sees b as magnetic in nature, and % can also be interpreted that way.

7.   Both see mass as a standing wave of magnetic field vectors. White presents mass in terms of the magnetic field vectors % and b.

8. Inertia is the result of a need to restore matter from one instant to the next.   OP agrees with this principle.

9. The appearance of mass is a rapidly repeated creation like a movie projection. In EG ch. 9, p. 148, Bayles uses a strobe analogy and speaks of computer time slices for running multiple programs simultaneously.   In OP White describes the overall model in the same way.   Bayles does not pursue this analogy to its startling conclusions that can be easily tested experimentally.

10. Instant propagation is possible when viewing matter as phase waves.   White in OP describes phenomena in the same way with the GVE.

11. Electron energy flows in a circuit with no loss of power.   White in OP totally agrees with this.

12. Bayles proposes a hyperspace connection in this flow.   White in OP agrees.

13. The first equation in EG describes a velocity: $v = q^2 / 2\, h\, \varepsilon o$.   White in OP derives essentially the same equation to describe the FQF, $(\hbar c)$.

14. Bayles in EG discovers the fundamental role of alpha in this relation.   White in OP does also.   Both arrive at the combination $(\alpha\ c)$.   Bayes correctly sees this as a rotational vector end-point velocity.

15. Bayles gives as his formula for the electron rest mass, $Me = (\mu o\ e^2 / 4\ \pi\ Lq)$. Dr. White gives as the formula for the electron $Me = (\hbar / \alpha\ c\ ao)$.   These formulas are equivalent. $(\alpha) = (e^2 / 4\pi\ \varepsilon o\ \hbar c)$.   If we set that as a unity and multiply Bayles' formula with it, we take out the e^2 and the 4π and get $(\mu o\ \varepsilon o\ \hbar c\ \alpha / Lq)$.   Since $(\mu o\ \varepsilon o)\ (c^2) = 1$ by Maxwell's identity, we substitute and get $(\hbar\ \alpha\ /\ c\ Lq)$. White's (ao) is the Bohr radius (rn1) in Bayles' notation.   We discover here that $(Lq = ao\ a^2)$ is the connection between the two formulas and that Bayles and White have reached the same conclusion.   Appearance of alpha squared usually indicates an electromagnetic interaction in QED.   Here is no exception because Lq is the radius of the electron and ao is the Bohr radius, so Lq is the distance from the electron's singularity to its event horizon, and ao is the distance from the proton's singularity to the electron's event horizon when it is in the ground state of hydrogen (Bohr model).   These are average

displacements. In chapter 6 p. 112 Bayles explicitly uses the Maxwell identity to show the conversion between quantum electron electrostatic field energy to quantum electron field mass.

16. Bayles in EG points to gravity as the weakest force.   This is true from the large scale viewpoint, but modern physics is also right that at the smallest scale gravity wraps around and becomes the strongest force at the Planck scale.   Thus White in OP holds that gravity links the forces into a loop in which strength is based on a fractal scale and observer viewpoint.   Bayles rightly notes that electricity is prior to magnetism because the former is stronger.   Dr. White also describes electricity as prior to magnetism.

17. Bayles in EG arrives at toroid geometry for quantum state magnetic fields in a standing wave rotational action to describe particles with mass.   White in OP does also.   Dr. White's relation $\alpha = (b\ /\ \%)(St\ /\ Ss)^2$ clearly contains the formula for the volume of a torus: $St = 2\pi^2 b^3$, where $b = 1$ m, the center of the hole is point-size, and b is half the distance from hole center to farthest edge. The fine structure constant is involved in all the charge interactions between particles.

18. Bayles brings up the problem of the orbiting electron's bremsstrahlung and deals with it as a standing wave, but noting that the field energy is flowing to its terminus counterpart and thus not radiating away.   This is correct.   In OP Dr. White uses the analogy of a stable vortex formed by water flowing from a tap to a drain to show how such dynamic standing waves work.

19. In Chapter 2, p. 41 of EG Bayles defines gravity as generated primarily by the magnetic vector potential acting on the electrical potential of particles at the particle Compton wavelength.   This is still describing effects rather than causes. In OP the observer defines a viewpoint and that establishes the vector potentials. However, Bayles seems correct (p. 40) when he says that the action of electrogravitation is at 90 degrees in a four quadrant system and the action point is at the Compton radius of a particle and does not occur except at that radius.

20. Bayles suggests in EG chapter 2 that the gravitational lensing effects are likely due to rotation rather than bending of space time by mass.   This is probably just a matter of viewpoint.

21. Bayles suggests in EG chapter 3 that there is an electrogravitational force available because the universe is expanding rather than steady state. Tapping into this could produce a system of transportation by quantum leaps of superconducting macroscopic quantum systems. This is feasible.

22. In EG chapter 4 Bayles suggests that energy may be extracted from or taken in by matter by "properly phasing a stimulus of coherent electromagnetic energy". Dr. White suggests the same thing. This is a natural conclusion in a theory that assumes matter is due to patterns of standing waves.

23. Bayles suggests in EG chapter 4 that gravity is due to entropy because there is a slightly slower actual velocity than the expected velocity of orbiting electrons. This leads to precession and a slightly greater tendency to raise electrons to higher energy level than mathematically would be predicted.

24. Like Bayles, White also cites the experimentally demonstrated Aharonov-Bohm effect as evidence that scalar electric and magnetic vector potentials can penetrate barriers just like gravitational effects.

25. Bayles in EG expresses his electrogravitational interaction as $Fg = (Sys1)(\mu o)(Sys2)$, where the units of Fg are henry N^2 / m. Dr. White translates G into an electromagnetic expression as follows.

    $G = (\varepsilon o)^{-1} (e\ \alpha\ /\ \varepsilon o\ \pi\ b^3)^2 (Ss\ /\ As\ b)\ (\%\ /\ \pi\ b)^{.5} = 6.6712 \times 10^{-11}$ m^3 / kg s^2

    $G = (a\ \kappa\ e)^2 (Ss\ As\ /\ \varepsilon o\ \pi^2\ b^{11})$, where $\kappa = (4\ \pi\ \varepsilon o)^{-1}$.

    The constant e indicates electric charge, εo is the electric permittivity of space, b and % are magnetic constants and adjust fractal scale in space. (Ss) is the volume of a sphere with radius $b = 1$ m, and (As) is its area. This formula is the beginning of an electrogravitation unified field theory. It allows us to begin understanding gravitational interactions of masses in terms of electromagnetism. **The apparition of Coulomb's Law hiding inside the _G_ constant is obvious from cursory inspection of the above formula.** The third parens ($Ss\ /\ As\ b$) equals (1/3). We can adjust the formula to 6.67×10^{-11} m^3 / kg s^2 by including the Scaling Factor $(\%\ /\ \pi\ b)^{.5}$. The permittivity constant appears in the formula as do the Scaling Operator and Unit Radius (which are magnetic components). Of course the permeability constant occurs if we substitute using Maxwell's identity, but that is more complicated. The quantum charge component indicates charge interaction as Bayles wishes to show. Here we can work with the traditional constant G but think in terms of

electromagnetism. For example, we can find interactive masses that reach a gravitational equilibrium (under Millikan's experiment) when we set Coulomb's law for two opposite quantum charges and two equal masses. We start with the ratio of the quantum electric force (Fe) to the gravitational force (Fg).

$Fe / Fg = e^2 = 4 \pi \varepsilon o\ G\ Mx^2 = 1$.

Then we substitute for G the formula and discover that $Mx = 1.86 \times 10^{-9}$ kg, which is basically the Planck mass. There are at least three other derivations of this formula. This is the real "Electrogravitation Formula" Dr. White derives it from electrogravity unification (Millikan's experiment), black hole structure, and the relationship of the permittivity constant to geometry of spheres, where $\kappa =(4\pi\ \varepsilon o)^{-1}$. You can see the fractal structure as the same pattern repeats itself in alpha, Coulomb's Law, and Newton's Law.

$Mx^2 = \kappa\ e^2 / G$ (Electrogravity Unification)

$Mx^2 = (\hbar\ c\ \alpha) / G$ (Black Hole Quantum Structure)

$Mx^2 = Ss / \pi\ \kappa^2\ \varepsilon o$ (Permittivity of the Vacuum and Spherical Geometry).

Study of these relationships may lead to a fully developed theory of electrogravitation, including the ability to control gravity.

26. In EG chapter 9, p. 159, Bayles describes the argument for cold fusion in the same way that White does in OP. Bayles says, "since the vector-potential cannot be shielded against, if the quantum displacement associated with the generation of the vector-potential were to occur near a nucleus, say a Deuterium nucleus, then a nucleus may "swallow" the particle that was generating that vector potential. This would be fusion and thus a low energy form of the fusion reaction that is usually done at very high energies such as in a fusion reactor. It has been noted to occur sporadically in some cases and has been labeled "cold fusion". This type of action is difficult to control since the mechanism relies on quantum uncertainty and nuclear distances of interaction. It is however an expected possibility due to the nature of the quantum uncertainty principle as set forth by Heisenbergs uncertainty principle. That is, if you slow down a particle enough, its position in space-time becomes very uncertain. It could even land in and be captured by an adjacent nucleus. This is simply the nature of quantum action as it is presently understood and accepted by the physics community world-wide. Therefore cold fusion is very probable and possible as defined by the already known and accepted principles of quantum physics." White agrees and points out that the easiest way to "slow" a particle down is to cool it, to suck the kinetic energy out of it. Therefore he suggests cooling hydrogen or deuterium close to 0 K as possible and then treating it with proper resonant

frequencies that boost the probability of the fusion interaction.   Bayles points out correctly (EG, p. 159) that the strong and weak forces from this viewpoint must be considered as a single phenomenon.

27. Bayles essentially claims to designs the practical form of Douglas Adams' "Infinite Improbability Drive".   We can call it the Finite Probability Drive.   In principle it should be possible to build ships that can make instantaneous quantum jumps from any one point in reality to any other point in reality. In practice there are lots of technical issues.   On the other hand White points out that we already have such a ship of sorts in the form of an observer's imagination. We simply have a physical lag (a sort of quantum jet-lag) due to habitual identification with a certain body type and set of environmental conditions and "survival requirements".   This is the main technical barrier: the self-imposed limitations of human consciousness.   Bayles analyzes biological requirements for certain types of space travel and arrives at an evolutionary type that nicely matches reports of what the greys look like.   It thus looks like they represent one of our evolutionary branches in this universe.   They are one of our space cousins whom we might as well respect and understand since some of us may soon walk in their "shoes", and some people from this planet probably already have chosen to move into the hybridization and adaptation process.

28. On pp. 167-168 of EG Bayles correctly points out the discrepancy in Einstein's argument that linear acceleration and gravitational acceleration are the same. This is a fundamental insight (and blunder on Einstein's part) which others have noticed as well.   Dr. White concurs.   They are related but not the same.

29. In EG chapter 10, p. 175, Bayles says, "Thus, the total interaction that occurs partly in normal space is closed through the classic quantum radius points through imaginary energy space while to an outside observer in normal space it would appear that a monopole action had just occurred" to explain why gravity appears to be a monopole.   This is basically correct.   The "imaginary energy space" may be in the hyperspace of the observer's own consciousness or "external" since, after all, it is a hyperspace.   This is true also for the time-reversed hyperspace flow of ordinary photons.   In OP White often calls such photons attention particles.   On the question of monopoles, Dr. White gives simple mathematical descriptions of a gravitational field that show all gravitational systems are bipolar.   A massive object that exists all by itself shows no gravitational properties.   But there is no such thing except possibly

the whole universe.   Unfortunately that also is bipolar with the observer's transcendental viewpoint, which, by the way, is probably why we seem to be in the center of the universe wherever we are.   Whenever an object interacts gravitationally with another object, there is an elliptical orbit.   This orbit has two focal poles, one for gravity, and the other for antigravity.   Actually there are two ellipses and four poles each representing a different viewpoint of gravity.

30. Bayles in EG considers a quantum least velocity, quantum least frequency, and several other "leasts". This is an important concept. Bayles uses $V_{LM} =$ -0.085 m/s.   Dr. White has done preliminary study of the idea of quantum minimum velocity as well as a quantum maximum velocity.   His quantum maximum $V =$ 10^{42} m/s. The known universe has a radius of only about 10^{26} m, so such a velocity is useful for traveling between universes in the blink of an eye. White also finds a much slower velocity that can only exist close to the Planck scale singularity of an electron. It drops out of the Great Velocity Equation as the reciprocal of (10^{42} m/s) mediated by c^2, and comes to 9×10^{-26} m/s. The universe clock probably has not yet reached 10^{18} seconds, so this cosmic turtle has barely gotten underway at trekking across a single meter stick. That does not matter since such a speed only occurs for photons at a distance of around 10^{-33} m or smaller from a Planck singularity, and it decays rapidly as the photon accelerates on a spiral away from the singularity.   These numbers only become significant when we start tunneling in hyperspace and traveling from one universe to the next.   For the moment we have more than enough to do getting a handle on this universe.   But there they are waiting until we are ready.

31. Bayles emphasizes the creative use of waveguides.   White also points out that the waveguide is a fundamental principle in physics.

32. In a separate article, "Particle Field Energy Down-Scaling Via A New Complex Fine Structure Constant" Bayles refers to a "first reduction velocity" that equals c times the square root of alpha.   Dr. White (OP, 13:41-42) also notes the importance of "c times alpha".   He then derives a fundamental graviton quantum coupling constant and discovers that it is related to the photon's coupling constant alpha, but at a subtler level.   It turns out to be the square root of alpha and represents the quantum eccentricity constant of a graviton-oriented gravitational system.

33. In the same article Bayles proposes a ten-step quantum horn-shaped spiral for the

energy as it emerges from within the electron.   The steps are governed by a complex value of alpha and unfold in a phi-type spiral.   Dr. White also proposes a phi-type spiral that may well look like what Bayles models.   The ten p-angle steps go from -51.853974012778 at p(1) to -158.853974012778 at p(10).   This suggests the role of (%/*b*) is involved.   The p(10) value is just [p(1)x10]-360, and 10 = (%/b)^2   Dr. White agrees that the external action is local and relativistic while the internal action is non-local.   Bayles shows the velocity decreasing at each step.   Level 1 is at the Compton radius at the surface of the electron.   At the end of ten steps the light speed photon is only going at 0.01284 m/s.   I can walk way faster than that.   Bayles goes on to note the Great Pyramid frequencies of 2 π horizontal, a Schumann frequency 7.83 Hz vertical, and a very close to 10 Hz apothem.   Again we find (%)^2 = 10.   Dr. White has no comment on the relations to the Great Giza pyramid, and (for now at least) sticks to his own line of research in that department while keeping an open mind.

34. Bayles points out in "Hydrogen as a Free Energy Source Defines a New Universe" that "infinity and zero are useful mathematical concepts but do not occur in observable nature."   This is also a fundamental principle of OP.

35. Bayles has a minimum quantum delta frequency of about 10 Hz.   This is another appearance of %^2.