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Towards a Predictive Model of Subtle Domain Connections to the Physical Domain Aspect of Reality: The Origins of Wave-Particle Duality, Electric-Magnetic Monopoles and the Mirror Principle

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Abstract — Humans see only a small fraction of the electromagnetic spectrum and hear only a small fraction of the sound spectrum. Perhaps we similarly perceive only a small fraction of a greater reality spectrum. We propose to quantify this concept by hypothesizing that our familiar D-space of ordinary experience and physical laws is augmented by a reciprocal R-space. It is conjectured that conjugate substances synergistically functioning in both our familiar direct four-space (D-space) and its reciprocal four-space (R-space) constitute a special eight-space representation of matter whose projection onto D-space constitutes the present base space for quantum mechanics and electromagnetism. Utilizing a Fourier transform relationship between conjugate substances functioning in these dual four-spaces, it has been possible to show that: (1) the R-space substance has negative energy and thus is a resident of the physical vacuum; (2) this R-space substance forms the pilot waves conjugate to physical particles, exhibits velocity properties faster than physical light and has a magnetic nature; (3) variation of the undulation intervals of the wave-like R-space substance controls the position, velocity, acceleration and locus of particle-like moieties in the "now" of D-space; and (4) a special inversion mirror-type relationship exists between the substances of these two spaces with Maxwell-type equations existing in each.

Keywords: dual four-spaces — magnetic monopoles — electromagnetism — superluminal velocities — negative energies — de Broglie pilotwaves

Introduction

Today, everyone knows that humans see only a small fragment of the electromagnetic (EM) spectrum and hear only a small fragment of the sound spectrum. Thus, it shouldn't seem too unreasonable to propose that, on average, humans currently perceive only a small fragment of the reality spectrum. Although many will have no problem concerning the possible existence of distinctly different bands of reality in the overall spectrum of reality, most of us, but not all of us, have difficulty with cognitively accessing bands other than the physical band.

In a previous paper [1], this author defined subtle energies as all energies beyond those associated with the four fundamental forces accepted by today's physics and proposed that they constitute energies that flow in various

substructures of the vacuum. This is why they are non-observables *via* the physical senses or present-day instrumentation. Figure 1 was proposed as one example of possible subtle domain constructions one might wish to consider and explore. However, no relevant details were given as to how such a heirarchy of substructures might operate.

In a recent book [2], a full-blown qualitative description of this model and its consequences has been given while, in this series of papers, the beginnings of its quantitative foundation will be laid. In particular, here we focus largely on the physical and conjugate physical domains of Figure 1 plus their imbedding domain.

Today, conventional physical domain theories all rest on the foundations of quantum mechanics which, although having only an empirical basis, is known to work to high levels of quantitative precision even though little insight is obtained into the detailed processes involved in the various interactions. A portion of this may be due to the Kaluza-Klein representation of higher dimensions as tightly "rolled-up" cylinders at each point of distance-time four-space [3] so that they are inaccessible by our physical cognition mechanisms and we can perceive only some projection of higher-dimensional events onto our familiar four-space [2]. A portion may also be due to the fact that we do not yet understand the origins of wave-particle duality although we know that it is a key "linchpin" of quantum mechanics. To proceed to a quantitative under-

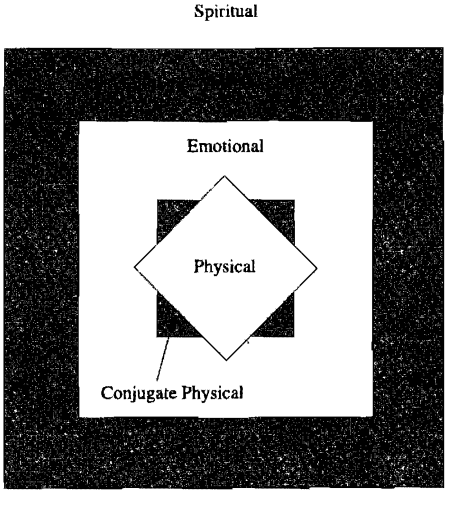

Fig. 1. A visualization of dual four-space frames (physical and conjugate physical) constituting a special eight-space imbedded in a nine-space (emotion frame) which is, in turn, imbedded in a ten-space (mind frame). All of this is imbedded in an eleven-space which is the domain of spirit.

standing of subtle domain phenomena, it seems useful and perhaps necessary to move along a path that guarantees wave-particle duality from the very outset and that is the approach taken in this paper.

It is well known that Nature generally displays properties of symmetry and this is certainly manifest in the physical presence of positive and negative electric charge monopoles. Surprisingly, although magnetism is a physical observable, it does not manifest as a monopole but only as a dipolar quality. Although science has looked long and hard for these magnetic monopoles, no satisfactory experimental evidence has been found to reveal their physical existence. However, on the theoretical side, Harmuth [4] showed that, although Maxwell's equations fail for waves of non-negligible relative frequency bandwidth propogating in a medium with non-negligible losses because of singularities encountered in the course of the calculation, the equations succeed when a magnetic current density (moving magnetic monopoles) is introduced into the equation set and then shrunk to zero after one has reached the last singularity but not before. On another front, Seiberg and Witten [5] found that in the four-dimensional quantum field theory, supersymmetry, certain key singularities could be eliminated by introducing magnetic monopoles. They were able to show that the monopoles became massless right when the equations, in the absence of magnetic monopoles, explode to infinity.

Barret [6] may have cleared up the dilemma by pointing out that the Maxwell equation guage symmetry is of the $U(1)$ form when only electric charge and electric currents are present but is of the more complex $SU(2)$ form when magnetic charges and currents are also present. $U(1)$ fields are known to have fewer local degrees of freedom than $SU(2)$ fields, and $SU(2)$ fields can be transformed into $U(1)$ fields by the process of symmetry breaking. However, after symmetry breaking only *some* topological charges are conserved; electric charge is conserved but magnetic charge is not. One can conclude from this that, when one wishes to consider phenomena wherein magnetic charge is important, one must focus on a higher level of reality, $SU(2)$, than that of the purely physical reality, $U(1)$.

Over the last two centuries, a variety of magnetic anomalies have appeared that are still not understood today. It is time that they are also taken into consideration. A partial list is the following:

(1) In the 1850s, Baron von Reichenback was studying magnetic phenomena *via* the use of sensitive human subjects as detectors [7]. His subjects observed a blue flame-like glow from the north pole of a magnet and a red flame-like glow from the south pole. These flames could pass through a building wall and displayed no tendency to unite; they could be diverted by blowing on them or by placing a solid object in their path and no heat could be detected from them. This magnetic light could be focussed by a glass lens and it could reportedly expose silver halide photographic plates [7].

(2) In terms of the psychic phenomena area of activity, professional psychics have talked repeatedly for the last ~200 years about magnetism as a major source governing and determining this class of phenomena. Electricity has not been referred to as such a source. Experimentally, it has been observed that, if one places a psychic subject in a Faraday cage, they work even better whereas, if they are placed in a magnetically shielded room, they often lose their psychic abilities.

(3) If one looks at some careful work in the dowsing area [8], one finds that dowsers are incredibly sensitive to electromagnetic energies, particularly to magnetic fields and at levels $\sim 10^{-12}$ of the Earth's field. Amazingly small perturbations in the local magnetic field appear to trigger signals in the dowser's adrenal glands. From polarized electromagnetic wave studies with dowsers, they have been shown to be especially sensitive to the magnetic component of the EM wave, especially when the magnetic component is horizontally polarized [8].

(4) From the experience on the enzyme tripsin in water [9], one notes that the enzymatic activity is enhanced in strong DC magnetic fields and also by the action of a healer's hands. This particular healer effect was equivalent to that of a 20,000 G magnet [9]. Other experiments revealed that magnet-treated water and healer-treated water exhibited a reduced surface tension by ~20% and a reduced hydrogen bonding [10]. The surface tension relaxed back to baseline in ~48 h after the removal of the magnet.

(5) If one takes a DC magnet (~50–100 G) and places it close to specific acupuncture points on the hand or arm, local analgesia is produced. Likewise, if one lays a subject with a kidney problem flat on a table and face up and then addresses the alarm point of the kidney meridian with a DC magnet, one leg on the subject will elongate relative to the other [11]. Thus, we see that a magnetic effect can be transferred to the physiological response level.

(6) It is well known that the organic molecule myosin is essential in muscle contraction. Myosin phosphorylation is involved in the expression of ATPase activity which accompanies muscle contraction. It has also been shown that *in-vitro* cell-free myosin phosphorylation exhibits a roughly linear increase in gamma^{32}P uptake by myosin light chains with static magnetic field strength increase [12]. Experiments with QiGong practitioners have shown that they can consistently reduce the phosphorylation due to a treatment at a 2–5 ft distance from the samples. Placing the samples in an Amunel magnetic shielding box produced a significant reduction in the subject's Qi effect in most cases — to the border of insignificance [13].

(7) Last, but not least, Smith [14] has found that water exhibits a type of memory characteristic *via* studies of the hypersensitivity of some humans to relatively weak electromagnetic fields at precise and patient-

specific frequencies that had been imprinted into water *via* a solenoid coil. The existence of this phenomenon has been confirmed through double-blind clinical trials [15] and seems to manifest in most cases *via* spastic muscle groups or greatly weakened muscle groups, in particular limbs or parts of the body of the person affected. Smith [14] found that EM treatment of water held both inside a solenoid coil or outside a toroidal coil was capable of imprinting frequency-type information into the water, provided the proper field intensities were above critical threshold levels. A sensitive dynamic electric filter method was developed to objectively read out these imprinted frequencies from the water onto a strip-chart recorder [16]. The water can hold this imprinted information for months before read-out but placing the imprinted water in an Amunel box for a short time completely erases the information [17]. Many of these anomalies can be traced to the odd behavior of water, which is certainly not considered to be magnetic in nature by all conventional standards.

As a first step towards understanding these key dualities, let us review our present-day picture of de Broglie's pilot waves [18, 19].

de Broglie's Pilot Waves

In 1924, de Broglie proposed a novel idea. He postulated that the motion of a physical particle is governed by the propagation of certain "pilot waves" which are intimately associated with the particle [18]. Further, the wavelength λ, the frequency ν, and the velocity v' of these pilot waves associated with a particle of momentum p, velocity v, and total relativistic energy E are given in terms of Planck's constant h by

$$\lambda = \frac{h}{p}\ , \quad \nu = \frac{E}{h}\ , \quad v' = \nu\lambda = \frac{E}{p} \tag{1}$$

A plot of the net pilot wave shape profile must be qualitatively like the curve shown in Figure 2a with the physical particle being located somewhere within this envelope. The pilot waves form a group of waves and, as a function of time, the group must move along the x-axis with the same velocity as the particle.

From straightforward mathematical analysis [19], one finds that

$$v' = c\left[1 + \left(m_0 c / p^2\right)\right]^{1/2}, \quad v_g = v = c^2 p / E \tag{2}$$

Here, m_0 is the rest mass of the particle, c is the velocity of light, and v_g is the

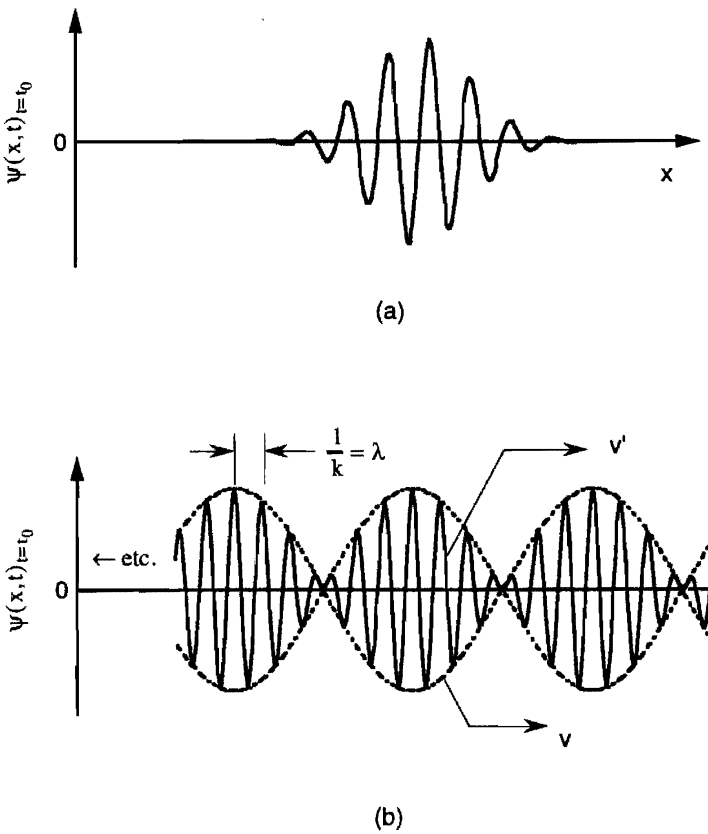

Fig. 2. (a) A group of pilot waves for a physical particle located somewhere in the group and (b) the sum of two sinusoidal waves of slightly different frequencies and wave numbers, k. The waves move at velocity v' while the group propogates at velocity v.

velocity of the moving group of waves. Of course, v_g is equal to the velocity v of the particle while the quantity v' is the velocity of the individual oscillations of the pilot waves which, *via* Equation (2), is always greater than the velocity of light c. In fact one finds that

$$v' = c^2 / v \tag{3}$$

so that, the smaller is v, the greater is v', with v' having the lower limit of $v' = v = c$. Since $v' > v_g$, the individual waves are constantly moving through the group from the rear to the front, just as one finds in a group of water waves.

To pictorially represent the difference between v_g and v', the sum of two simple harmonic waves of slightly different frequencies and wave numbers, k, is shown in Figure 2b ($k = 1/\lambda$). These two waves alternately interfere and rein-

force in such a way as to produce an infinite succession of groups of pilot waves traveling in the direction of increasing x. The particle that is being piloted has equal probability of being in any group at time $t = 0$. However, its position within that particular group is undetermined to within a distance comparable to the length $\Delta x = 1/\Delta k$ of the group. Pursuing this line of reasoning further, quite naturally leads to the mathematical statement of the Heisenberg Uncertainty Principle [19],

$$\Delta x \, \Delta p_x = h/2\pi \tag{4}$$

and certainly tends to validate the quantum existence of de Broglie's pilot waves.

Returning to Equation (3), let us suppose that the particle is the electron and let us utilize Dirac's picture of the formation of an electron from the vacuum [20]. This model successfully led to the prediction of the positron as a hole in the vacuum with positive energy, so that it was physically observable, and it tended to substantiate the initial supposition that the vacuum contained the negative energy solutions of Dirac's relativistic quantum mechanical equations for the electron. Of course, Dirac neglected the electron/photon interaction in his equations, which everyone did at that time because it came out to be infinite in all the existing theories, and thus missed also predicting the Lamb shift in the hydrogen spectrum. However, in spite of this neglect, the Dirac equation predicted the hydrogen spectrum with only a 0.1% discrepancy.

The first postulate of this paper is now made that, just as the electron travels in the physical domain at $v < c$ with positive energy, its companion pilot wave travels in the vacuum at $v' > c$ with negative energy. Thus, a plot of energy *versus* velocity for the electron and the electron pilot wave is expected to look like Figure 3. Here, the light barrier acts as a singularity-type point between the physically observable domain of electron experience and the physically non-observable domain of electron pilot wave experience. If one places the electron at a particular $v < c$, one can place its pilot wave on the $v' > c$ branch such that the combined energy is ΔE. Then one notes that, as v decreases, v' increases as required by Equation (3). Of course, $\Delta E = 0$ is one of the possible choices.

Although Figure 2b was developed by considering only two unmodulated waves, a very similar picture may be developed by using an infinitely large number of unmodulated waves, each with infinitesimally different k and ν, which combine to form a single traveling group. We can consider this to be the group of Figure 2a by adjusting the phases of all the unmodulated waves so that, at the center of the group, they are all in phase. Proceeding away from the center in either direction, these unmodulated waves begin to become out of phase with each other (different k). Beyond some distances, they are completely out of phase and stay that way so their combination leads to total

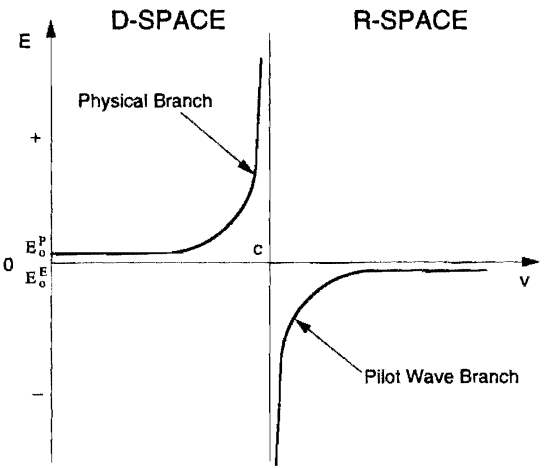

Fig. 3. Energy-velocity diagram for a D-space (distance-time) physical particle ($v < c$ branch) and its R-space (reciprocal space) pilot wave conjugate ($v > c$ branch).

destructive interference outside this range so that Figure 2a, rather than Figure 2b, represents the group.

Expanding on Figure 3, extended to all types of particles, the upper right-hand quadrant is the electrical superluminal (tachion) domain first discussed at length by Bilaniuk *et al.* [21]. For this domain, the particle mass is imaginary ($m' = i|m|$). By symmetry, the lower left-hand quadrant must be a magnetic subluminal branch ($m' = -i|m|$). It is satisfying that Terletski [22] has shown that, within the framework of relativistic kinematics and dynamics, there are no grounds for excluding any of these particles. Thus, the present framework of the theory of relativity admits three types of essentially different systems: (1) systems with positive proper mass, $m^2 > 0$, $E > 0$, (2) systems with negative proper mass, $m^2 > 0$, $E < 0$, and (3) systems with imaginary proper mass, $m^2 < 0$. Thus, all four categories of mass represented in the four quadrants of Figure 1 appear to be viable from the point of view of purely relativistic and quantum mechanical constraints.

All of the foregoing unfolds in a straightforward way when one assumes that the pilot wave concept holds and that wave-particle duality is a property of physical matter. In the next section, we shall see that, by considering two complementary types of matter operating in dual conjugate four-spaces, we can obtain all the results of this section plus many more.

An Eight-Space Model Comprising Dual Conjugate Four-Spaces

Of all possible sub-spaces available in an eight-space, let us focus our attention on two particular four-spaces [2]. One will be the familiar direct four-

space (x, y, z, t) where x, y, z represent orthogonal distance coordinates and t represents time. The other will be its reciprocal four-space (k_x, k_y, k_z, k_t) where

$$k_x = \frac{a_1}{x}\ , \quad k_y = \frac{a_2}{y}\ , \quad k_z = \frac{a_3}{z}\ , \quad k_t = \frac{a_4}{t} \tag{5}$$

In the simplest case, we shall let $a_1 = a_2 = a_3 = a_4 = a$. This k-space is a natural wave space and has been greatly utilized by solid state physics as a vehicle for studying diffraction phenomena. Since the general model discussed in Ref. [2] is a diffraction model, we make the postulate, to be justified later, that substance in the direct space (D-space) is related to substance in the reciprocal space (R-space) by a Fourier transform [2, 23]; *i.e.*, in one-dimension,

$$F(k_x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} f(x) e^{-ixk_x}\, dx \tag{6a}$$

$$f(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} F(k_x) e^{+ixk_x}\, dk_x \tag{6b}$$

where f represents the D-space distribution while F is its R-space counterpart. Bracewell [23] finds straightforward extension of the Fourier transform to a three-dimensional distribution in D-space and its counterpart in R-space, Komrska [24] extends this further to N-space where N can be much greater than 3 (see Appendix I).

By such a procedure, we can allow D-space to be particle space and R-space to be wave space and, by treating substance expression in nature as at least an eight-space phenomenon, we have "built-in" wave-particle duality. Further, since in D-space physical mass is positive, in R-space, Equations (I-3) show that the complementary mass is negative. This is fully consistent with the earlier discussion that, since physical particle energy is positive in D-space, its counterpart in R-space is negative. We thus see that R-space is the first substructure band of the vacuum so that the substance of this domain is not a physical observable *via* conventional probes. It is this R-space substance that acts as the de Broglie pilot wave for the physical substance of D-space.

The second postulate of this paper is that we identify the pilot wave for the electron as the magnetic monopole which, for simplicity, will be called the magneton. As a correlate of this postulate, it is proposed that all electric particles operating in D-space have pilot waves generated by fundamental magnetic moieties operating in R-space [2]. With this postulate, one restores a type of symmetry to nature and one clearly places the magneton in a physically non-observable realm which is at least consistent with the experimental experience concerning observations of the magnetic monopole. Because the magneton travels so fast, it is readily able to weave a pilot wave shape around the physical electron.

To expand on this picture in order to more fully appreciate the relationship

between D-space and R-space substances, let us begin with singlet primordial **k**-waves plus their D-space counterparts and then proceed towards special groups of multiplet primordial **k**-waves and their particulate expression in D-space.

A. Pre-Particle Conditions

Modern texts [23] on Fourier transforms show that simple harmonic waves of the sine and cosine type in the k_x-direction of R-space lead to a pair of δ-functions in the x-direction of D-space. This is simply illustrated in Figure 4. Since the sine and cosine differ only by a $\pi/2$ phase shift, the general simple harmonic function in R-space with some particular phase shift also yields a pair of δ-functions along x with their strength depending upon the phase angle as illustrated *via* the bottom panel of Figure 4. From the mathematics one finds that, as the undulation interval Δk_x of the R-space wave increases, the δ-functions at positions $\pm x_0$ in D-space move closer to the origin and one finds that

$$x_0 = 2\pi / \Delta k_x \tag{7}$$

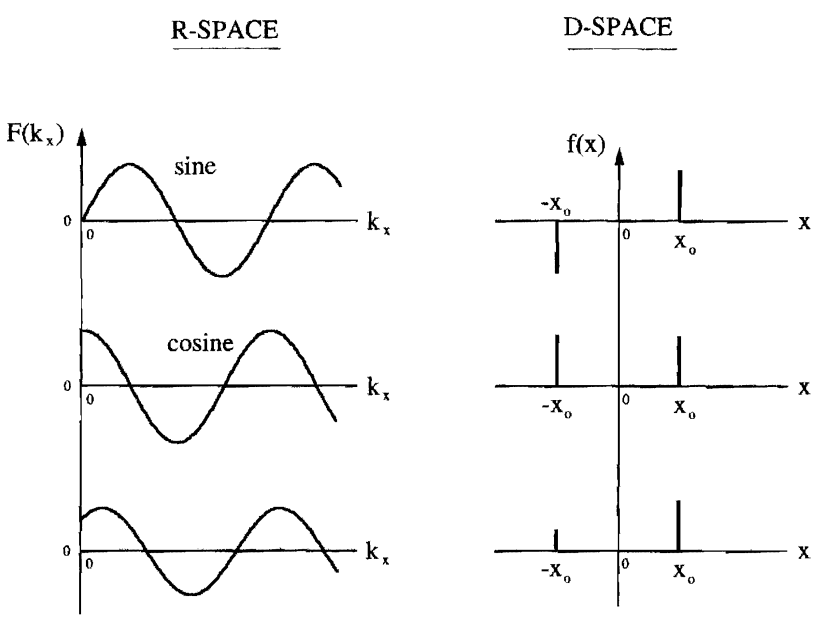

Fig. 4. Complementary substance representations in D-space and R-space. Particle-like delta functions in D-space have wave-like conjugates in R-space of simple sine and cosine type.

Further, as the amplitude of the undulations increase, the strength of the δ-functions increase linearly with the amplitude.

For a single δ-function, located at $x = x_0$ in D-space, the generating primordial k_x-wave in R-space is given by

$$f(x) = \delta(x - x_0), \quad F(k_x) = e^{-ix_0k_x} = e^{-i(2\pi k_x/\Delta k_x)} \tag{8a}$$

when we introduce Equation (7) into Equation (8a). The results of Figure 4 are easily obtained from Equation (8a) by considering the mathematical identities connecting the sine and cosine functions to the exponential functions. To shift the δ-function an amount Δx, in D-space, one need only alter this primordial singlet by the phase factor $2n\pi = \Delta x \cdot k_x$, where n is an integer, in R-space. Thus, if one has unlimited control of the phase of such a primordial singlet **k**-wave, one can displace this δ-function to any arbitrary position along the x-axis of D-space. Using a superposition of such plane waves, the δ-function can be replaced at any arbitrary position (x_0, y_0, z_0, t_0) in the four-dimensional D-space; *i.e.*,

$$f(x,y,z,t) = f(\mathrm{r}) = \delta(x - x_0, y - y_0, z - z_0, t - t_0) = \delta(\mathrm{r} - \mathrm{r}_0)$$

$$F(k_x,k_y,k_z,k_t) = F(\mathrm{k}) = \exp\left[-i(x_0k_x + y_0k_y + z_0k_z + t_0k_t\right]$$

$$= e^{-i\mathrm{r}_0\mathrm{k}} = e^{-i(2\pi k/\Delta k)} \tag{8b}$$

Thus, by controlling the phase of this primordial singlet **k**-wave in four-dimensional R-space, this δ-function can be displaced to any position of four-dimensional D-space. It doesn't take much imagination to see that, at least metaphorically, we are close to describing a type of wave-particle duality here when one considers the interplay between these reciprocal four-spaces. To proceed, let us drop back to our simple singlet plane wave of Equation (8a) and slowly enrich the picture step by step.

B. Time-Flow

In our four-dimensional D-space, time must always be taken into account even if one only allows δ-function excursions along the x-axis; *i.e.*,

$$f(x,t) = \delta(x - x_0, t - t_0)$$

$$F(k_x,k_t) = e^{-i(x_0k_x + t_0k_t)} = \exp\left[-2\pi i\left(\frac{k_x}{\Delta k_x} + \frac{k_t}{\Delta k_t}\right)\right] \tag{8c}$$

where t_0 can be taken to represent the "now," a point in the past or a point in the future. Since our cognitive experience of D-space is that objective time

appears to flow only in the forward direction, for our δ-function to remain at x_0 in the continually changing "now" as viewed from our reference frame, the phase factor in Equation (8c) must change in a predictable fashion. In fact, for the δ-function to remain at $x = x_0$ in the "now," we must define

$$t_0 = t_{00} + \alpha_1 \Delta t + \alpha_2 \Delta t^2 + \cdots \tag{9}$$

where t_{00} is an absolute constant, Δt is the time interval that has passed since $t_0 = t_{00}$ and the α_j are constant coefficients. For simplicity, we could consider only small values of Δt so that only the term linear in Δt need concern us and, because we require an equation analogous to Equation (7) to hold for the time-axis, we have

$$t_{00} + \alpha_1 \Delta t = 2\pi / \Delta k_t \tag{10a}$$

so that

$$\Delta k_t = 2\pi / (t_{00} + \alpha_1 \Delta t) \tag{10b}$$

and the undulation interval of the k_t-axis waves in R-space must decrease in a linear fashion. It is almost as if our observational frame for D-space is attached to a flowing river, call it the "river of time" if you will, and something beyond eight-space is controlling the flow of the river. Of course, in the general instance that Δt is not small, this river flow exhibits non-linear behavior; *i.e.*,

$$\Delta k_t = \frac{2\pi}{t_{00} + \sum_{j=1}^{\infty} \alpha_j \Delta t^j} \tag{10c}$$

in order to maintain a constant phase factor for $F(k_x, k_t)$ from Equation (8c). This is a necessary condition for one to observe the δ-function at an unchanging position on the x-axis of D-space throughout the passage of time.

One might ask "what abrupt changes in R-space abruptly shift the δ-function from x_0 to $x_0 + \Delta x_0$?" This only requires an abrupt change in the k_x-axis primordial wave undulation interval from Δk_x to $\Delta k_x'$ where

$$\Delta k_x = \frac{2\pi}{x_0}, \quad \Delta k_x' = \frac{2\pi}{x_0 + \Delta x_0} \tag{11a}$$

For constant velocity movement of the δ-function along the x-axis over the distance interval x_0 to $x_0 + \Delta x_0$ and time interval t_0' to $t_0' + \Delta t_0'$ one requires only that

$$\Delta k_x = \frac{2\pi}{x_0} \text{ for } t \leq t_0'$$

$$\Delta k_x' = \frac{2\pi}{x_0 + v_x \Delta t} \text{ for } 0 \leq \Delta t' \leq \frac{\Delta x_0}{v_x} \tag{11b}$$

where v_x is the velocity along the x-axis. Thus, the k_x-axis undulation interval in R-space must change in a well-defined way with time, or more properly with its k_t-axis undulation interval Δk_t, in the following way:

$$\Delta k_x' = \frac{2\pi}{\left[x_0 + \frac{v_x}{\alpha_1}\left(\frac{2\pi}{\Delta k_t} - t_0'\right)\right]} \tag{11c}$$

In a similar fashion, one could state the specific R-space conditions needed for δ-function movement at constant acceleration a_x along the x-axis of D-space over the interval x_0 to $x_0 + \Delta x_0$ and t_0' to $t_0' + \Delta t_0'$. Then one ends up with a somewhat more complex expression than Equation (11c) connecting $\Delta k_x'$ to Δk_t, x_0, t_0', v_x and a_x. To have our δ-function perform simple harmonic motion along x, circular motion in the xy plane or a spherical path in D-space, well-defined relationships between Δk_t and the other undulation intervals are easily developed (see Appendix II).

Now that the formation and motion of an individual δ-function in D-space has been dealt with, let us now postulate that it is clusters or microgalaxies of such δ-functions that form one of the key foundation stones for physical particle formation in D-space. It is beyond the scope of the present paper to deal with that phase of the work and it will be left for a subsequent paper; however, it will be noted here that it is a multiplet primordial **k**-wave that one needs to define the locations and correlated motions of a small galaxy of δ-functions; *i.e.*,

$$P_n = \sum_{j=1}^{n} a_j \delta_j (x - x_{0j},\ y - y_{0j},\ z - z_{0j},\ t - t_{0j}) \tag{12a}$$

$$K_n = \sum_{j=1}^{n} a_j \exp\left\{-2\pi i\left[\frac{k_x}{\Delta k_{xj}} + \frac{k_y}{\Delta k_{yj}} + \frac{k_z}{\Delta k_{zj}} + \frac{k_t}{\Delta k_{tj}}\right]\right\} \tag{12b}$$

At this point, it has been shown that there is a fundamental and very basic connection between the undulation intervals of the singlet primordial **k**-wave

components in four-dimensional R-space and its conjugate δ-function moiety position in four-dimensional D-space. However, this is pictorially quite different from the totally D-space picture of the particle and its associated pilot wave given in Figure 2a. In order to integrate these two views, discussion of Maxwell's equations and the Mirror Principle are needed. These follow in the next two sections.

Reconciling Maxwell's Equations

Although, from the foregoing, magnetic charge has found a home in the physically non-observational frame of the vacuum and thus div $\mathbf{B} = 0$ for the physical frame as required, how does one accommodate the physically observable **B**-field properties manifested by different materials and both the magnetic flux, **B**, and $d\mathbf{B}/dt$ in Maxwell's equations?

To answer this question, one begins by realizing first that, since spatial or temporal waveforms and their spectra are Fourier transforms of each other, if the faster than light domain is a frequency domain, wave/particle duality would be potentially maintained if any physical particle and its magnetic counterpart or pilot wave had a Fourier transform relationship with respect to each other. Thus, one now has a physical electric particle moving about in our normal cognitive four-space domain of distance-time and its companion magnetic moiety moving about in a presently non-cognitive four-space domain in which each of the coordinates is a frequency coordinate. In other words, each coordinate axis of this new four-space is an inverse of one of the coordinates in our conventional (x, y, z, t) four-space; *i.e.*, $(x^{-1}, y^{-1}, z^{-1}, t^{-1})$.

Next, one must allow the magnetic moiety (pilot wave) to interact with its companion (conjugate) electric particle but they are separated by the light barrier. This leads to the third postulate of this paper which is that these two cognitive four-space frames, which are dual to each other in a special way, are imbedded in a higher-dimensional frame (a nine-space, the emotion frame of Figure 1) wherein one of its substances (call it deltron for pedagogical purposes) can interact with electric matter at $v < c$ and also interact with magnetic matter at $v' > c$ because it is not subject to the constraints of the $v = c$ singularity. Thus, this higher-dimensional substance (deltron) can act as a kind of "fluid clutch" allowing an indirect interaction to occur between the electric and magnetic substances. One now asks what is required for this interaction to yield the standard expressions for Ampere's and Faraday's laws as represented in Maxwell's equations.

Just as the Charge Superposition Principle [25] provides an equation for the electrostatic potential V in terms of the electric charge distribution ρ_e in the (x, y, z, t) frame, an analogous equation provides a relationship for the magnetic vector potential **A** in terms of the magnetic charge distribution ρ_m in the $(x^{-1}, y^{-1}, z^{-1}, t^{-1})$ frame. The degree of coupling between the two substances is, to first order, expected to increase linearly as the local deltron density increases so that a dipolar image of each electric charge appears in the

$(x^{-1}, y^{-1}, z^{-1}, t^{-1})$ frame traveling at $v > c$ and a dipolar image of each magnetic charge appears in the (x, y, z, t) frame traveling at $v < c$. This transformation is considered to be a property of the interfacial domain between these two frames in their respective image formation directions.

As physical analogs to illustrate this transformation a little more plausibly, suppose one has in the (x, y, z, t) frame, a half-space of material A joined at a planar interface to a half-space of material B as illustrated in Figure 5a. A singularity (electric charge, edge dislocation [26], *etc.*) is placed in material B at a position some distance from the interface. Mathematics shows that some type of image of that singularity will appear somewhere in material A in order to satisfy the proper boundary conditions at the interface. Something very similar can be expected to happen at the (x, y, z, t)/deltron/$(x^{-1}, y^{-1}, z^{-1}, t^{-1})$ interface *via* part of what will be called the "Mirror Principle."

If one places a single singularity, like an edge dislocation, in phase B a distance z from the interface then, in the most general case, a cluster of image singularities is needed in A to balance (1) the vector mechanical displacement

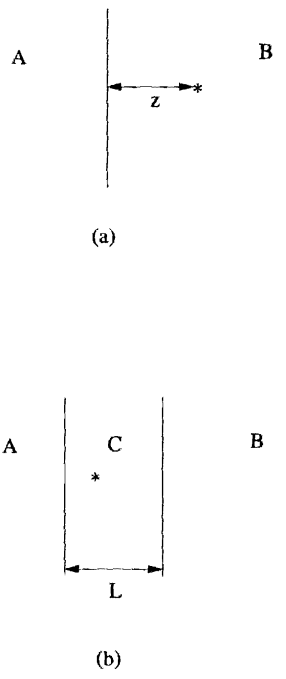

Fig. 5. (a) Two semi-infinite extent material domains, A and B, with a singularity, *, a distance z from the A/B interface in phase *B;* (b) the same as (a) but with an interface material *C* of width *L* that contains the * singularity.

continuity equations along the interface and (2) the vector mechanical traction continuity equations along the interface. Under special conditions of crystal classes for A and B as well as crystallographic orientations for the interface planes and interface direction-normals, the image singularities can reduce to quadrupole or dipole nature. If both materials are piezoelectric and one is considering a simple electric charge singularity in B, one needs eight boundary conditions to be applied at the interface to satisfy the constraints of the image charges which will be multiple in general. Even if material B is a simple dielectric (tensor of rank 2), five boundary conditions must be applied (three specifying tractions, one specifying continuity of electric potential and one more specifying continuity of electric displacement). As one moves to higher-order tensors for A and B, the multiplicity of image singularities in material A needed to balance a single singularity in material B will increase. Even when B is a tensor of rank 1 and A is a tensor of rank 2, multiple image singularities will generally be needed. Thus, according to this line of reasoning, it seems plausible to expect that the trans-dimensional mirror proposed here may produce a special mapping transform for image transfer in the two directions across this "mirror."

For complete satisfaction of Maxwell's equations, the mirror transform need have only two aspects: (1) the **A**-distribution due to the magnetic charge in the frequency domain image-maps into curl **A** in the space-time domain and this is recognized as the dipolar **B** [25] and (2) the electric charge distribution in the space-time domain image-maps into a dipolar electric field in the frequency domain which, in-turn, image-maps back into the space-time domain as $\Delta\mathbf{E}$ where $\Delta\mathbf{E}$ is equal to the time derivative of $-\mathbf{A}$ so that the total electric field in the space-time domain is now given by the standard form [25]. Ascribing these two properties to this special mirror between the space-time and frequency cognitive domains is sufficient to yield the standard expressions for Maxwell's equations in space-time [25] and, since the space-time domain is a source-free domain for **A** (*i.e.*, $\nabla \bullet \mathbf{A} = 0$), this leads to the familiar expression relating **A** to the integral of the current density **J** over the local volume [25].

Utilizing the procedures of the previous section, one can straightforwardly specify the type of primordial **k**-wave in R-space needed to produce a stationary or moving dipolar moiety in D-space. Since the **k**-wave, $\exp(-ik_x x_0)$, produces a monopolar singularity in D-space at the position $(x_0, 0, 0, 0)$, a dipolar singularity at x_0 with the dipole aligned in the y-direction requires a **k**-wave, φ_d, given by

$$\varphi_d = e^{-ik_x x_0}\left[e^{-ik_y l/2} + \left(-e^{-ik_y(-l/2)}\right)\right]$$

$$= -2i \sin\left(k_y l / 2\right) e^{-ik_x x_0} \tag{13}$$

where l is the dipole length. To align the dipolar moiety in any other direction requires only that k_y in Equation (13) be replaced by the **k**-value appropriate to that specific direction. Movement of this dipolar singularity follows the procedures outlined in the previous section.

Although dipolar singularities in D-space can be created and moved by specific **k**-waves in R-space, imbuing them with either electric or magnetic qualities is another matter entirely. Quantitatively resolving this issue is beyond the scope of the present paper; however, at least a conceptual picture of the process can be given here by describing a distant analogy in D-space.

Consider the three-phase material system illustrated in Figure 5b. Let A be of semi-infinite extent and be a material of tensor rank m; let B also be of semi-infinite extent but be a material of tensor rank $p > m$ and let C be of thickness L and a material of tensor rank $s > p > m$. Suppose, now, that we place a singularity at some location in phase C and consider the images that are produced in phases A and B. This example is thought to somewhat represent the situation of having a substance singularity in the nine-dimensional frame of emotion that simultaneously produces dual images in D-space and R-space. Returning to Figure 5b, the * singularity in phase C will have one or more primary images in phase A and in phase B. These primary images, in turn, produce secondary images in A and B, *etc.* Thus, a single singularity in phase C will produce an array of singularities in phase A with some uncertainty of centroid position because, in the four-dimensional perspective of D-space, there will also be effects on the time component of the four-space position vector. This may form the basis for the Heisenberg uncertainty principle in our present wave-particle description of nature. Obviously, since phase A and phase B are tensors of different rank difference compared to phase C, the image arrays in phase A and phase B may be quite different from each other and these differences are thought to distinguish the electric particle quality of phase A from the magnetic wave quality of phase B (see Appendix III).

Returning to the model expressed in Figure 1 and more generally in Ref. [2], the proposed mechanism for the propogation of a specific spirit-level intention to D-space materialization is (1) imprinting a specific pattern on the nodal network of the mind domain [2], (2) diffraction of this pattern onto its first reciprocal nodal network, that of R-space, and (3) exciting the emission of additional deltrons from the emotional domain to allow the R-space pattern to transfer robustly to D-space [2]. In this cascade process, it was earlier proposed [28] that the substance of the subtle domains interacts with the substance of the physical domain *via* the development of an additional contribution $\mathbf{A}_2$ to the magnetic vector potential function **A** of the D-space region under consideration. If we call the existing magnetic vector potential of the D-space region prior to the specific intention under consideration $\mathbf{A}_1$, then after the intention event we have

$$\mathbf{A} = \mathbf{A}_1 + \mathbf{A}_2 \tag{14a}$$

where $\mathbf{A}_1$ is the solution to Maxwell's standard equations and $\mathbf{A}_2$ is given by

$$\mathbf{A}_2 = \eta f(\varphi) \tag{14b}$$

Here, φ represents the effective subtle domains potential, f is some functional form and η is a collective material parameter. We can expect $\mathbf{A}_2$ to have some spatial and temporal dependence. The reason for this is illustrated by the change in the R-space map of **k**-wave amplitude associated with the specific intention. It is this specific magnetic potential map change in R-space that produces a specific $\mathbf{A}_2$ distribution in four-dimensional D-space. Because of such **A** injections into D-space, Maxwell's equations must be modified and take the form developed in Appendix IV. The spatial and temporal dependence of $\mathbf{A}_2$ is not known but, in parameterized form, we might approximate it with

$$\mathbf{A}_2 \approx \theta e^{-a\left(x^2+y^2+z^2\right)} e^{-bt}(1 - e^{-ct}) \tag{14c}$$

where θ, a, b and c are constants that depend on the deltron concentration. Thus, $\mathbf{A}_2$ decays exponentially with distance about some specific location while it rises exponentially in time to some maximum value and then decays again with time at a different rate. With the passage of time and abundant experiments in this area, the correct form of $\mathbf{A}_2$ will undoubtedly be discovered.

The "Mirror" Principle

When one thinks of a mirror it is usually a reflection mirror because that is a part of our daily experience. However, here, one is dealing with a kind of inversion mirror and we have very little prior experience with such mirrors. First, the dual cognitive four-dimensional frames are reciprocals of each other, a special kind of inversion, and the substance characteristics populating the two frames are oppositely configured. In the D-space frame, one has substance with a particulate electric nature of positive mass and positive energy that always travels slower than physical light. By contrast, in the R-space frame, one has substance with a wave-like magnetic nature of negative mass and negative energy that always travels faster than physical light. The positive mass creates curvature effects in the D-space frame that manifest in the gravitational force while, as perceived with the same cognitive system, the negative mass moieties acting *via* the deltrons should develop levitational force effects in the D-space frame. This should produce a significant effect on the Cosmological Constant [2]. The R-space effects can be perceived only *via* another cognitive pathway with the curvature effects of the two types of masses probably being reversed compared to the D-space effects.

Since what one perceives in D-space as an increasing temperature is associ-

ated with increasing kinetic energy of positive mass substance in D-space, the Mirror Principle would suggest that the negative mass substance acting on D-space *via* the deltrons would exhibit a decreasing temperature effect. This is consistent with Equation (3) wherein, as the physical particle increases in velocity, its pilot wave decreases in velocity and moves to a larger magnitude negative energy condition (see Figure 3).

In terms of entropy, electric substance of D-space yields positive entropy as a consequence of the formation of distinguishable disorder in a sea of order whereas magnetic substance of R-space yields negative entropy as a consequence of the formation of order in a sea of disorder. The corresponding free energies are positive for the D-space substance and negative for the R-space substance.

As discussed in the previous section, a well-defined set of Maxwell's equations function in D-space driven primarily by the movement of electric charges and magnetic dipole images. This is a source-free domain for magnetic charge but not for electric charge. On the other side of the mirror, in R-space, another set of Maxwell-type equations exist driven by the movement of magnetic charges and electric dipole images. This domain is source-free for electric charge but not for magnetic charge. The magnetoelectric waves of the R-space domain are thought to travel at velocities much greater than c in physical vacuum and to speed up on entering dense physical matter while the electromagnetic waves of the D-space domain are known to travel at c in vacuum and to slow down on entering dense physical matter.

As a closing note to this section, in the applications area, it is thought that allopathic medicine is based primarily on D-space substance while homeopathic medicine is based primarily on R-space substance in aqueous solution.

Discussion

With the present reinterpretation of magnetism, the spin quantum number of elementary particles is seen, not as a fundamental property of D-space substance, but as a convenient parameter to characterize the projection of R-space substance onto D-space. In this way, it is analogous to the wave-particle behavior mode of description for D-space particles. Although spin is accepted as a property of matter, where it comes from and why it is there is not at all understood in any fundamental sense by today's physics community. Such basic questions are now being seriously raised because of a longstanding inability to explain the proton's supposed well-defined spin of +1/2 in terms of the bits and pieces (quarks and gluons) inside it [29]. The proposal of this paper is that, if one moves to the proper dimensional level (eight- or nine-space) for description of physical phenomena, both the spin quantum number and wave-particle duality can be discarded as relevant terms.

Returning to the list of magnetic anomalies listed in the introduction, the present paper would propose that the Baron von Reichenback research results [7] are most likely to be attributable to a variety of magnetoelectric

phenomena. His "sensitive" subjects, unlike most humans, seem to be cognitively aware of R-space events with their well-developed psychic sense and interpret these phenomena as unfolding in real time. The fact that such individuals would work better inside a Faraday cage is most likely attributable to the noise reduction associated with the elimination of most of the electromagnetic signals from the environment while the R-space magnetoelectric signals would pass through the cage unhindered. Placing such individuals in a magnetically shielded room would block the R-space information signals so that they would be unable to directly perceive the magnetoelectric phenomena unless they were capable of going to an even higher level of perception.

The importance of magnetism to dowsing, enzymatic activity, kinesiology, cellular function and water may, to first order, all be related to some special R-space and deltronic properties of water that are presently quite unappreciated. If multi-dimensional water exhibits a high concentration of deltrons, then strong coupling will exist between the R-space and D-space substances. Further, if the R-space component of water is very magnetically polarizable then strong ordering of this domain is readily achievable at small field strengths. This would reflect itself to some degree on the D-space properties of water and, experimentally, one observes a large variety of anomalous behavior with water [30-33]. It is almost as if most materials have only a small degree of D-space/R-space substance coupling compared to water. Thus, it requires either enormous magnetic field strengths or profound human intention focus to produce anomalous behavior in these materials from a D-space perspective. However, water is perhaps so strongly coupled that only small magnetic field strengths or unexceptional directed human intention can produce strikingly anomalous behavior. This proposal is certainly consistent with the longstanding practice of "blessing" water for a wide variety of uses and is quite consistent with the recent findings of del Guidice and Preparata with respect to coherence states of water [34, 35]. Since this recent work utilized quantum mechanical calculations, they attributed the coherence domains in water to the D-space domain substance but this seems unlikely based upon several decades of careful D-space experimentation on water [32, 33]. If, as proposed here, quantum mechanics is primarily a D-space representation of an R-space/D-space projection, then the location of these coherence domains could be in the R-space substance of water and only secondarily influence D-space water properties. Likewise, the experiments of Smith [14, 16] could write an ordered network of structure in the essentially incoherent R-space water substance and it might survive for months to years in spite of reasonably strong convection occurring in the D-space substance of water over that time frame.

Because a physical particle in D-space has positive energy and it has been shown here that its R-space counterpart has negative energy (Equations (I-3)), Figure 3 and Equation (3) show that these energies are tied together in a specific way so that the sum of the kinetic energies, E_T, is given by

$$E_T = \frac{1}{2} m_D v^2 + \frac{1}{2} m_R v'^2 = \frac{m_D v^2}{2} \left[1 + \frac{m_R}{m_D} \left(\frac{c}{v} \right)^4 \right] \tag{15}$$

where m_D and m_R are the D-space and R-space masses, respectively. Since $m_R/m_D < 0$, one sees that E_T can be zero for $(v/c)^* = |m_R/m_D|^{1/4}$.

In general, the Fourier transform (FT) is a complex number and the intensity of substance, I_R, in R-space is a negative quantity. Since this is unfavored by the physics community, they have chosen to consider the modulus M_R rather than I_R, *via* the relationship

$$M_R(k) = \left[FT(k) \cdot FT^*(k) \right]^{1/2} = \left[(\text{Re FT})^2 + (\text{Im FT})^2 \right]^{1/2} \tag{16}$$

where FT* is the complex conjugate of FT. This is a longstanding practice of the physics community and is certainly a requirement for representing an eight-space quality as a four-space physical observable clothed in the rubric "wave-particle duality."

It has also been shown here that the maintenance of a δ-function moiety in the "now" at a fixed position of D-space relative to some fixed reference frame requires a specific change in the undulation interval Δk_t of the k_t-component of the singlet primordial **k**-wave. This, in turn, points to a higher-dimensional force needed to bring about this specific change in Δk_t. It also opens a rational possibility for both dematerialization and materializaiton of objects by intention-directed manipulation of Δk_t so as to, respectively, move objects either out of or into the "now." It also opens a rational possibility for intention-directed manipulation of time experience *via* possible non-linear contributions imbedded in Equations (9) and (10c).

When one looks at Equations (7) and (8), one notes that it is only a type of phase factor in the singlet primordial **k**-wave that differentiates the D-space position of a δ-function moiety. This is quite possibly the basis for both the phenomenon of remote viewing and that of distant healing when the human operator is able to intentionally adjust this phase factor in their R-space transmitter/receiver, antenna system. It is an unproven supposition on the author's part that all humans have this type of hardware available in their bodies although this may perhaps be inferred from some of Pribram's work [34]. His work indicates that cortical neurons act like individual receiving antennas in a large array converting D-space information into a diffraction pattern (R-space information) whose mathematical representation is very close to the Fourier transform of the D-space information [2]. Conscious awareness of the D-space information pattern requires the occurrence of an inverse Fourier transform in the processing chain. Thus, both R-space *and* D-space information maps seem to be present in our body's hardware and this may be the basis for both the remote viewing and the distant healing capabilities in the human species.

In closing this discussion, the D-space/R-space observational frames and the electric monopole/magnetic monopole substance differentiations appear to allow all of the old utility of the prevailing model and the new model allows the possibility of explaining a significant variety of new phenomena. At least a nine-space description will be required for a proper quantitative expression of the main concepts brought forward for consideration here (ten-space if intention is included). However, although the present level of modeling has real limitations, it allows one to qualitatively, and even semi-quantitatively in some cases, gain an appreciably broader perspective of both the physical and the subtle domains of nature and their modes of interaction. In this context, it seems reasonable to speak in terms of *both* the D-space band *and* the R-space band of physical reality rather than use the past nomenclature of physical and conjugate physical or etheric realities.

Acknowledgments

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Appendix I
The Fourier Transform of *N*-space

Komrska [24] showed that the generalized Fourier transform for N-space can be given by

$$F(\mathbf{k}) = A^N \int_{-\infty}^{\infty} \ldots \int f(\mathbf{x})\, e^{-ip\,\mathbf{x}\cdot\mathbf{k}} d\,\mathbf{x} \qquad \text{(I - 1a)}$$

$$f(\mathbf{x}) = B^N \int_{-\infty}^{\infty} \ldots \int F(\mathbf{k})\, e^{+ip\,\mathbf{x}\cdot\mathbf{k}} d\,\mathbf{k} \qquad \text{(I - 1b)}$$

where A and B may be mathematically complex constants but p must be a mathematically real constant and these three constants must satisfy the condition

$$AB = \frac{|p|}{2\pi} \qquad \text{(I - 1c)}$$

If, for simplicity, we choose $N = 4$, $|p| = 1$ and $A = B = (1/2\pi)^{1/2}$, then physical

substance in D-space and its counterpart substance in R-space can be related by

$$F(\mathbf{k}) = \frac{1}{(2\pi)^2} \int_{-\infty}^{\infty} f(\mathbf{r})\, e^{-i\mathbf{r}\cdot\mathbf{k}} d\,\mathbf{r} \qquad \text{(I - 2a)}$$

$$f(\mathbf{r}) = \frac{1}{(2\pi)^2} \int_{-\infty}^{\infty} F(\mathbf{k})\, e^{+i\mathbf{r}\cdot\mathbf{k}} d\,\mathbf{k} \qquad \text{(I - 2b)}$$

where $\mathbf{r}$ and $\mathbf{k}$ are four-vectors in D-space and R-space, respectively.

Suppose, now, we let $f(\mathbf{r})$ represent the mass distribution of a primary physical particle in D-space and we consider it to be of uniform density m_0 over some small volume $(\Delta\mathbf{r})^4$ of D-space. Since $F(\mathbf{k})$ is actually the spectral amplitude distribution of the complementary mass in R-space, the intensity distribution of this mass can be considered to be proportional to $i^2F^2(\mathbf{k})$ and we find that

$$i^2F^2(\mathbf{k}) = -\frac{m_0^2}{2\pi^2\mathbf{k}} \sin^2\left(\frac{\mathbf{k}\Delta r}{2}\right) \qquad \text{(I - 3a)}$$

Thus, since in D-space physical particle mass m_0 is positive, in R-space the mass of the complementary substance would be negative.

Appendix II
Some R-space Undulation Interval Recipes for Specific D-space δ-function Loci

To have our δ-function perform simple harmonic motion along the x-axis of D-space requires a slightly more sophisticated connection between $\Delta k'_x$ and Δk_t than provided by Equations (11); *i.e.*, for

$$x_0(\Delta t') = x_0(0) + A \sin \omega t', \quad t_0 = t'_0 + \Delta t' \qquad \text{(II - 1a)}$$

with

$$\Delta k'_x = \frac{2\pi}{x_0(\Delta t')}, \quad \Delta k_t = \frac{2\pi}{t'_0 + \Delta t'} \qquad \text{(II - 1b)}$$

requires that

$$\frac{dx_0}{dt_0} = \frac{dx_0}{d\Delta t'} = A\omega \cos\left[2\pi\omega\left(\frac{1}{\Delta k_t} - \frac{t'_0}{2\pi}\right)\right]$$

$$= \left(\frac{\Delta k_t}{\Delta k'_x}\right)^2 \frac{d\Delta k'_x}{d\Delta k_t} \qquad \text{(II - 1c)}$$

using the differentiation chain rule. To have our δ-function perform circular

motion in the xy plane of D-space requires coordinated changes of $\Delta k'_x$ and $\Delta k'_y$ in terms of Δk_t in R-space. The procedure is straightforward following the example of Equation (II-1) and starting with

$$x_0(\Delta t') = x_0(0) + A\cos(\omega_1 \Delta t')$$
$$y_0(\Delta t') = y_0(0) + A\sin(\omega_1 \Delta t') \qquad \text{(II - 2a)}$$

Motion of our δ-function over a spherical path in D-space requires coordinated changes in $\Delta k'_x$, $\Delta k'_y$ and $\Delta k'_z$ in terms of Δk_t starting with

$$x_0(\Delta t') = x_0(0) + A\cos(\omega_1 \Delta t')$$
$$y_0(\Delta t') = y_0(0) + A\sin(\omega_1 \Delta t')\sin(\omega_2 \Delta t')$$
$$z_0(\Delta t') = z_0(0) + A\sin(\omega_1 \Delta t')\cos(\omega_2 \Delta t') \qquad \text{(II - 2b)}$$

In all of the foregoing changes, the "river of time" flows in an unperturbed fashion while the undulation intervals for the other **k**-wave coordinate directions change in well-defined and specific ways to cause our δ-function to execute specific motions in D-space. It should be clear from the examples given that a recipe can be given for R-space undulation interval changes that will guarantee *any* type of δ-function motion wished in D-space.

Appendix III
Electrodynamic Forces for the Figure 5b Geometry

From our standard electrodynamics applied to the Figure 5b situation, one finds that the force $\hat{F}$ between the A and B half-spaces can be either attractive or repulsive depending on the dielectric properties of phase C relative to phases A and B and is quantitatively given by [27]

$$\hat{F} = \frac{\hbar\bar{\omega}}{8\pi^2 L^3} \qquad \text{(III-1)}$$

where $\hbar$ is Planck's constant ($\hbar = h/2\pi$) and

$$\bar{\omega} = \int_0^\infty \frac{\left[\varepsilon_A(i\xi) - \varepsilon_C(i\xi)\right]\left[\varepsilon_B(i\xi) - \varepsilon_C(i\xi)\right]}{\left[\varepsilon_A(i\xi) + \varepsilon_C(i\xi)\right]\left[\varepsilon_B(i\xi) + \varepsilon_C(i\xi)\right]} d\xi \qquad \text{(III - 2)}$$

Here, the ε_j are the dielectric permeabilities of the three phases as a function of internal EM wave frequency ν. Here, ε(ν) is a mathematically complex quantity ($\varepsilon = \varepsilon' + i\varepsilon''$) and its imaginary part is always positive so that it determines the dissipation of energy in the internal EM waves. In addition, ν is a complex variable and $i\xi$ is the imaginary part of the argument of ε; thus, ε ($i\xi$) is a real quantity which decreases monotonically from ε(0), the static dielectric constant. The main point here is that, even for isotropic phases, the interaction between phases A and B depends upon the size and properties of the intermediate phase C.

Appendix IV
Renovating Maxwell's Equations to Express Contributions from Subtle Domains

The classical description of Maxwell's equations is as follows:
Ampere's Law:

$$\nabla \times \mathbf{H}_1 = \nabla \times \nabla \times \mathbf{A}_1 = \nabla(\nabla \cdot \mathbf{A}_1) = \mathbf{J} + \frac{\partial \mathbf{D}_1}{\partial t} \qquad \text{(IV - 1a)}$$

$$\nabla \cdot \mathbf{H}_1 = 0 \qquad \text{(IV - 1b)}$$

$$\nabla \cdot \mathbf{D}_1 = \rho \qquad \text{(IV - 1c)}$$

Faraday's Law:

$$\mathbf{E}_1 = -\nabla V - \frac{\partial \mathbf{A}_1}{\partial t} \qquad \text{(IV - 1d)}$$

Here, $\mathbf{A}_1$, V, $\mathbf{H}_1$ and $\mathbf{E}_1$ are the magnetic vector potential, the scalar electric potential, the magnetic field and the electric field, respectively, while $\mathbf{J}$, $\mathbf{D}_1$ and ρ are the electric current density, the electric displacement and the electric charge density, respectively. The additional condition utilized in the solution of these equations is the Coulomb Gauge defined as

$$\nabla \cdot \mathbf{A}_1 = 0 \qquad \text{(IV - 1e)}$$

which is based upon a source-free condition for $\mathbf{A}_1$.

When one considers the robust, physical effects associated with directed human intention [2], the proposal has been made that they arise as a consequence of the subtle domains acting as a source of magnetic potential. Defining φ as an incremental increase in subtle domain potential associated with the specific directed intention, it is proposed that φ creates a magnetic vector potential increase $\mathbf{A}_2$ given by

$$\mathbf{A}_2 = \eta f(\varphi) \qquad \text{(IV - 2)}$$

Here, f is some as yet undefined functional form and η is a material parameter.

If we now define the total quantities as

$$\mathbf{A} = \mathbf{A}_1 + \mathbf{A}_2\ , \quad \mathbf{B} = \mathbf{B}_1 + \mathbf{B}_2\ , \quad \mathbf{E} = \mathbf{E}_1 + \mathbf{E}_2 \qquad \text{(IV - 3)}$$

the renovated Maxwell's equations become

$$\begin{aligned} \nabla \times \mathbf{B} &= \nabla \times (\mathbf{B}_1 + \mathbf{B}_2) = \nabla \times \nabla \times (\mathbf{A}_1 + \mathbf{A}_2) \\ &= \nabla(\nabla \cdot \mathbf{A}_1 + \nabla \cdot \mathbf{A}_2) - \nabla^2(\mathbf{A}_1 + \mathbf{A}_2) \\ &= \nabla(\nabla \cdot \mathbf{A}_2) - \nabla^2 \mathbf{A} = -\mu\left(\mathbf{J} + \frac{\partial \mathbf{D}_1}{\partial t}\right) \end{aligned} \qquad \text{(IV - 4a)}$$

$$\mathbf{E} = -\nabla V - \frac{\partial \mathbf{A}}{\partial t} \qquad \text{(IV - 4b)}$$

with

$$\nabla \cdot \mathbf{A}_1 = \nabla \cdot \mathbf{B}_1 = 0\,, \quad \nabla \cdot \mathbf{A}_2 \neq 0\,, \quad \nabla \cdot \mathbf{D}_1 = \rho \qquad \text{(IV - 4c)}$$

Since Equation (IV-4c) holds, Equation (IV-4a) can be put in the more useable form

$$\nabla^2 \mathbf{A} - \nabla(\nabla \cdot \mathbf{A}) = -\mu\left(\mathbf{J} + \frac{\partial \mathbf{D}}{\partial t}\right) \qquad \text{(IV - 4d)}$$

with

$$\nabla(\nabla \cdot \mathbf{A}) \neq 0$$

PSYCHOENERGETIC SCIENCE AND THE WORK OF WILLIAM TILLER – EXPLORATIONS OF THE INTERPLAY OF THE MIND, SUBTLE ENERGY, MAGNETIC MONOPOLES, AND HIGHER DIMENSIONS

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PSYCHOENERGETIC SCIENCE AND THE WORK OF WILLIAM TILLER – EXPLORATIONS OF THE INTERPLAY OF THE MIND, SUBTLE ENERGY, MAGNETIC MONOPOLES, AND HIGHER DIMENSIONS

Although energy psychology modalities have been demonstrated to be very effective, and skilled practitioners are in no doubt of their extraordinary efficacy, these are mostly discussed without an adequate explanatory theory of subtle energy. A partial account is provided in papers by David Feinstein (e.g., 2019), presenting hypotheses as to how tapping on acupoints can bring about changes in neural patterns in relation to traumatic memories. However, there are other forms of energy psychology practice that fit this model less well – such as those working with the chakras and also those that make use of carefully chosen statements of intention. Some modern developments, that have evolved from the original acupoint tapping methods, no longer make any use of physical stimulation of energy centres, relying instead on slightly meditative states of mind combined with coherent words of healing instruction. Moreover, there are characteristic but subtle shifts of experience immediately following energy work, such as feeling light-headed, or 'spacey', that are difficult to explain in terms of known neurobiological processes.

Physics of the mind

In recent years, as I have been immersed in energy psychotherapy, I have often felt that the science of psychology should be based more on physics. There will be fractals of phenomena occurring at every dimensional level, from the quantum subatomic realm to the body and brain and mind, and the cosmos. Psychoenergetic science, once we delve beyond the commercial branding of different modalities, involves the exploration of the interplay of subtle energies, higher dimensions, spirituality, the mind, and the body. Commonplace phenomena of energy psychology reveal realms of reality that do not correspond to the conventional view of matter. For example, the effect of words and statements on the meridian and wider body-mind system. Moreover, when we use kinesiology/energy testing, a higher or deeper intelligence is revealed that can guide the work. The sheer speed of change is also odd from a conventional point of view. Clients often find this bewildering since the brain cannot initially track or make sense of the changes that are brought about, resulting sometimes in a resort to wild confabulatory explanations – a phenomenon that Callahan called 'the apex problem'.

Tiller's experiments

One of the areas of new physics that throws considerable light on these issues is the psychoenergetic science of the late William Tiller, who was a highly esteemed emeritus Professor of Materials Science at Stanford. Over a number of years, Tiller conducted rather strange experiments involving a group of meditators (including himself). In a meditative state, the group would 'imprint' an intention into a simple plastic box running an electrical circuit – an 'intention imprinted electronic device'. He wrote (2009a) "Our novel procedure for introducing a specific intention into a host device was to do it mentally and emotionally from a deep meditative state." The intentions included, 1, increasing the pH of water in a vessel by +1.0 units; 2, decreasing the pH of a vessel of water by -1.0 units; 3, increase the

chemical activity of an in vitro biological molecule, alkaline phosphatase (ALP), a liver enzyme; 4, in fruit fly larvae, increase the ratio of the cell's energy storage molecule, ATP, to its chemical precursor, ADP, so as to make the larvae more physically fit and thus have a greatly reduced larval development time, τ, to the adult fly stage. In each case, the imprinted device was placed in the vicinity of the target samples. The experiments were outstandingly successful in demonstrating the intended effects – no matter where in the world the imprinted device was placed.

There would be other effects, alongside those specifically intended. The space into which the intention-imprinted device was placed would display subtly different physical properties – the laws of physics shifting. For example, there would be unusual fluctuations in temperature and also the presence of magnetic monopoles would be detected – even though magnetic monopoles (the magnetic equivalent of an electron) have not been detected in ordinary reality.

Tiller's model of reality – D Space and R Space

Tiller developed a new model of reality to accommodate these observations that are anomalous in relation to conventional physics. He postulated that we exist in two realms simultaneously, occupying the same space and yet mostly not normally interacting. The first Density (D space) realm consists of our familiar matter (and also antimatter). Particles (and antiparticles) and waves within this realm can be detected by our normal instruments for measuring electromagnetic phenomena. These particles and waves move at speeds equal to or less than the speed of light, in accord with Relativity Theory. The speed of light functions as a kind of boundary for the D realm.

In Tiller's model, another realm exists, a frequency domain, where information waves and magnetic monopoles travel faster than light. He calls this the Reciprocal realm or (R space). Our minds and emotions can interact with this R space, but not directly with D Spece. On the basis of his observations, Tiller notes that the human subtle energy system partly functions within R space. There appear to be two modes of accessing R space: 1., by meditation; 2., by working with the human subtle energy system of meridians, chakras, and other energy pathways and centres.

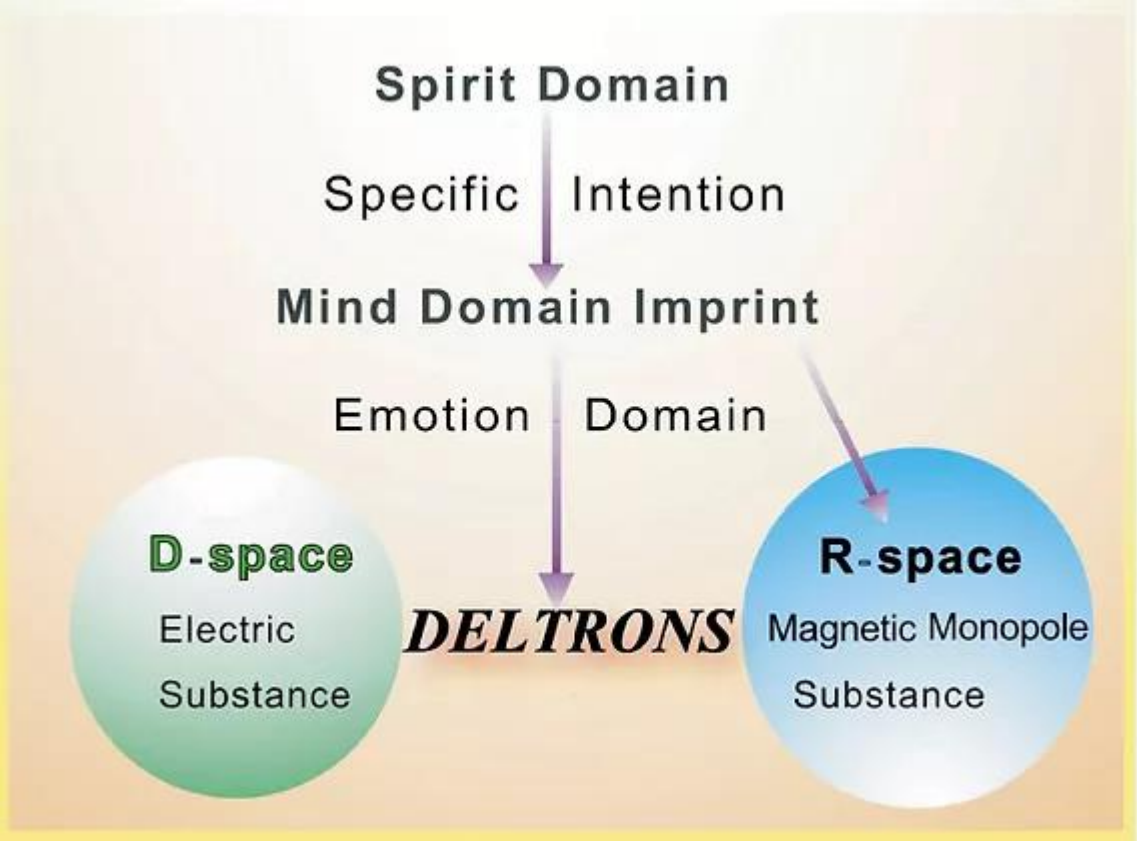
The speed of light boundary is significant – it is fundamental to Einstein's theory of relativity. The D Space realm in which nothing travels faster than light (the speed of electromagnetic waves in a vacuum) is fundamentally distinct and separated from the R Space in which waves travel faster than light. However, these two realms do connect in certain ways. To explain this, Tiller postulates the existence of a subatomic entity that he calls Deltrons which have the capacity to travel both faster than light and slower than light, and which thereby act as a communication mediator or coupler between D Space and R Space. [Tiller does not say this, but it seems possible there is some connection between the hypothetical Deltrons and the relatively recently discovered Higgs Boson].

It follows from this that human intention, via mind and emotion, can impact the R Space, which in turn, via the presence of Deltrons, can create effects in our 'ordinary' D Space. A meditative state of mind and/or the activation of the subtle energy system of the human

body can thereby carry a healing intention through the R Space and into reality in D Space. The implications of this possibility are obviously profound.

Tiller believed there has been an increase in the amount of Deltrons available to us in recent years. This might explain why a number of well-known energy psychology modalities have evolved to a point where they rely only on coherent statements or commands of intention and no longer manually activate the subtle energy system.

Are we able to use intention to increase the amount of Deltrons flowing to us and through us? I think this may be the case. My inner guidance is that Deltrons can enter the human form particularly at the navel and the Blue Diamond point under the collar bones.



[Tillerfoundation.org]

THE PHYSICS AND MATHEMATICAL ARGUMENTS BEHIND TILLER'S POSTULATES

Tiller set out to explain how mind can influence matter, as demonstrated in his experiments with the intention imprinted electronic devices. Conventional physics has no explanation for this.

Much of Tiller's reasoning rests upon an anomaly inherent in De Broglie's concept of the pilot/particle wave, important in quantum physics. This concept is that a particle is guided by an **informational wave** (the pilot of the particle). Tiller (2009b) writes:

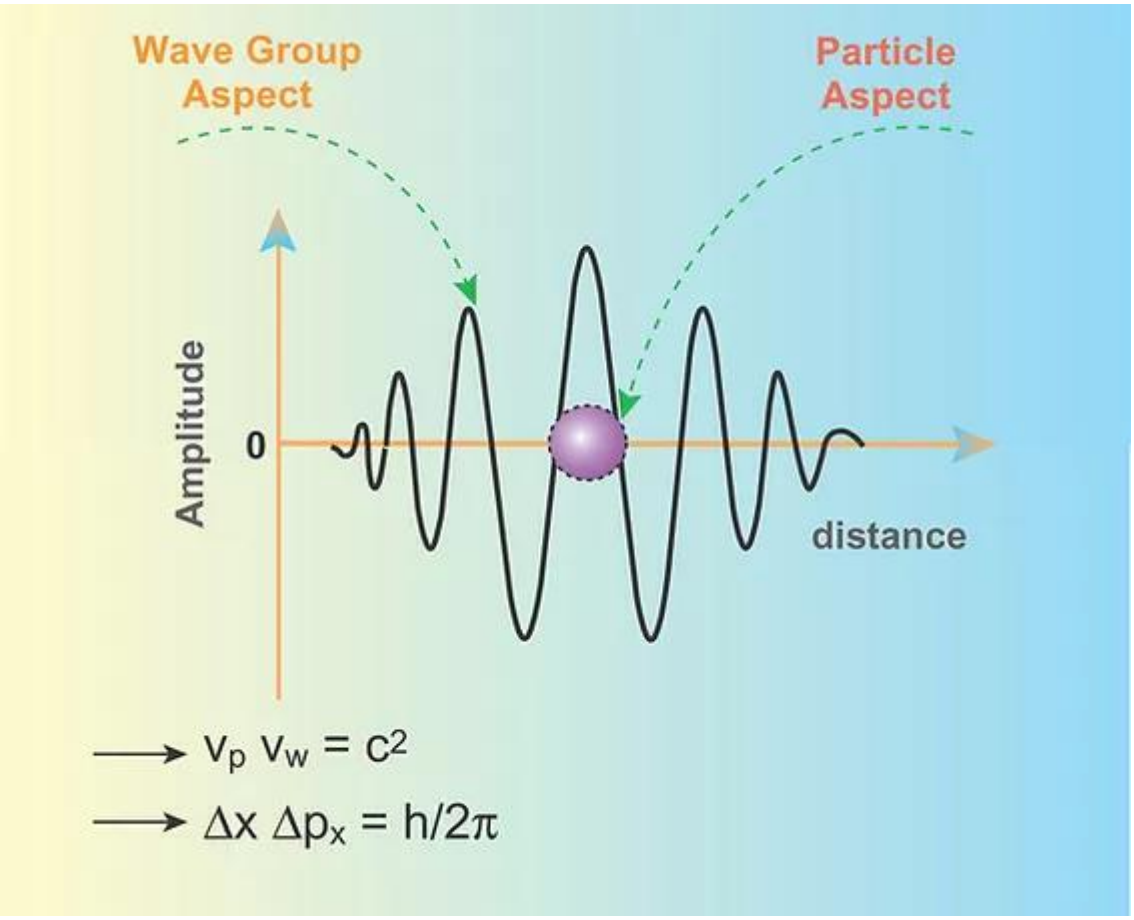
> "It can be readily shown, via calculation, that the pilot wave of de Broglie travels at a velocity equal to the velocity of the particle it is supposedly guiding. However, as shown here, the same type of analysis shows that the wave components that create

the pilot wave, and pass through it from the rear to the front as it moves along, do so at velocities far exceeding the velocity of electromagnetic (EM) light, c. Why has orthodox physics chosen to neglect this fact?"

And a little later in the same paper, he writes:

> "Here, we see a set of waves moving faster than the speed of light, c, creating and directing a wave group moving at a speed slower than light which, in turn, is directing a positive mass particle which is also traveling at vp = vg< c. The de Broglie particle/pilot wave process has been confirmed experimentally and truth is always in the experimental data, so what must be operating in nature to allow such waves to interact with a particle across the relativistic light barrier at v=c? Calling such waves "information waves" and thereafter avoiding the concept does not help because, in a natural process where information increases, thermodynamic entropy decreases. Thus, a thermodynamic free energy exchange process is occurring here and this appears, on the surface, to violate a sacred constraint of Relativity Theory."

Tiller is drawing attention to the conceptual problem that faster-than-light waves (informational waves) are in some way interacting with a particle travelling at less than the speed of light – somehow crossing the speed of light barrier that is crucial to Einstein's Relativity Theory. His proposed answer is that Deltrons, hypothetical entities that can travel both faster or slower than light, are operating even at this fundamental level.



[Tillerfoundation.org]

A faster than light realm of negative entropy

Konstantin Korotkov (2018), drawing on Tiller's work, notes that the full Einstein formula for the energy contained within mass is not $E=mc^2$, but is modified by the Einstein-Lorenz transformation, an equation that expresses the interaction between kinetic energy, speed, and mass. If speeds above that of light are put into the equation, they result in what are mathematically termed 'imaginary numbers' (involving the square root of minus 1). Mathematician Charles Muses describes these as 'hypernumbers', which are necessary to represent higher dimensional phenomena. In very simple terms, if a speed greater than that of light is put into the equation, the result is a realm of negative energy and negative mass and, crucially, negative entropy. This negative entropy would mean a system that tends towards increasing order and information, thus behaving in a manner the precise opposite of the 2nd law of thermodynamics of conventional D Space – that entropy always increases. Life itself expresses a temporary process of negative entropy, taking in nutrients and creating form and order – until the 'life energy' leaves and the physical body returns to a state of entropy. We might wonder then whether life is somehow an expression of this negative realm of R Space. It is also worth noting that Wilhelm Reich described orgone energy (his term for life energy) as displaying qualities of negative entropy.

Another feature of this negative realm is that it would be primarily magnetic – in contrast with our D Space world that is primarily electric. In D Space, electrons pervade (electric monopoles) but magnetic monopole particles are not found (although there are magnetic fields). Some of Tiller's experiments indicate the presence of magnetic monopoles in a conditioned space that has been modified by the present of an imprinted electronic device (although the magnetic monopoles themselves were not detected, just evidence of their presence through magnetic influences on biological solutions that did not occur in an unconditioned space). Many 'alternative' forms of healing make use of magnets.

Whilst gravity is one of the 4 forces prevailing in D Space, an opposite repulsive force may occur in R Space. Tiller postulated that in states of deep meditation, accessing high quantities of Deltrons, there may be sufficient influence of R Space that the meditator may literally levitate. States of feeling 'light-headed' are common during or after energy healing work. Some practitioners of higher dimensional healing modalities report gaining weight over time, which possibly reflects the D Space body attempting to compensate for increased R Space by gaining weight/gravitational force.

Note that in Tiller's model, R Space is not the realm of antiparticles – even though we might assume that it is because it is a realm that is in many respects the reverse of D Space. Both particles and antiparticles can be detected instrumentally within D Space. Tiller's R Space is beyond, or deeper than, both particles and antiparticles – a realm essentially of magnetic information waves. R Space is not detectable directly via instruments of D Space.

Tiller proposes that the two spaces, D and R, have a 'mirror' relationship with each other. D Space is to do with distance and time, whereas R Space is to do with frequency:

> "The former is the home of electric matter of positive mass travelling at velocities slower than the speed of light, c, whilst the latter is the home of magnetic matter of negative mass travelling at velocities faster than the speed of light, c. Images of the magnetic charges in the 'mirror' form magnetic dipoles in the distance-time domain so that the interaction of the electric charges with these magnetic dipole images constitute our conventional electromagnetism. Images of the electric charges in the 'mirror' form electric dipoles in the frequency domain so that the interaction of the magnetic charges with the electric dipole images constitute another field of the magnetoelectric variety in that domain that is not observable by our conventional senses. To a close approximation, the configuration of magnetic substance in the frequency domain bears a 'Fourier Transform' type of relationship with the configuration of electric substance in the distance-time domain. It is the interaction between these 'matters', as viewed from the distance-time side of the 'mirror' that constitutes what we presently call quantum mechanics. Further, it is precisely the direct space/inverse space pair of coordinate frames that lead to the wave/particle duality manifestations of nature on a microscopic level." (1997, 55-56)

Part of what Tiller is saying here is that there is always a correspondence between what is in D Space and a representation in R Space. The Fourier Transform is a way of transforming something in space-time into a representation in terms of frequency. R Space is a frequency domain. Information in R Space is spread everywhere holographically.

The Dirac Sea

In 1924, the British physicist, Paul Dirac, proposed a model of the physical vacuum as an infinite sea of particles of negative energy. These were separated from the space-time realm that we are ordinarily aware of, by a 'forbidden gap'. Out of this sea could emerge particles into our space-time. Dirac postulated that a cosmic ray, a photon beam, of sufficient energy could jump across the gap and knock out what would become an electron in space-time. This would leave a 'hole' in the vacuum, which would then become a positively charged antiparticle to the electron – which he called the positron. Since then, antiparticles have been found for every known particle.

Tiller modified and elaborated Dirac's model, to show three further domains below the Dirac vacuum. These are, in order of descent, emotion domain, mind domain, and Spirit domain. Whereas Dirac conceived of a highly energised photon penetrating the barrier and interacting with the vacuum substance from above, so to speak, Tiller postulates interaction from below. The mind can evoke emotions that in turn interact with the vacuum domain. In Tiller's model, Spirit can also interact with the vacuum in the same way.

Tiller points out that at the time just prior to the supposed 'big bang' of the origin of the universe, there were no positive particles or photons to interact with the vacuum. This consideration provides scope for the role of Spirit, or inherent consciousness, to make the initial intervention.

The nodal network

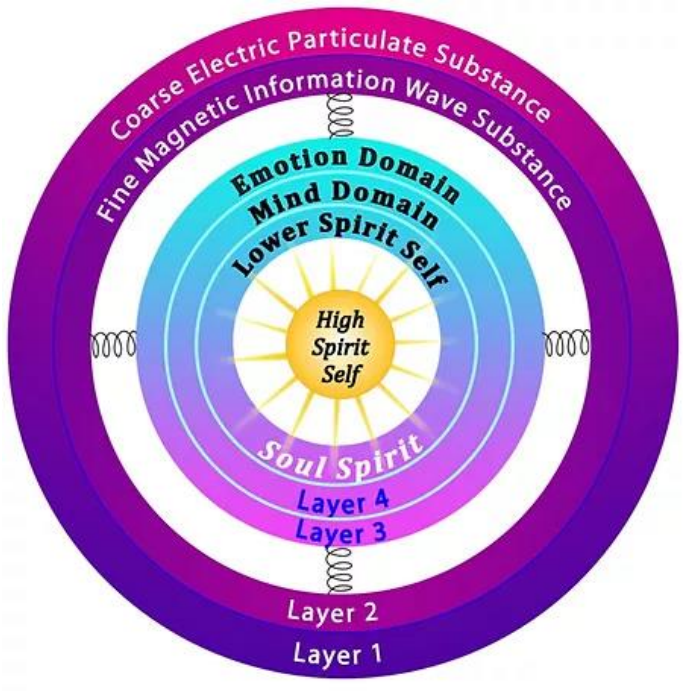
Tiller was a professor of materials science – and thus very knowledgeable about the structure of crystals. He considered that our different levels of reality are all 'crystalline', consisting of a fine lattice structure that is not detectable through our current instruments.

He envisaged three lattice structures, organised in a hierarchy within the same 'space'. The nodal points of these are not atoms (as in physical crystals), but they are points at which consciousness (at the highest level this is Spirit or God-Source) is transformed into energy.

The highest lattice grid is that of Mind. This contains a reciprocal grid, at right angles to the first – this corresponds to Tiller's R Space. Within this second lattice is a further grid, again oriented at right angles to the second. Each grid is a reciprocal of the one above or below. The lattice structure (like a multidimensional web) is the most fine at the level of Mind, less fine at the level of R Space, and most coarse at the level of D Space. When these three levels of lattice are perfectly aligned, human consciousness and capacity is at its maximum – mind can influence and even create matter. By contrast, when these levels are misaligned and disordered, human consciousness is limited. Thus, Tiller's framework expresses the crucial significance he always gave to the practice of meditation.

When these lattice grids are aligned, they communicate, thus enabling faster than light information to travel (through R Space), enabling both precognition and potential access to universal webs of information. This information can be accessed via meditation.

Tiller considered we are beings of Spirit inhabiting a physical form – expressed in the diagram below. Part of our task to become more aware of this and able to connect all levels of our being coherently. Many remain trapped in the level of consciousness of the 'coarse electric particulate' realm – but Tiller's astonishing work provides a way to connect and return to Home!



[Tillerfoundation.org]

I am currently immersed in exploring and integrating the connections between Tiller's model and Blue Diamond Healing. There are many points of contact, including the perception of crystalline lattices arranged at 90 degrees. Both frameworks provide a communication pathway to God-Source. And in both frameworks, healing is a form of prayer. However, implicit in Tiller's work are some astonishingly effective techniques that have come to me whilst working in the Blue Diamond field with clients.

Key points

- William Tiller performed a series of careful experiments demonstrating that the meditative state of mind can bring about changes in the laws of physics.
- He developed a theoretical mathematical model to account for this.
- The model postulates that in addition to our familiar space-time realm, which has a boundary involving the speed of light, there is a reciprocal realm of faster than light waves. This is a domain of frequency, in which information is distributed almost instantly.
- The reciprocal realm (R Space) has qualities that are opposite to those of space time (D Space). These qualities include: faster than light movement; negative entropy (progress towards increasing order); forces of repulsion rather than gravity; magnetic information waves and magnetic monopoles (as opposed to electrical particles).
- The human subtle energy system accesses R Space
- There is a barrier between these two realms. R Space is mostly not detected by conventional instruments. However, a hypothetical substance that Tiller called Deltrons, capable of moving both faster than light and slower than light, enables an interaction between the realms. States of meditation may increase the flow of Deltrons.
- Deltrons originate in the realm of emotion.
- Mind can influence emotions, that activate Deltrons, which then cause a coupling of R Space and D Space.
- D Space and R Space are reciprocal realms. What is in one has a reciprocal presence in the other, via a Fourier Transform – a space-time object or process is represented in R Space as a frequency wave.
- Tiller viewed reality as consisting of lattice structures of nodes that mediate consciousness and energy. The realm of Mind has a lattice that contains the lattice of R Space, which in turn contains the lattice of D Space. In a state of deep meditation, these three levels of lattice become aligned and coherent, enabling communication and consciousness between all realms.
- Tiller presents a framework of higher dimensional physics, in which God-Source is a pervasive presence. It also outlines the interaction between mind and matter.
- The implications of Tiller's framework are multiple and profound. It provides scope for understanding how energy psychology, and other healing modalities, may operate by activating a realm that is responsive to healing intention.

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[July 2023]

Relevant Psychoenergetic Science and Tillerian Physics Concepts Tutorial

Today's physics contemplates things of the physical but not things of the psyche, emotion, mind, or spirit. Although human skin, cells, muscles, and organs fit into our traditional model, today, all forms of quantum electrodynamics (Copenhagen, Bohmian, Schwinger or Werbos type) cannot explain psychoenergetic phenomena like human unconsciousness, the human acupuncture/meridian system, the human chakra system, and homeopathy, for example, or other intention-related work like healing prayer, distant healing, remote viewing, therapeutic qui gong, mind matter interaction, global consciousness experiments. Dr. Tiller has been working on a model to encompass all these categories of phenomena and information. In fact, human consciousness and intent have been rejected as significant experimental variables in physical reality, which Dr. Tiller has refuted with a set of experiments and has come up with a model which includes not only mass and energy but also information and consciousness (thermodynamic variables which are independent of distance, and perhaps time) as we enter what he calls an era of "Psychoenergetic Science" whereby human intention can significantly change the properties of materials.

The Tiller Model postulates a new reference frame, that nature has two levels of physical reality, not one: Our conventionally understood space-time (D-space) and another reciprocal coarse physical vacuum (R-space), which can be viewed as the empty space between the fundamental electrical particles that make up our normal electric atoms and molecules. It is this R-space which is embedded in an overall reality consisting of the higher dimensional domains of emotion, mind, and spirit and which is significantly influenced by human consciousness, specifically intention.

There are two distinct states of interaction between these two spaces, the coupled state and the uncoupled state. Therefore, in aggregate, there is a duplex reference frame consisting of these two four-dimensional, reciprocal subspaces, one of which

is spacetime. This spacetime physical reference frame is embedded within an overall reality reference frame consisting of the domains of emotion (9-11D), mind (12-14D) and spirit (15 and up). In this emotion domain, there exist a higher dimensional level of substance, or moiety, called deltron that can be consciously activated to serve as a coupler substance between the electric atoms/molecules and the magnetic information waves in the vacuum. This deltron falls outside the constraints of relativity theory and is able to move at velocities greater and less than c, so that interactive resonances can occur between them and R-space. It acts as the coupling agent between the electric monopole types of substance and the magnetic monopole types of substance to produce both electromagnetic and magnetoelectric types of mediator fields exhibiting a type of mirror principle between them. This deltron substance is currently invisible to us and our traditional measurement instruments

Normally, these two spaces do not interact with each other, are uncoupled. These two spaces can be coupled through Fourier transform by this “coupler” substance deltron which increases in the presence of human intention and emotion as the stimulus, appears to be of a magnetic information wave nature and appears to function in this physical vacuum space. The new type of information carrier wave functioning at the vacuum level of physical reality (“the field”) is modulatable by human intention, seemingly independent of distance and time.

Human consciousness, specifically human intention, can activate this deltron population, alter the specifics of the electromagnetic state of the space where an object is so as to modulate the electric/magnetic monopole substance coupling, increasing the electromagnetic gauge symmetry state and thus the experimentally measurable properties of that object. Without deltron coupling, the thermodynamic equilibrium between the two different kinds of substances cannot be achieved. Also, without any deltron coupling, as humans we cannot evolve to R-space awareness as we are locked into only a distance-time awareness of nature

When coupled, the atom/molecule physical reality energetically interacts with the coarse physical reality vacuum (the “field”) and the vacuum level of physical reality becomes partially visible to our traditional measurement instruments
Therefore, an intention from the domain of spirit can create a correlated imprint on the domain of mind, 1) radiating a correlated information map to the magnetic wave domain, and 2) activating deltrons so that this new information map becomes coupled to the measuring instruments of our atom/molecule world.

The impact on material can be represented by an equation: Endstate physical material property measurement = Existing baseline measurement of normal, electric atom/molecule level + (Magnitude of measurement for the magnetic vacuum level, which is typically the intended measurement level * Magnitude of the deltron coupling coefficient in the space which is driven by emotion/intention) over time
If the deltron coupling coefficient magnitude is zero, this represents an uncoupled state. As this level increases, however, the coupled state of physical reality becomes measurable

Deltrons leak over time from a conditioned space and must be continuously replenished for the anomalous property behavior to stay stable and the coupling to remain.

An increase in information content (including human attention) in the universe leads to an increase in the thermodynamic free energy state and decrease in thermodynamic entropy, and we see such temperature oscillations in a IHD conditioned space which is not affected by fans, etc.

It also seems that entrained coherence between speaker and audience increases deltron density, group coherence, as a result of high information production rate.

Some Tiller Working Hypotheses

A. Where Does Electric Matter Come From?

Paul Dirac, a great British theoretical physicist of the 20th Century (Nobel Prize for the theoretical prediction of anti-matter in the 1920s) was the first to ask the question "*where does an electron come from*?" The mental picture he started from is illustrated in Figure 1.

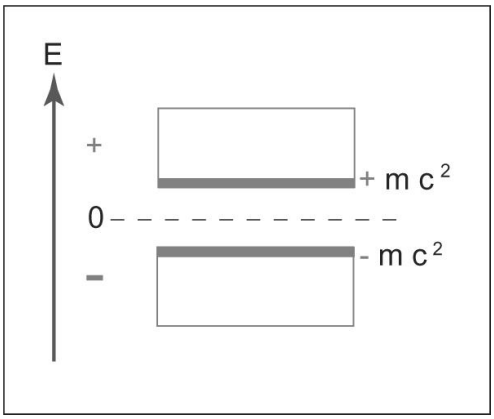

Figure 1. Schematic energy spectrum associated with the Dirac analysis. A band gap of forbidden energies exists between $E=\pm mc^2$ for particle-antiparticle creation of mass 2m.

Here, in Figure 1, the lower region framework is called the **physical vacuum**, defined as being completely devoid of physical substance (electromagnetic or EM substance) but allowed to contain some type of invisible substance relative to EM-sensors. Just above this vacuum region was **postulated** to be a region of **disallowed** energy states while, above this band bap, there exists a zone of allowed **positive** energy states where electrons and other members of the experimentally discovered positive energy particles-community could stable exist.

Assuming a zero energy origin in the middle of this band gap and the quantitative mathematical formalism of relativistic quantum mechanics (RQM) for his calculations, for electric charge neutrality during the electron creation process, he found it necessary to **assume** that all the possible EM-invisible "stuff" existing in the physical vacuum, had a mathematically **negative** value. He also assumed that **all** of these vacuum energy levels were initially completely occupied!

For the actual electron creation process, Dirac postulated that a **cosmic ray**, an extremely high energy particle of normal, massless light (photon), from very distant stars traveling through the vacuum of space could **somehow interact** with this EM-invisible physical stuff to eject an electron and have it settle into one of the positive energy states of Figure 1. However, to also satisfy nature's **conservation of energy** requirement, he had to also take into account the "**hole**" left behind in the plenum of the

physical vacuum. Thus, the minimum cosmic ray photon energy for this particular electron/hole **pair creation** event had to be **equal** to the Figure 1 **width** of the band gap zone of disallowed energy states.

As an additional technical requirement, since this "hole" constituted a **loss** in a plenum of electrically neutral, negative energy states (the lower region framework of Figure 1) and the electron, itself, was experimentally known to be a negatively **charged**, electric particle, for charge conservation reasons, this hole was **required** to have both (1) a **positive** energy and (2) a **positive** electric charge.

In the early 1930s, from cosmic ray shower experiments, this "hole" entity was discovered and labeled "the positron" (an anti-matter particle). Over the following decades, a positive energy, anti-matter particle was discovered for **every** positive energy particle of physical substance found in nature by physicists.

However, although the Nobel Prize was awarded to Dirac for his great theoretical concept of anti-matter, orthodox science **hated** the idea of a **negative energy** plenum for the physical vacuum in his theoretical model because they couldn't conceive of what a negative energy might look like. Thus, orthodox science has not pursued further serious study of Dirac's concept!

B. Why the Plenum of the Physical Vacuum Should be Thought of as EM-Superluminal Stuff from a Spacetime Perspective?

The "big bang" creation model of today's orthodox science for our physical cosmos grew out of the assumption that the physical vacuum was completely empty. This assumption is fully consistent with the experimental observations that (a) the physical vacuum is transparent to electromagnetic (EM) light and (b) EM photons of **all frequencies** travel with constant velocity, c, through physical vacuum of any length. From this, one can deduce that the physical vacuum is **a non-dispersive medium** for EM-waves which, in turn, means that EM-light is not interacting with **any** kind of "stuff" that might exist in the physical vacuum. The big bang modelers **assumed** that this meant the physical vacuum was "empty". However, an equally **plausible assumption** is that the EM-sensor "invisible" stuff of the physical vacuum all travels at velocities much **faster** than the EM-light velocity, c, so that this "stuff" can easily get out of the way of EM photons traveling at v smaller than or equal to c.

Interestingly, about 50 years ago, astrophysicist John Wheeler predicted[(1)] that, for quantum mechanics (QM) and relativistic mechanics (RM) to be internally self-consistent, the physical vacuum must contain a latent energy density of ten to the power of ninety-four (10^{+94}) grams per cubic centimeter of equivalent EM energy ($E=mc^2$, where m=1 gram, from Einstein). This would mean that the calculated energy stored within the physical vacuum volume of a **single** hydrogen atom (about 10^{-23} cubic centimeters) contains about a trillion times that of **all** the EM energy stored in all the stars, planets and cosmic dust of our entire physical cosmos (an almost sphere of radius about 15 billion light-years). This is **totally inconsistent** with the "empty physical vacuum" assumption of the big bang.

Also, about 50 years ago, physicist Eisberg[(2)] showed that, for a non-dispersive medium like the physical vacuum, if one considers the DeBroglie particle/pilot wave concept of the 1920s (for which he won a Nobel Prize) and also uses an RM particle energy, one theoretically calculates that (1) the group wave velocity equals the particle velocity and (2) the pilot wave velocity times the particle velocity equals c^2 (see Figure 1).

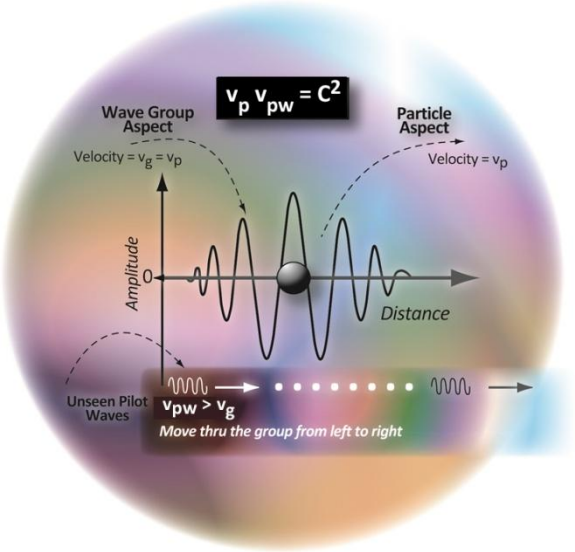

Figure 1. Schematic of true pilot waves.

Thus, since the spacetime mass particle velocity is **always** less than c, the pilot wave velocity is always greater than c (it is superluminal in the EM-sense from a distance-time reference frame (RF) perspective).

The orthodox science community don't seem to like superluminal pilot waves and prefer to assume that the medium through which DeBroglie's pilot wave travels is a dispersive medium wherein an anomalous absorption process operates. However, it is almost impossible that such an anomalous process could operate in the physical vacuum because an EM-wave travels at velocity, c, **independent** of frequency, so, at best, an absorption process could work well at only one frequency, not at all frequencies.

To close this discussion, let us consider the Higg's Boson predicted to give mass to all the fundamental particles in today's orthodox physics particle menagerie. It is thought to have been discovered in June, 2012 at Cern in Geneva with a formation energy of about 125 billion electron volts. For me, I assume that his forms a key type of **closure** for today's orthodox physics which has created all the EM-instruments whose EM-signals travel at velocity less than v=c. Thus, with all the foregoing discussion, it appears as if the "standard model" and the "big bang theory", both dealing with v smaller than c phenomena, are complete – a great orthodox science achievement! **However, it also means that, although natural phenomena in the v greater than c domain are open to legitimate scientific investigation, our orthodox scientific community presently has no tools available for such studies!**

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1. C. Misner, K. Thorne, and J. Wheeler, Gravitation (W.H. Freeman and Co, San Francisco, 1970) chs 43, 44.
2. R.M. Eisberg, Fundamentals of Modern Physics (John Wiley and Sons Inc, New York, NY) pp 140-146.

C. What are "Subtle Energies"?

To date, the last almost 500 years of our orthodox science and orthodox medicine adventures has discovered, and completely verified, the existence of **four fundamental forces** acting in nature. These four are: gravity, electromagnetism (EM), the long range or weak nuclear force (radioactivity) and the short range or strong nuclear force (nuclear energy, atomic bomb). These all function in the reference frame (RF) originally called **distance-time** and now called "spacetime". Unfortunately, these worthy scientists actually think of this as a **distance-time-only** RF wherein human consciousness is **not** a significant experimental variable!

Present day quantum mechanics (QM) shows us all that, even at absolute zero of temperature (T=0^{o} Kelvin), electric atoms and molecules still exhibit **modes of vibration** so that photon energies can be exchanged (back and forth) between the positive energy states of Figure 1 (Dirac's diagram – discussed in working hypothesis A) by definition, since the 1930s this energetic state has been labeled by physicists as the zero-point energy (**zpe**) state.

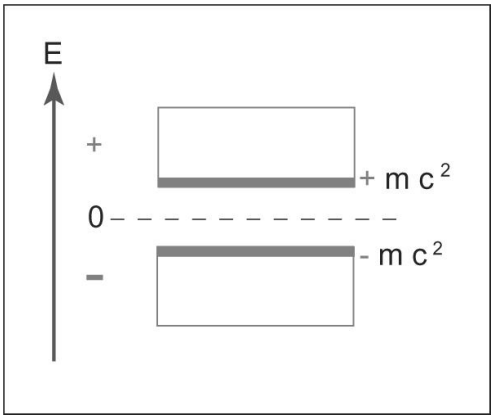

Figure 1. Schematic energy spectrum associated with the Dirac analysis. A band gap of forbidden energies exists between E=±mc^2 for particle-antiparticle creation of mass 2m.

This particular zpe state is **quite different** than the physical vacuum energy state discussed in working hypothesis A.

About 1970, **in parallel** with my orthodox science as a full professor with tenure at Stanford University in the Department of Materials Science and Engineering, I decided to help create a **bridge of scientific understanding**, that seamlessly joined orthodox science at one end, progressed through the domains of (1) the human psyche, (2) the domain of emotion, (3) the domains of mind and (4) becomes firmly implanted in the bedrock of spirit at the other end. This was performed **outside** of the university because such a topic was significantly frowned upon by all university communities in today's world.

Such a part time project required the proposal of a type of structural picture to represent these various new types of (1) substances, (2) energies and (3) informations. To date, two types of visualization have been found to be useful and are represented in Figures 2 and 3.

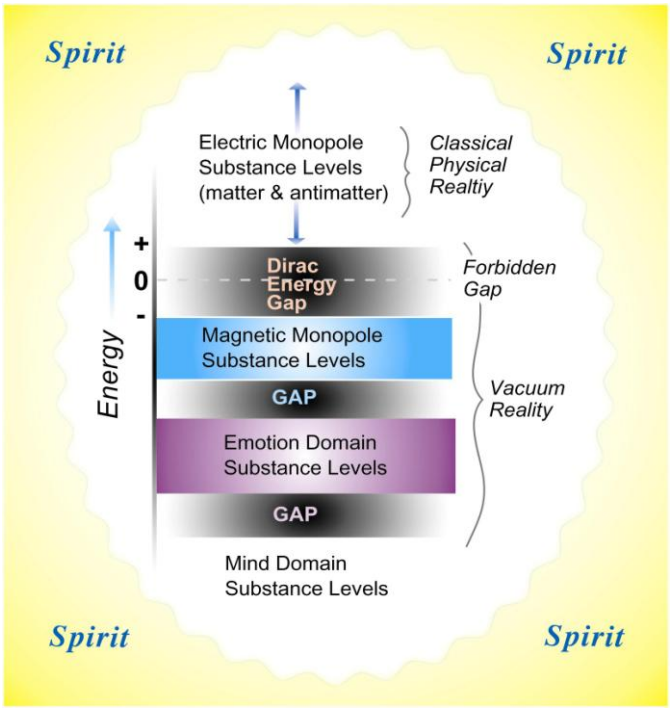

Figure 2. An energy level diagram embracing both classical physical substances and "unseen" vacuum substances.

Figure 3. A metaphorical description of "the ladder of understanding".

Figure 2 provides an **energy** perspective as an expansion of Figure 1 with all of these new energies functioning in our currently **unexplored** physical vacuum. Many years ago, I defined them as **subtle energies** (all those energies functioning in nature beyond those connected to the four fundamental forces discovered by orthodox science)[(1)].

Figure 3 provides a different perspective and has been labeled as "the ladder of understanding". I like to think of nature as radiating to us on many, many different bands of information and for the last, almost 500 years, we have quantitatively learned about only one group of those that our present level of average consciousness can meaningfully access via the RF "distance-time. Thus, this forms the bottom rung of our Figure 3 ladder and our orthodox science knows it quite well! This author's extracurricular research of the past almost 45 years has focused largely on the second rung of Figure 3. As such, it focuses on adding **human consciousness** and **human intention** as significant experimental variables in our future studies of natural processes.

References

1. W.A. Tiller,

(a) "What are Subtle Energies?", J. Scientific Exploration 7 (1993) 293.

(b) Science and Human Transformation: Subtle Energies, Intentionality and Consciousness (1997) Chapter 1.

(c) Psychoenergetic Science: A Second Copernican Scale Revolution (2007).

D. The Whole Person's Three Selves

First and foremost, we are all **souls** and we **require** a physical body to fully experience the distance-time domain of nature (much like, in former times, a deep water diver needed a metal diving bell to sustain the high pressures encountered there plus built-in instrumentation that allows us to maneuver in that difficult environment). As souls, we appear to be indestructible and relatively eternal. On the other hand, our biobodysuit which grows around us when we are born into this particular experimental classroom, wear for the relatively short time of about 50 to 100 years (in spacetime units) and then it appears to die when we leave this particular playpen of consciousness and return to higher dimensional domains of reality.

Our experience in this particular playpen allows us to (1) grow in **coherence**, (2) develop our gifts of **intentionality** and (3) eventually, after many biobodysuit lifetimes, become what it was always intended that we become – loving **co-creators** with our spiritual parents!

As a working hypothesis, I like to picture our **soul-self**, our **personality-self** and our **source-self** as illustrated in Figure 1.

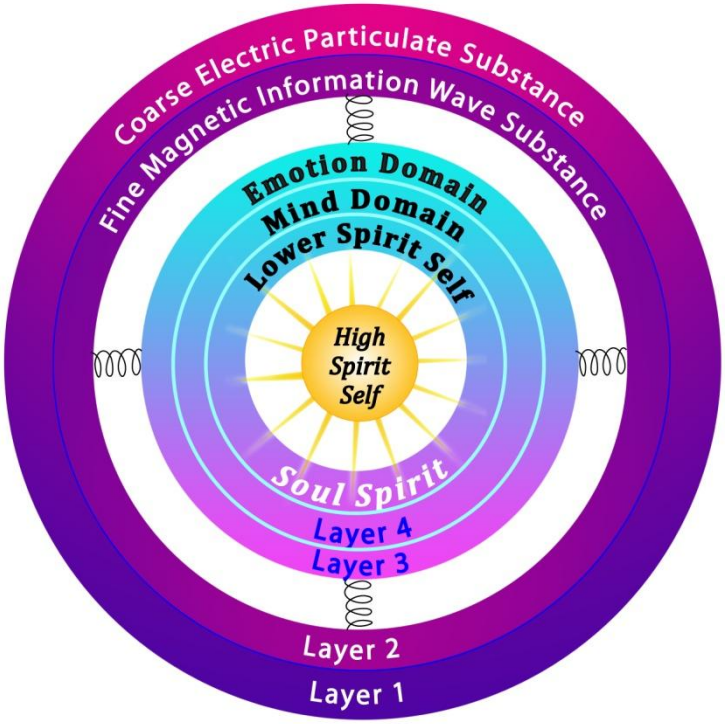

Figure 1. A metaphor for the whole person. I like to visualize a sphere comprised of three concentric zones that are at least weakly coupled to each other. The outermost two layers is the personality self. The middle three layers is the soul self. The core region is the high spirit self (or the God Self).

This spherical construct consists of three zones of substances of varying density and nature with layers of highest substance density on the outside and lowest density in the core region.

Although, at present, our global society thinks of **physical reality** (the biobodysuit and personality self) as consisting of only one layer of substance, the coarse electric atom/molecule layer of Figure 1, I prefer to define physical reality as consisting of the two layers of (1) the coarse, electric substance layer plus (2) the fine, magnetic substance layer.

The second, inner layer of the personality-self is where the acupuncture meridian system is thought to function. As many have experimentally discovered, there is no **histological** (unique cells) evidence of the acupuncture meridian system and its many acupuncture points. At present, the only serious evidence of this very important structural system is of an electrodermal nature – a significantly enhanced electrical conductivity of the skin immediately adjacent to the Asian-predicted locations of the acupuncture meridians and points.

When our soul-self is "born" into this spacetime domain, the EM-invisible, innermost, magnetic substance layer of our personality-self is thought to form first and become the template upon/around which the coarse, electric atom/molecule layer forms. All electric charge movement occurring in this outermost layer **induces** circulating magnetic fields around the electric current paths. These induced magnetic signatures are always of a dipolar nature (north and south poles closely bound together) rather than of a monopolar nature (single north or south poles).

The **soul-self** consisting of the still higher dimensional domains of emotion, mind and an aspect of spirit, is thought to be the entity that is importantly **evolving** in this overall process. Besides being much more durable than the personality-self, it is the repository of all the key experiences from a long succession of personality-selves. When the various outer world classrooms have little more to teach the soul, it graduates to the high spirit domain and is thought to transfer all of its essential information to the source-self. In this way, the source-self is thought to keep growing!

Dr Tiller interview by Margaret Blackwell

Science & Human Transformation
Subtle Energies, Intentionality and Consciousness

May 23, 2005

Margaret Blackwell: I wondered, first of all, what creativity is to you, if you have a definition of what it is.

Dr. William Tiller: Well, creativity is—a common definition, of course, is that it is what an individual does beyond the normal practice. And creativity involves the subconscious, accessing things from the universe that manifest in the conscious and the individual, at the conscious level, has to have given meaning and importance for that in their life and be in tune with these gifts from the unconscious. So part of that is an expression of the evolvement of the soul of the individual to increase the amplitude and broaden the spectrum of the subconscious outpourings into the world. I mean, I think that's the path of evolution for all of us.

MB: Yes.

WT: That we manifest, we radiate more and more things in the world. We give meaning to more and more things and we radiate them with ever higher intensities as we become more capable. So I think it's present in all individuals. It depends upon their willingness to express freely and beyond the bounds of what is presently conventional and accepted.

MB: Right.

WT: There is an addendum to that and that is that for, let's call it creative expression to be fruitful in the world, it does involve discipline of the individual. So there is a component of discipline that helps to craft a creative expression into something useful and appreciated by the outside world. So it's a complex issue, a very important one. And there are many, many facets to it.

MB: Yes, I've got a lot of questions here about these different facets and I'd like to come back to this question of discipline later. When I first asked you to do this interview, you made a comment about feeling very strongly about the use of unfettered imagination, and I wondered where in your view imagination comes from?

WT: Yeah, well, imagination, I think, comes from the flexibility in self —I've talked about it a bit in my writings. As you know, I tend to think of consciousness as a bi-product of spirit entering dense matter. And in order for spirit to enter dense matter, it has to have infrastructure to attach to, so that as an individual experiences life, and works at life to build

self, in many, many ways, he/she becomes excellent in one's craft, etc., then the more does spirit enter, and the more conscious does one become and now, the consciousness is such that you see possibilities far beyond what you earlier saw, and so you have more flexibility and you express things that could be called imagination -because they're things outside of the norm. And, now, it isn't that all of that occurs in one lifetime. It is a built up from many lifetimes because the soul self is able to imprint a lot of this onto the personality self. I mean, the geniuses that are born, like a Mozart or such, that capacity largely came about because of earlier lifetime experience, in my view.

MB: You mean, other life experiences?

WT: Other life experiences, yes. And so, imagination is really related to seeing more and more possibilities in things.

MB: What do you think are the necessary conditions for people to be able to use their unfettered imagination are?

WT: Well, I think certainly one of the conditions is that you're not fearful. In certain cultures in historical times, you express certain things from your imagination and they might burn you at the stake.

MB: Right.

WT: And so there is that. And then there are the expressions of your peer group to appreciate or not appreciate. So, often to do this, you have to be deeply enough committed to that aspect of yourself that you do things in spite of your peer group's affirmation. And then it also relates to how much you're in touch with yourself. For example, the old dictum, 'to thine own self be true' is really important here. And I know that when in the 1970 experience period, when I was looking at psychoenergetics and felt someone really needed to seriously work on this who had scientific training, I came to the conclusion it had to be me and I had to stand up for this because in order to be true to myself, because I believed in it, I had no other choice. And so it led me to do various things that people said were very courageous, but in actual fact, it was just simply following the dictum of 'to thine own self be true.'

MB: ……but it does take courage to do that.

WT: Well yes, but it also takes a kind of knowing that if you don't do it, you really constrain and partially destroy yourself. So it's a two edged thing.

MB: That's a great example. I wanted to ask you how you see the relationship between creativity and perception……which I know is a huge question?

WT: Perception. Yes, well, again I go back to the statement of spirit entering dense matter gives rise to consciousness and consciousness deals very much with perception. Perception is very much a part of consciousness. To perceive something that perhaps others don't perceive. And again, it's part of this flexibility that develops, that you perceive things that are not in the norm because you're more conscious. It's as if you're standing on a higher hill and you can see further. Now, that's one aspect. In my own case, when I

developed the first model of this multi-dimensional universe that would allow psychoenergetic phenomena to potentially naturally coexist with conventional scientific phenomena, I did it through daily meditation for six months working for the rest of the day on those perceptions that came from meditation. It took discipline. It took being open to that pathway.

MB: Were you the only person doing this at that time, the only scientist?

WT: Yes, I think so.

MB: So you really broke new ground?

WT: And Jean and I sat together in meditation for an hour each day, and you'll see I write that experience in chapter one of the new book, Some Science Adventures with Real Magic, so you'll see more about that. But basically where it comes to creativity, in this case, it was continuing then to be disciplined, to make changes in the life to provide time to work in this area, and to do theory and to do experimenting and to look within and continue to develop these aspects of self. They were all part of that and that has led to many, many creative expressions, but it took all of it, along that pathway.

Now, as a younger person, of course, I was creative in both dimensions of science—because I started out as a poet.

MB: Oh, you did?

WT: Yes, as a young man. As a teenager, and of course, I think Jean fell in love with me because I was a poet, and she was really disappointed when I became a scientist.

MB: (Laughs) Do you write poetry now?

WT: No, I gave it up. I gave it up in my 20s. The flow of words gave me more power over people than I really should have at that time. And so I set that aspect of it aside until I was mature enough and wise enough to be able to handle it properly.

MB: What drew you to being a scientist?

WT: Well, once I decided I wanted to learn, I was always good in math and science, as I was in English. And I decided that if I became a writer, I could never be a scientist, because I would not have learned the scales. If you don't learn the scales, you can't write the symphony. But if I became a scientist, I may one day be able to be a writer.

MB: Oh, so it was very conscious.

WT: So it was—I thought it was my decision and maybe it was, but in any event, that's how it unfolded.

MB: Interesting.

WT: And so, I took the most difficult course, Engineering Physics at the University of Toronto, because I didn't know quite what direction I was going in and I wanted to make sure I had the best foundation. So that's how it all unfolded.

MB: Do you see yourself writing poetry again in the future?

WT: I do. I do. Maybe a decade down the road. I don't see it in the immediate future. I'm still fulfilling this prime task I set myself for this lifetime. Maybe that will never be finished. But that is to build a reliable bridge of understanding that connects seamlessly with conventional scientific understanding and extends through the territory of psycho-energetic phenomena and the domains of emotion, plus the domains of mind and gets firmly planted in the bedrock of spirit on the other side, and that it be strong enough that people will walk across it.

MB: That's very exciting!

WT: That's my goal. That's really what I'm trying to do. So if I reach the point where I have built aspects of the bridge well enough for both the general public and for the scientific community to step forth and participate, then maybe indeed, I will spend more time trying to divert some of these things into poetic essence and phrase them in ways that can lift people. We'll see.
But poetry was a different mode of expression - and I see a lot of poetry now in the work that I'm writing about what I'm doing. But again, it's this business of having developed a lot of infrastructure in the self, of spirit entering and then being more conscious, and being more conscious, you have the possibility of being more creative because you have the possibility of thinking you see further and then if you discipline yourself to craft things needed, to convert those perceptions into an actual, a serious embodiment of creativity, I mean all of those things are necessary parts of the process.

MB: I think it's very interesting, this question of embodiment.

WT: I think it is, the point is many people are creative but they're not disciplined enough to embody that essence into a form that is an entity unto itself.

MB: I think also some of the things that people make, even though they might put them into a form, the form they put them into doesn't end up being an embodiment. It ends up being a representation and I think there's quite a difference between these two.

WT: I think there is a difference in that. I think, as you probably know, that to me we are all spirits having a physical experience as we ride the river of life together. And that our spiritual parents dressed us in these biobodysuits and put us in this playpen that we call the universe in order to develop our gifts of intentionality, in order to really see more deeply into ourselves and into nature and in order to become what we were intended to become which is co-creators with our spiritual parents. And so the whole issue of living is creating. It's learning how to create and learning how to embody that creation with richer and richer essences. It's a training program so that ultimately, with our spiritual parents in co-creatorship, to spin worlds out of ourselves. I mean, that's where we're all going.

MB: That's a beautiful way of seeing it. I guess I was thinking of it in a different way. I was thinking of the question of embodiment, for example, in say, the icons that are painted in Russia, where people have to train for ten years before they can paint them, and part of that is the skills and using the gold leaf and all of that, but the main piece is they have to be spiritually developed because the icon is seen as an actual embodiment of—

WT: That's an outer part of it, but the inner part of it is that it's embodied with radiances from deeper dimensions of the universe. So it has a feeling nature to it which is quite remarkable and quite sacred, and it can be felt - so this aspect of embodiment is part. I mean, you can embody it in many ways, but the level to which you do it is dependent upon your mastery and your appreciation of these different levels. I mean, for myself, when I wrote Science and Human Transformation, it was a joy to sit and write it, because I felt I was communing with the unseen, and when it was finished and printed, I felt it had an essence from the unseen that was unseen but people could feel it.

MB: Is that what you meant when you said to me once about that book, you thought they potentiated it?

WT: Yes, that's exactly what I meant when I said that. And this, of course, is what all of us can do as we create in the world we embody, we touch these things and embrace these things with the deeper energies of ourselves, those that we allow to flow through us. Let's just say to potentiate because that's a clearer word, I think, another dimensional aspect of this creation. And I suspect that there are a variety of paintings around the world in museums that that is there. That's why they glow especially, etc. And people likewise. Because we all radiate what we are.

MB: Throughout your book, Science and Human Transformation, there's evidence that you use yourself and your own experience and your own life as part of your experiments and I wanted to ask you about this. One thing I remember particularly you told me about was when you had an interest in finding out whether you could train yourself to see auras. You said you didn't particularly care to be able to have the skill but you just wanted to see if you could learn how to do it and then you went for it.

WT: Yes, exactly.

MB: There are quite a lot of references in your book about ways that you use your own body and your own life as part of your scientific discoveries and experiments.

WT: Because if I can do it, others can do it. I mean, that was the issue behind it all, and I just wanted to see if it was easy enough for me to do, then others could do it. And I found, of course, the more you do some of these things, the more you strengthen them. You build the muscles. You know, we have outer muscles. These are inner muscles.

MB: There's one place where you write about discipline, and you write about the way that logic and intuition work together in creative processes.

WT: Yes, and indeed, I think it was perhaps the metaphor of modeling clay - basically that the intuition is really powerful to get an initial impression or pattern that you want to display, and then the knowledge and the skill of your craft, the level of your excellence does

work with that clay in detail and shapes it, so that, in my case, it's internally self-consistent science, consistent with other science, but it has this beginning clarity of a work, of a—you almost see a completed work. You don't see it perfectly but you see essential outlines.

MB: That's very interesting - because another thing I wanted to ask you about was not knowing, the thing that seems to me the most important prerequisite for creative action of any kind is the readiness not to know. And I've found when I've been teaching people, that sometimes they would get very dismayed and disillusioned because they had an idea in their head of exactly something they wanted to create, and what they created didn't match up to that. Often what they actually created was better than their original idea, and because they were so bound by their idea, they couldn't see what they had created.

WT: Yes, that very definitely happens and I think it's important to recognize all of these features and come to a sense of equilibrium with respect to them.

MB: What would that mean? The equilibrium?

WT: Being at peace. And the issue that I feel is important in so much of us, because we're mostly unconscious, is in the articulation and discrimination of thoughts and ideas. And it is that first stage of you have a feeling and to be able to precipitate it into some space-time-form, whether it's writing or whether it's a piece of art or whether it's a sculpture, whatever it is, that's the first crucial step, to sort of pull it up out of yourself so it can be seen in some form, and then you can whittle with it. You have a feeling of what it is you really want to do and now you begin to understand it. And then comes all your craft to convert it into as excellent a piece of your expression as you can.

MB: I'd just like to come back to the not knowing - you made a comment to me about not knowing and the unseen, and you said something about your work, that you do all you can and then leave it to the unseen.

WT: Yes, yes, basically and this is a thing that occurs over time, if you have an inkling and you make this beginning, precipitation and you take it as far as you can, if you're impatient, you can push it into an unsatisfactory result. But if you develop the patience to like what you're doing and what form it's taking, but you don't see where to go next, then that's the time to pause and reflect and allow other processes to occur and these are generally unseen. And so implicit in coming to that level of perception is that always, always, always, always, there is much, much more than we perceive. The universe is much richer than we perceive, than we know and probably that we can know, at least at this stage of our development as a species. And if you allow those processes to work, then you, by attuning, and again, giving meaning to this part of things, then you have co-creatorship and—

MB: With whom and what?

WT: With the unseen. And you accept and allow guidance which you must discriminate and it has to meet certain standards and qualities, etc., you don't do it alone but you partner in creating something of value

MB: How would you see the unseen, how would you see, in, say, in the writing of poetry, for example, how would you see the unseen?

WT: Well, the unseen, to me, it's a question of the level that you reach. There are many, many levels. There are levels of the unseen. You're now talking about the huge numbers of souls at various levels in the hierarchy, spiritual hierarchy, that are not in embodiment. But they're still working. They're creating and they have purposes and they are trying to help the evolution of species on this planet and other planets and they are part of this life process. They just don't happen to be embodied. And so if you are open to the possible assistance and guidance, then that can happen.

MB: So they could be actually part of the creation of a poem, for example. Is that what you're saying? I remember reading an interview with Alice Walker, who wrote the book The Color Purple and she went away to some farmhouse somewhere for a few months, to write the book, and she started to hear the voices of her characters – they started to speak to her and to each other. And her whole story came from that.

WT: Right. And I've heard of that kind of thing. And of course, the capacity for humans to hear and to see beyond the norm, there's lots and lots of experience in that. Certainly, in my own case, I don't really see or hear, except you know in the experiment, that I did to teach myself to see auras, then I did see something beyond the norm. But once I had convinced myself that it was real and that I was able to do it, and therefore others could do it, I just let it decay as a capacity, because I had other purposes that I had to put my time to and I didn't want to be distracted. I basically think it possible to manifest and actualize all these gifts that we call super-natural abilities. But I don't want them to manifest in myself unless they serve the larger purpose because they could be distractions to me.

MB: So just coming back to what you said about these spirits

WT: Yes?

MB: So in all these spirits that are out there, is it the case that some are good and some are bad, or some are very good and very bad, or there's a spectrum?

WT: I think there's a whole hierarchy and the question of what do you mean by good or bad?

MB: Well I mean, well-intentioned.

WT: They may be immature, and they may be mature. They may have narrow objectives of their own or they may have large objectives for the species—those are the issues. So good and bad are too narrow a description, I think, for this kind of thing, and so it becomes part of ourselves, you can reach—how high do you wish to reach is the issue. I mean, lots of people start hearing voices, and some of them are not very good. But it's the level where the individual is, and they often have allowed that to occur, but it didn't need to occur. They could have reached higher if they were conscious enough to reach higher.

MB: It's interesting. Because I remember Andrew Cohen said once, that a lot of people think if somebody is channeling a spirit, they just automatically assume because they're

being channeled that the spirit is good and wise. And that's actually not necessarily the case and that discrimination is really necessary there as it is in any other place.

WT: Absolutely. Absolutely. I mean I've worked with a lot of such people over the years and there's a lot of garbage. Discrimination is really important. But the point is, it's like a series of atomic energy levels. These are all possibilities. There's a ground state but there are higher states and there are different properties associated with higher states and so if you take the same attitude of mind about the unseen, there are many, many, many, many levels and it is really best to seek the highest level that you can work with within yourself. You've built yourself to a level where the thoughts are—they can integrate with your normal spectrum.

MB: That makes sense.

WT: If you reach too high, you just can't connect because it's beyond your spectrum and there's no way to put it in your picture. Conversely, if you are indulgent with yourself, or if you are addicted to things, you may reach levels that just strengthen that addiction, etc. So, you know, it's sort of a psychic thicket. I mean, all of these things are part of us becoming more conscious and developing these other aspects of ourselves. But one needs to approach these things very carefully. One can be trapped in the forest of psychism for a long, long time.

MB: That sounds pretty horrifying!

WT: So again, it comes back to discrimination. It comes back to faith. It comes back to, you know, by their fruits you shall know them. And the way you know yourself is what fruits are you creating? We're talking about creativity. Okay. Now that's the intention, is to create. All right. Now, create and then see how is that creation appreciated by others, by yourself, etc. What did you put into it? What have you built?

MB: I want to come back to this whole question of intentionality because so much of your work focuses around that.

WT: Right. It's crucial.

MB: There's one thing you said in Science and Human Transformation that every application of our intention is an act of creation, and then you talk about the importance of using our intention effectively. So I wanted to ask you about that because you are obviously talking about your own inner intention but also in the devices that you make and that you made for me, the intention in terms of the electronic device is also working with intention, so I wanted to ask you about the whole question of intention.

WT: Well, certainly from the experience we've had in the period from '97 to 2000 this was where we did the experiments, the first significant experiments with imprinting intention into a device, and then that manifested into Conscious Acts of Creation, The Emergence of A New Physics. And then, this more recent phase that was continuing that theme but it was necessary to prove replicability and it was necessary to have others do it. Now, I broke the replicability down into two parts. One part was that we would provide the IHDs (intention host device) for particular experiments and then others, in their laboratories, would do the

experiment that that device was, let's say, tuned for. And we did the four sites in the U.S. and then two sites in Europe. And so we showed that we could get replicability of people doing the experiment with the increasing the pH of purified water by 1 pH unit, provided they followed the protocols and used the equipment that we suggested for them to put together.

MB: That's a pretty dramatic thing to achieve, isn't it?

WT: It was a very dramatic thing to achieve, and the issue, of course, was the unstated assumption of science in this present paradigm and in the previous classical mechanics paradigm that no human qualities of consciousness, intention, emotion, mind, or spirit can significantly influence a well-designed target experiment in the physical reality. And so then our goal was to set up several target experiments in the physical reality and to imprint devices with an intention and we decided to do it in a way that was nice and clean, scientifically. That is, to embed them into a device and that device then acted as a surrogate to allow this to happen. And we learned that the precursor was that the device outputted something related to consciousness into that space and that conditioned that space to some higher level of reality which some of the experiments connected that to the electro-magnetic gauge symmetry level of the space. And then we tuned it for a particular target experiment – changing the water pH; increasing the thermodynamic activity of a specific liver enzyme; increasing the ATP to ADP radio in the cells of fruit fly larva so they'd be more fit and have a shortened larval development time to the adult life stage. And so we achieved all of these things very significantly and so that basically said that the unstated assumption of establishment science was just very, very wrong. It was wrong.
And then we found, when we did the replication experiment, it could be done, but we found that we had also set up control sites with no device, first just two to twenty miles away from the site of where the device was. And we found that we got the same kind of behavior there. And then we took two sites—we started them as control sites and they were 1-2,000 miles away from the three sites where we had the IHDs and we found that the same imprint developed there, but it took the order of a month or two months.

MB: So are you saying that the control site used an IHD but—

WT: No, there were no IHDs at the control sites. That's why we called them control sites. We wanted to see what the results would be, but the fact is, when they were two to twenty miles away, we found we got the same kind of behavior. Okay?

MB: That's incredible!

WT: Yes! I should have realized that would happen, because at the very beginning, when we imprinted a device, we took two devices that were physically identical - we set one aside as a control device and the other one we imprinted from this deep meditative state. We did the experiment of separating them by about 100 meters and turning them off electrically to see if they were isolated. Why we chose to do that experiment I can't remember, but again, it was one of those things I just thought that we needed to do. It was my intuition, not knowing why, and we found that within three to five days, the imprint passed from the imprinted device to the unimprinted device.

MB: And they were switched off?

WT: They were switched off, so an electromagnetic carrier wave was not the way in which it was transferred. Well, first of all, it was a problem. We had to find a way to shield a little bit, but instead, on reflection we realized that there is another information channel in the universe that we don't know anything about and this information passed from one device to the other. So we then wrapped the device in aluminum foil and stored it in an electrically grounded Faraday cage and therefore, we were able to keep the imprint intention in the device for the order of three to four months so we could do experiments then. But when we did the replication experiment, I'd forgotten all about that stuff, and then, we found that the control sites picked up this information and so we had information entanglement between the device site and the control site, first over two to twenty miles, and then over 1,500, a thousand, two thousand miles. And ultimately, we had sites start in the U.K., near London, and in Milan, Italy, by two groups of people whom I had never met, but who wanted to do some of this work, and we just told them what to do and said, all right you gather background data for three months and then we'll send you an IHD. Well, in England, in three weeks, the pH had gone up one pH unit and in Milan, in one week, it went up 1.7 pH units.

MB: Oh, my goodness!

WT: But that was, in Milan, it was below ground and we had another control site here in Missouri that was below ground. And in that case, it also went to 1.7 pH units.

MB: So the original experiment with the IHD was one unit?

WT: It was one unit. And we found that those sites that were at ground level, the pH went up one pH unit. Those sites that were below ground, they went up 1.7. Those sites that were three stories up in the air, as they were in Bethesda and Baltimore, they only went up 0.8 units, which suggests that whatever this energy is, it prefers to go through the ground rather than through the air. Electromagnetism prefers to go through the air than through the ground.

MB: Oh, that's very interesting.

WT: It was very interesting.

MB: And in the replication experiment, in the control sites, did you actually say there was no IHD?

WT: There was never an IHD at any control site.

MB: So they did the experiment exactly the same, but without an IHD?

WT: Right, exactly, because then we would see what happens at a control site. We thought it would behave, you know, when you think of things just in the terms of space-time, you think there's no interaction. But in essence, once you condition a space, our experiments show that we are accessing another level of reality that is the vacuum level in reality. So basically, our experiments showed that we were accessing not the atom molecule level of reality but actually that we were accessing the vacuum level of reality. The vacuum level of reality is the space between the fundamental particles making up the atoms

and molecules. It's mostly empty space and so we called that the coarse physical vacuum. And in that, from our theoretical work, I proposed a long time ago from this meditative state back in the early '70s, that that domain was a frequency domain and because it was a frequency domain, then it meant that once the pattern was there, it was everywhere. It wasn't limited by space and time.

MB: That's remarkable!

WT: And that appeared, from our present understanding at the moment, our working hypothesis is that this information entanglement over these huge distances really occurs by building the conjugate of the direct space, the atom/molecule level, object and intention. You build it into this frequency domain, the vacuum level of reality, and therefore it is everywhere and so, with the equipment 6,000 miles away, at the atom/molecule level is, now the imprint, once it goes in the vacuum level, it can, because the equipment is there in the atom molecule level, it can now build a coupling at that point between these two levels of the universe.

MB: When you say the equipment is there, what does that mean?

WT: Well, we asked them to set up the pH measuring equipment and to measure the temperature. It was what we used in our own laboratories, so that that was part of the protocol for this experiment and, in essence, it turned out that every site was involved in the experiment. Between the device sites and the control sites, we ended up with ten different locations where we got the same kind of results, and during that period, we also invented a device which allowed us to measure the thermodynamic energy change of that space, relative to our normal atom/molecule world, which is called the U[1] electromagnetic gauge symmetry world where Maxwell's electromagnetic equations function, etc.

So it was all very interesting and from all of that, we have on the one hand, an information source which conditioned the space to this higher level where it can couple. The atom molecule level can couple to the vacuum level. And so now, we begin to have opened a door to a new level of physics and we also have a detector which is able to tell us how great is this coupling to this other level of reality and what are the consequences energetically, etc.

MB: It's completely mind-boggling! Because it works at such great distances and there's no device in the control sites, does this mean that actually you could randomly set up a control site anywhere, literally anywhere and the same thing would happen?

WT: I think so. As long as you follow certain protocols, yes.

MB: That's remarkable.

WT: And some people from India have asked me to cooperate to do that there and ultimately I'm sure someone from Australia will ask and we'll see at least with this planet, that that will occur, and it can probably occur with other planets. We're dealing with a new energy here. And it is an energy that is malleable to human thought.

MB: What does that mean exactly?

WT: What it means, is you see, when we imprint the devices, the IHDs, the results show that this new energy is what's causing it to happen. And the experimental results are that we get the specific results of the intention. That is that we get the water pH going up, if we've intended it to go up. We get it going down if we've intended it to go down. But if we are using the down one, it doesn't go up. It goes down. And if we then go to the other, the biological experiments, those don't do the pH up or down. They do the biological experiments and vice versa. So there is an intelligence in these things which have them do what was the intention. And so, since in essence, it's all happening via this new energy, which I think of as probably the spectrum of chi, then it is the intention that modulates it much as in our own experience. We take electromagnetic waves and we now have learned how to put audio information on them, learned how to put video information on them. We know how to project them through space-time. And we know how to restore these things in our television sets or our radios.

So I'm saying the same sort of thing will occur with this other energy in our future. And, but the information that ripples it, or can ripple it is aspects of mind, intention, spirit. So—

MB: So the implications of this are huge! Also, what did you mean when you said that this could occur with other planets?

WT: Well, basically, the information entanglement - we first saw it as being at 100 yards. And then we saw it at two miles to twenty miles for the control sites, and then we saw it at between a thousand and two thousand miles. These were Bethesda and Baltimore relative to Kansas, Missouri, and Payson, Arizona. And then, the outreach went to the U.K. and Milan, so that was 6,000 miles from Payson. And then, the implication from everything that we've had is that there didn't appear to be any particular distance limit. In fact, it was taking less time for the system - the remote site - to reach its maximum pH effect, and it became clear that the enthusiasm of the site operators was also a factor. If they were positively enthusiastic about it, it occurred much more quickly.
And then, from that the implication or the working hypothesis was that it could be from one planet to another. So, I mean, that's within the framework of understanding that if you're talking about a phenomenon functioning in a domain whose natural referent coordinates are frequencies, then they don't appear to be in any way limited by distance or time. And just as in relativity theory, we have found in our case that time is included in the mathematics as a fourth distance, and the way you do that is that you convert the time to a distance. We'll call it x4 of four, the four distance coordinates, and that's just equal to i, the imaginary symbol which means the square root of minus one, times c, the velocity of light, times time. So c converts time to a distance, because c is centimeters per second times seconds. And the seconds just cancel out. So it becomes an imaginary distance.

MB: Wow!

WT: So, and since in relativity theory, that term enters always as the square, then it becomes a mathematically real quantity - just becomes minus, x4 squared. Anyway, that's what's behind that aspect.

MB: The whole concept of it is pretty mind-boggling.

WT: Well, I think the thing that is important is, for us to realize that as we then progress to higher dimensions in the universe, you see, they can all be frequencies. They can be bands of frequencies, different bands. And that means they all function everywhere. So space-time is just a particular classroom of consciousness where the deeper reality is all in the domain of frequencies.

MB: I don't have much of a grasp for physics, but I have a sense of what you're talking about and it's very radical.

WT: It is radical, but it allows us to embrace all of the qualities of humanity that we think of or biological systems, in terms of emotions and mind and spirit and things that heretofore we had no way of tying them down to something that we could deal with in a practical way. Now there is a possibility of doing that.

MB: That's huge.

WT: Yes, it is. And eventually people will understand. They will indeed come to see themselves, the majority of themselves anyway, as being an organism that is everywhere in the universe potentially. And it's only at one level of ourselves that we're localized in space-time.

MB: Isn't that a scientific explanation and description of nonduality and nonseparation?

WT: Yes, yes. It all comes out of this kind of thing. I mean, it potentially does. Okay, these are my working hypotheses. This is the first, I would say, serious attempt at providing a frame of reference for looking at nature which allows nature to express itself at all these various levels. And it doesn't mean that ultimately it's exactly correct, but it is at least a significant start. It changes the way we look at everything.

MB: So just to come back to the device that we've been working with together to try and cure Parkinson' Disease. I'm very interested - in terms of intentionality - in the whole question of how this relates to the use of human intention to heal, either with or without an IHD.

WT: It's very similar because basically, in India, at this point in time, I am told that groups are taking swamis trained in inner work, the development of themselves and they are holding intentions and causing things to happen, much as we are doing with these devices.

MB: When I asked you about the IHD you made for me, to attempt to cure the Parkinson's, I asked you why couldn't the human being, i.e. me or any human being, have that intention themselves?

WT: Well, they can. I mean, the point is, it's a question of what is their level of inner development. How much have they built those muscles inside?

MB: So you said that in most human beings, there's too much fluctuation of intention.

WT: Yes. I think so. Most people don't believe they really can do it because they have unconsciously swallowed the unstated assumption of conventional science, that people can't do that. But people can. But to be reliable, they have to work at it. They have to discipline themselves.

MB: So that means it should be possible for me to cure my Parkinson's.

WT: But maybe not in this lifetime. I mean, the point is, you do what you can do, but you may not get far enough in one lifetime to be able to do it. But you may. The point is, if you elicit help from the unseen, as we think we're doing, then you get a much bigger impact.

MB: What do you mean, as we think we're doing?

WT: Well, I mean, I have talked to you about this and I have felt all along that when we sit to imprint, we try to be perfect channels for information from the higher levels of nature to flow through us into the device. And I tend to think that the unseen is doing the heavy lifting. I mean, when we sit to imprint, we feel as if we have colleagues doing it. I mean, we feel them. So, to what degree? We just don't know enough yet to be able to separate all these particular issues. But I think of it as a co-creation effort with the unseen.

MB: In terms of the IHDs that you've done for me over the last year, they've had a certain amount of effect, but haven't gone as far as we'd hoped. What does that mean? Does that mean that I in some way haven't—

WT: I don't know. I mean, the point is, I don't know. You know, experiments are like that and whether in the scheme of things, we're not ready to take such a big step, but I have felt that these devices have helped you alter yourself in ways that are not necessarily visible.

MB: Definitely.

WT: And make you ready for whatever your next step is.

MB: Yes, I'm sure that's definitely been true.

WT: I think it has. Well, you know, it isn't my intent, although I had a lot of that in the beginning, to achieve this great thing quickly. But in the—

MB: When you say this great thing, what does that mean?

WT: I mean, cure your Parkinson's. All the way, I mean, you know, all the wonderful magical things. You would run a four-minute mile and etc., etc. But the issue is, what is important is that your soul and personality self evolve in a way that's best for you. And I don't fully know what that is. But I have always been willing to have that be the outcome, rather than this superman kind of outcome.

MB: Yes, that's more important to me, too.

WT: So, you know, it's an experiment and I learn from these experiments. We all learn. And there is a timing in things. I mean, this procedure has shown great promise. I think it will show even greater promise.

MB: I'm sure.

WT: There's more to be learned and there is a timing.

MB: Yes. I wanted to go on to the next question which I think is related to this. It's a question about space and density.

WT: Space and density?

MB: Yes. In my investigations about creativity, I keep encountering this question of space and density in relationship to creativity in all sorts of different ways. So one experience of this is with my osteopathic physician whom you've talked with. He has a very full understanding and grasp and knowledge of the structures of body, you know, the muscles, the tissues, the ligaments, all that, but where he works is really in the space between them. And he has said to me things like, "Stop buying into the density of matter. Stop buying into the density of your body. It's not true. Finding the space is not a make-believe thing." And one time, he had a student there and he was treating me and working with the student, and he said to the student, "Find the space. That's where the healing force is." And I said to him later, "How can I do that so that I can work on healing myself?" And he said, "You have to get smaller and smaller and smaller until you're so small you won't bump into anything."
When I asked him what would I bump into, he explained that it's a question of occupying the space in between the nucleus and the electrons orbiting—

WT: Which I am saying is the space of the coarse physical vacuum.

MB: What does that mean? So are the space and the vacuum the same thing?

WT: Yes. Exactly. It is the same thing, and then of course, in the book Science and Human Transformation, I do refer to the work that Leadbeater and some others have done a long time ago with the Theosophical Society to indeed shrink themselves, their consciousness down to the fundamental particle levels and actually see the structures at that level and be able to describe it and draw it and so forth. That's one of the siddhis.

MB: When I was experimenting with doing it, I found it very difficult to get smaller, but I realized that when I do tai chi, and I do the reaching up to the sky and down to the earth, and out to the horizon in the four directions, that I can have that experience of disappearing then and so I said "well can do it getting bigger, but I can't do it getting smaller.' And he said, "Oh, that's the same thing." And then I have, sometimes, especially when he's been working on me, been able to go into that space and reside in it.

WT: Let me just interject. That's the space where intention works.

MB: Oh, that's interesting. When he's working on me, he knows when I'm in the space and when I'm not. So when I move from not being in it to get into it, he will immediately say,

“Oh, good. You got there.” He’s so connected to what I’m doing, because obviously there’s no physical example of it. So that’s where the intention is.

WT: Right. In essence, that’s the level where this new energy is that I talked about, where it functions. That’s the level where chi functions. That’s the level where all the psychoenergetic processes function. And that energy is what becomes modulated by intention. So it’s understandable that intention is working in that aspect of space.

MB: I’m interested in this question of space and density in relationship to creativity. I was talking with a woman who is a cellist. She was trained by Pablo Casals and played in his chamber orchestra and she also teaches at Julliard. I was asking her about creativity and the question of space came up with her because she said when she’s teaching music she’s teaching her students how to sculpt the silence, which seems to me to be the same thing as the space.

WT: Indeed. People talk about going to the void where you create. I mean, basically that’s what we do in the meditative state when we are going to imprint a device. We move ourselves into that domain.

MB: Oh, that’s interesting. So I’m interested in the question of the edges, the relationship between the density and the space. Is there a spectrum of movement from one to the other?

WT: Okay, think of it this way. You have the picture in your mind of a classical picture of an electric atom?

MB: Is that with the electrons spinning?

WT: Electrons spinning, moving around in a kind of solar system pattern. And so now, what you have in a coarse physical vacuum which occurs in a space between these things, is another construct which I think probably goes faster than light. Therefore it can easily move out of the way of moving electrons because it moves so fast. But think now of another kind of planetary system that would be moving. And so now it becomes a more complex dance. All right? And then think of the deltrons as being more closely allied with the orbits of stuff that I just mentioned -

MB: What are the deltrons?

WT: The deltron is this particle from the domain of emotion in my theoretical modeling that is not constrained by relativity theory and can go faster than light as well as slower than light. So on the one end, it can interact with electric substance which all is constrained to go slower than light, but can also interact with the reciprocal space substance’s magnetic wave-like substance which we postulate all travels faster than light. And therefore, it can allow them to interact with each other when they can’t interact with each other without that coupling medium.

MB: When you say allow them to interact with each other, what’s the them?

WT: The electric stuff going slower than light, the magnetic stuff going faster than light.

MB: Okay.

WT: The deltrons allow coupling to occur between them. You think of these things as each having a little halo around it of deltrons. And therefore, the interaction between these two things in time, one kind of thing inside one set of halos, and the other, inside another set of halos and the interaction now is between the deltron halos.

MB: And the deltrons are the halos?

WT: The deltrons are the halos, yes. And so long as they have interaction, but they're already interacting with this other stuff in their core level, within, then it means that the slower than light stuff is interacting with the faster than light stuff.

MB: Wow!

WT: So that allows the whole system to do this dance. Okay? So you can begin to see that it becomes more and more complex as a structure. So when you talk about space, now you see what you're doing is you're beginning to fill the space. Well, generally, these things are so small and they're traveling so fast that they're still mostly empty space all the time. But now the stuff moving in that space is more dynamic and more complex. And that's where we're going in the next step of science, the next major step of science will be to study this next layer of stuff which you can interact with, with consciousness.

MB: So is that when I asked about the edge—

WT: Yes. So now, you see the edge is—the pictures that we have to use to describe this, they're really a space-time picture. All right? But they function in a frequency domain which means they're everywhere. The pattern is reproduced everywhere in space-time. But it's a pattern in a frequency domain. That whole concept is something that we have to grow accustomed to before we really, really understand it.

MB: I see.

WT: But that's the aspect, you see, that when we move to talk about the spiritual side of ourselves, that's another level of this stuff, okay, which, we postulate is even finer and travels even faster, and it's all involved in this divine dance. But it's everywhere in essence. It's not limited at all by distance and time. The only place that that comes in is because we still have to use that procedure for making a mental image. Our mental images are all in space-time because that's what we were born into. That's what we learned and that's how our brains got constructed.

MB: So I know the experience of working with this doctor that I mentioned was that there was no difference between the space inside my body and the space outside my body, right up through to the galaxies and everything. And that sounds like the same as what you're saying.

WT: Right. Yes, in a frequency domain you see there's no difference.

MB: So that probably leads to my next question, which is what is the relationship between creativity and love.

WT: Ah. Well, love is the creative force, in my view.

MB: That's a beautiful way of describing it.

WT: And so, if you're creating, you are expressing love.

MB: Do you think that's true of everybody?

WT: Yes.

MB: Even when something destructive is being created?

WT: Well, the issue, I mean, love is much, much more complex than we understand. We only see a certain aspect of it. Just like consciousness, is much, much more complex than we understand. So, we first have to work our way through consciousness before we can begin to appreciate the spectrum of love and there are all kinds of things in love and until we really go into those, I don't think we can truly discriminate what is love and what is not love. But I think of love as the force of creation, the force of creativity. Every act of creation is an act of love. And in my present understanding, I certainly accept the fact that it is very difficult to deal with all of it in a logical way. It may be that there are aspects of it that we're just not conscious enough to perceive. That's the issue.

MB: Right.

WT: And so, because we have, many people have a very idealized view of love and they see love as the romantic love, and so, when you start talking about the destructive force aspect of love, often, it's just like if you were to build something brand new in a space, you first have to tear down the building in that space.

MB: Yes.

WT: And so the destructive force that you can see operating there is a necessary part of creating this new thing, and if you look at wars, for example—there are two issues. I'll come to the negative side of war in a minute. But the positive side of war is that individuals become disciplined and individuals begin to think more intensely and focus more intensely. And so they create huge amounts of new knowledge and new technologies. And after the war, those individuals, because they have exhibited leadership and courage and they've been tested, they go on to build industries which nourish people and societies. So the whole process moves forward and we tend to think it could have happened without intervening wars, but I'm not sure that that is correct.

Now we come to the part that we don't like about wars which also is a learning process in this whole picture. If I'm correct, that we are all spirits having a physical experience as we ride the river of life together, we're in a ten-dimensional simulator. It is a huge teaching machine and we are learning in this teaching machine just as if you were sitting in front of a computer, but you're so attached to it that you can't distinguish it as a teaching machine. And the constructs that are created with that teaching machine look like bodies and look like

all these other things and when they get blown up and are horribly mangled and all sorts of things, it looks like people die. But in fact, if I'm correct, then we are learning through this process but we're indestructible to that process. That is, we will destroy the biobodysuits which is sort of like the destruction of a car we drive, but we still exist. We are still consciousness, we have gained from the experience.
So, when we talk about some of these concepts, that are far beyond where we are in consciousness on average, we don't fully understand it. We have to grow in consciousness enough to begin to perceive the scope of the things we're talking about and we have to take into account new considerations like our true indestructibility at the deeper levels of Self.

MB: It's a delicate edge, what you're talking about. I understand what you're saying but—

WT: A very delicate edge.

MB: It's a view that has to be held with a great deal of integrity because it could so easily be distorted a fraction in one direction or another.

WT: And compassion.

MB: Yes.

WT: I mean, all of these things, they have to be handled and held very, very delicately. It is an issue that we have to hold it as a provisional possibility until we're more conscious and can prove details of these things. And we're a long way from that.

MB: Right. As you were talking about bodies, people dying and bodies being destroyed, the image that came into my mind was, for example, of Vietnam Veterans who are still alive, but how many of them are living such difficult, unhappy, distorted lives because of what happened to them there.

WT: Indeed, and part of it is that they don't understand and they think that they are that body, that personality self. And they're basically not. The thing that's evolving is the Soul Self which is not of physical material.

MB: That would be a difficult thing to say to them.

WT: Of course it would. But they have to come to it. They have to come to see it first as a possibility but in the experience, they're all teaching experiences. They're all learning experiences. I think it's how the soul grows. It is how we develop the fine edge to be a truly meaningful co-creator and create the right things, not the wrong things and create things that have freedom of choice, etc., and freedom to understand. But we're still children as far as the big picture is concerned.

MB: It reminds me of the conversation you and I had a few weeks ago. I was talking about Richard Feynman, and what he wrote about his recognition of what he had done after the atomic bomb went off and you mentioned Oppenheimer as well.

WT: Right, right. Exactly. Those become tremendous teaching experiences for those souls. I mean, all of it is. If I am close to being correct, that we are in fact living in a simulator and it is our personality self body, the biobodysuits that are interfacing with this creation, this simulator, then it's all part of learning.

MB: So, one of the interesting things that's striking me about this is that wherever we are at, in terms of understanding, we're still faced with questions of how to behave and how to live and how to act. I remember there was something you said when we talked about Oppenheimer and Feynman about people getting caught up in success and intellectual delight and the importance of having the proper ends and the proper means.

WT: Yes, very much so. And not to be too attached.

MB: Not to be too attached to what?

WT: To the experience.

MB: Oh, right.

WT: To the world - be in the world but not of it. I mean, in essence, you see, we go back to the Vietnam experiences, part of it is that they've attached so strongly to that personality self biobodysuit, and the experiences, that they cannot separate consciousness from it. They cannot see themselves as something quite different. These are all things that ultimately we must learn as we evolve.

MB: Can I come back to the question about creativity and love?

WT: Sure.

MB: Because I think you wrote in your book, Science and Human Transformation, something about human intention being the act of creation which is in the band of love that begets consciousness and this converts into energies which convert into mass.

WT: Yes. I'm saying that the equation that conventional science looks at is that mass is interacting back and forth with energy and Einstein is recognized as having codified that connection. E = mc2. And now I'm saying the next piece of the equation is that energy interacts with consciousness and back and forth. And so they're intraconvertable, one to the other ultimately. And then I'm saying further from this discussion that the next term in the equation is love. And it creates consciousness, etc. So, at least that's my working hypothesis.

MB: Brian Swimme who's a Cosmologist—I don't know if you know his work—

WT: I know Brian.

MB: He speaks about a connection between love and the force of gravitation.

WT: That, you see, would be an interaction that would be between, in that equation, it would be love, to consciousness, to energy, to mass. And mass is where we presently think

gravitation comes from, the interaction with mass. Curvature of space-time. And energies affecting that curvature, energy densities affecting that curvature, therefore affecting phenomena. So, the point is, they're all connected, I think, with different fields, different things that we don't understand yet.

MB: And there was one other thing about the question of love. Because you also made a comment one time about passion being very important for imprinting intention.

WT: Yes. The emotion—since the deltrons are of the emotion domain, the passion in the intent, that passion is important to activate the deltrons in my modeling. So it's like a toner in a Xerox machine. If you don't have enough toner, then you can't make an imprint with the Xerox machine. So in essence, the deltron activation, the degree of deltron activation is important. This is what great musicians, I think, do, is that they pour their intent and the passion is to do that, to express that, and that, in my modeling, creates lots of deltrons which go out and they lift the symmetry state of the space that people are in and the people hear and experience things as if they're in a sacred space.

MB: That's a stunning way of describing it. And also, it makes very clear on a human level, in terms of living creatively or creative acts, that the presence of passion, is very significant for that.

WT: And part of it is again, the love comes into it because you care. You really care about others as part of your family, your work, and it's also an act of devotion to the divine, however you see that. You're being a true participant in the process.

MB: That's such a beautiful way of describing it, because I often talk with people when I'm working with them, about where their attention is, whether their attention is on themselves as creating something, or whether their attention is on the nature of what they're creating and the people who are going to receive it, and how when you receive a piece of music or a painting or a piece of writing, you can actually tell. You can actually experience whether it was basically egoic or serving the person that created it, or whether it was essentially created to give to life.

WT: Yes, exactly. And I think this goes back, to what we talked about some time ago, that the growth of consciousness has these three branches - the ascending branch, the surrender branch, and the descending branch.

MB: Yes.

WT: The ascending branch is where most people are these days, they're learning this in schools, they're learning it at work, and they're learning it in social interactions. They are doing these things and ultimately, they're becoming good at it and they feel good about themselves. And if they're fortunate, then the second branch starts to grow in parallel, and that's the surrender branch, and that's really a difficult one to do in this world. And that is to re-direct their personal ego to the larger Self and begin to see all things around them and all people around them, all living things as part of them. They're part of a system. And then if you really are working that well, the third branch often starts. And the third branch, being the descending branch, really means that the universe is working through you into the world.

You're being a channel for a deeper level of the universe to express through you into the environment where you are, to transform it.

MB: That's interesting. Because that also comes into the next two questions I wanted to discuss with you. One about creativity and collaboration, and the other about evolution, creativity and evolution. There's a piece in your book where you talk about the increased coherence associated with our next level of being.

WT: Being coherent is a very important part of this process.

MB: In your book you say, "if we visualize the surface of the globe, we see separated batches of light forming, and expanding from a number of isolated locations. Each time these batches of higher consciousness overlap each other until the entire surface of the earth glows with this radiance." That seems connected with what you were just talking about.

WT: Yes, absolutely. Absolutely.

MB: So just to backtrack a little bit, before getting to that—you describe in your book a band broadening effect when you were working as a technical consultant for a U.S. company. You were working with a scientist in an area that you weren't an expert in, and you found that, I think you described it as listening very carefully and being with him…

WT: Emotionally trying to nurture him. Just radiating to him.

MB: And then there was this huge revelation.

WT: There was, in fact, like a consciousness joining and so, the bandwidth of the individual and my bandwidth seemed to combine and because it really combined, there weren't two separate things. They were one thing and with this larger bandwidth, you can express so much more and information just seemed to pour in and give resolution to the problem we were discussing.

MB: This sounds rather like when you have a very good group of musicians playing jazz and improvising together. It sounds like the same process.

WT: When they really get in the zone. Yes, they function like a flock of birds in essence. They are really connected so that the movement of one immediately transfers through all the others and they turn and wheel and dive and do all these sorts of things as a group.

MB: That's so stunning.

WT: Yes, it is stunning.

MB: Another group, a group of people working together that you describe in your book where you talk about the ability that a group of people who are attuned with each other have to neutralize poison. It's right at the end of the book.

WT: I think that's right. And this, of course, is how groups in the past, I think, have created sacred spaces. Again, it's a group intent and because they really synchronize with each other, they become more coherent. Now what happens is that their amplitudes add and the intensity which is the square of the amplitude is now the square of the sum rather than the sum of the squares. I mean, numerically, it makes a huge difference.

MB: I was just getting that.

WT: Because you know, suddenly I flashed on this business of why would God want one more soul to be in real intimate communion with God? What is the benefit? And then I said, well, okay, suppose God is a million coherent souls and I am one. So in terms of amplitudes and let's suppose I become coherent and it adds. What is the difference? And if you take the square of the sum. That is, you have a million squared, which was God before my entrance, plus one, which is me, plus the cross-product which is two million. So you see the cross-product becomes really significant when the numbers become large.

MB: That's so thrilling. Even as you're describing that, I'm just having a physical sense of the tremendous aliveness of what that is that you're talking about.

WT: Yeah. This is, when you start looking at some of these numbers, you start looking at the energies that are latent in the physical vacuum, then you begin to see this is how you can truly create universes out of yourself.

MB: Yes. So I have a couple of other things that fit into this. One is, I'm just thinking about businesses because I've done quite a lot of work in businesses and organizations, trying to help them develop a creative culture, a creative work environment. And it's very difficult.

WT: It is difficult because the issue is, as the number of individuals, n, becomes large, it is very difficult for the individuals to stay clear. But if they have practices and if they truly have passed the surrender stage—

MB: Which not many people have.

WT: Not many people have. Not many people have.

MB: One of the things I've seen that really gets in the way is the people at the top not being fully ready to change and there being a lack of context.

WT: Absolutely.

MB: Which is really what you're talking about.

WT: Right. Right. The point is, this is the difficult issue for a team, for example, whether it's a basketball team or a football team or a business. We're now back to the business of what we were talking about, group coherence. And the difficulty to maintain group coherence as the numbers grow.

MB: That's interesting.

WT: It's very interesting.

MB: I had a client a few years ago who headed up the team at Apple that developed Quick Time VR and his description of what happened in that team was, that this coherence happened. And they had such a remarkable experience. They finished way before the deadline that they were expected to, and he described to me when they rolled out their finished product, many of the people who had done it together were in tears. And these were people who wouldn't normally respond that way. And it was because of the level of intimacy and coherence that had arisen unexpectedly and almost incidentally between them - that had been quite a few years before we started working together - and he'd been looking ever since for a work situation where he could live constantly in that way of working with people. And so he wanted me to help him find a situation like that.

WT: This issue probably goes on in your group there with Andrew Cohen, to a good degree, and it goes on, to a good degree, with the Institute of Heart Math out in California. And one of the practices that helps this is that people get together every day at a certain time, especially in the morning and they meditate together and they really do a heart walk together before they then disburse to do their day. But the heart walk together keeps them connected. Now, that process can be enhanced with the kind of devices like the one we sent to you, relative to your Parkinson's. But another device could be in such a room or in all rooms which are information entangled. If you lift them to the higher symmetry state, then basically, you can begin to see ways in which individuals working in various different parts of the building, once they start to make that connection with each other in the morning each day, then can persist throughout the day because the device- conditioned space pumps the intention. So the possibilities are there to be able to do this much, much better in the future than we have in the past.

MB: That's remarkable. Because you're adding, in the sense of the device, you're adding a piece.

WT: Right. And at this point, it would be in the early days, I would call them training wheels to help people get into this state and maintain that state and create collectively. So that would be a pathway towards making a more coherent world.

MB: One other thing, when people are really attempting to evolve or interested in change and interested in really evolving their consciousness, there's a section in your book about dealing with the increased energy flow. "The increased coherence associated with our next level of being brings on line huge increases in radiant flux through our multiple bodies". And the question is how can these bodies handle the flow without burnout, I'm interested in your comments on that, because this constant fluctuation for human beings at the moment is so intensely challenging since almost everybody, unless they're very evolved beings already, is subject to that fluctuation. So in relation to this, you talk about the need for the Chakras to be aligned.

WT: The Chakras, need to be aligned for individuals. Then comes in the group alignment with tuning to one another. You have to experience and practice and sort of build the inner muscles, which is like building a little thin fiber of a conductor into a thicker and thicker fiber, still with the high conductivity into a kind of bus bar which can handle huge

power densities. That's the issue of what we have to do. We have to build those internal infrastructures to have that character. The analogue is very similar to working out in a gym and building muscles in the gym. So these are bigger structures because they need to handle bigger loads. So it's the same sort of thing except now, these infrastructures inside are in a frequency domain and we don't know enough about that but the principle is the same, that in order to handle bigger power densities and broader bandwidths of frequencies, that's the pathway. Keeping the fibers of the same thickness but increasing its conductivity, via intention, by factors of thousands leads to huge power density flows through the human.

MB: So how can human beings prepare themselves so that there's stability, in terms of handling these evolutionary increases in energy?

WT: It's mostly practice. Caring about it.

MB: Caring about it?

WT: Disciplined application. And keeping on keeping on. I mean, that's really what it takes. The same, again, the example is an outer-world body builder. You know, you've got to work out regularly—you've got to discipline. You've got to be careful. You've got to build the load steadily, slowly. Let your body build in structures needed to handle the load. You have to be in touch with your body. You have to be in tune. You have to be accepting. You have to be careful not to overload yourself. You have to be patient. You have to accept the possibility, the belief that it's there, and work at it. And the point is, what is being, what is growing here is the Soul Self. The Personality Self is one of the vehicles for doing that. But, for maybe many lifetimes.

MB: Andrew Cohen gave a talk in New York and also in Boston recently about the development of consciousness or the development of the soul. And it was very interesting because he was pointing to the way that we have clarity about developing our bodies and our muscles and developing our emotional strength, and so on, but human beings don't really have much sense of the fact that it's possible to develop consciousness.

WT: No, because they haven't really started to think about it or work on it and articulate it and discriminate it, all of those things that are necessary for it to truly become a part of the day to day consciousness of people. It's not something that can be put on like a garment. It is an internal transformation of awareness. And that takes time and practice.

MB: And it's through that internal transformation of awareness that this entire surface of the earth and globe - there's a connection, isn't there?

WT: Yes. Exactly. And then when we get to that stage, I think we'll really begin to see the interaction between ourselves and the planet and the planet and us.

MB: How far do you think that has gone so far?

WT: You know, it's really hard to say. I think there are more and more people being aware and more and more people using their intention or trying to use their intention with respect to the planet, and other parts of ourselves in the human domain or biological

domain. So in terms of what it's really going to take, one is not able to evaluate that at this stage. I mean, ultimately, you see, one has to have a mathematics of that kind of phenomenon and then one can model what are the interactive consequences of this human mold on the surface of the earth, producing meaningful change in the inner structure of the earth and the various levels of that structure. And we're not there yet. I mean, probably our work is as far advanced as anywhere else on the earth in the intellectual description of these kinds of things, although there certainly are various Tibetan Buddhists and others who are very advanced in their development and ability to do, even though they don't intellectually comprehend probably the mathematical evolvement of these sorts of things. Certainly in a partial answer to your question, the Maharishi has told their group that 1% can make a really significant change in a town and there, John Hagelin, and the people there at the Maharishi University are doing various kinds of experiments in various cities and towns around the world with thousands of meditators, and are producing real changes apparently in the lawfulness versus lack thereof. So we have entered a phase where some of these experiments are being initiated. And that's a good sign and it is that kind of thing that will fine-tune these numbers. So the working hypothesis, if we want to have one right now, would be 1% are needed.

MB: I know Suzanne Mendelssohn talks about the absolute crucial importance of obedience in this whole process.

WT: Well, in her case, you see, what she is using is the word obedience as the bond that maintains coherence, and we've talked about how difficult it is in a company to maintain the coherence and then continue to do these great things as the company gets bigger and bigger. Well, certainly if everyone took the discipline of absolute obedience, or absolute attunement to some resonant note in the group, then it would maintain the coherence longer. So in terms of what her meaning of the term obedience, absolute obedience is, versus someone else's term, there could be a lot of discussion about those sorts of things. But the intent is certainly there, so if you think of it as a kind of field, and I do say in the book Science and Human Transformation, that you want to change your mode of loving expression, then I did describe this aspect of continuously, day after day, applying a mental field of your best image of that quality. Just keep sustaining it as much as you can, day by day, day by day, day by day, day by day. Well, Suzanne's statement of complete obedience is another example of a molding field and there probably could be other examples.

MB: Well, this has been a stunning conversation! In terms of creativity is there anything you think we haven't covered?

WT: Nothing jumps out at me and I've just sort of sat here and responded to you. So I've just let it flow through in a kind of a channel procedure and not being too attached to the considerations. This is just a first phase of things and now you have to patch it together into the image that you want.

MB: Yes, it's been an absolutely remarkable conversation and I really appreciate your readiness to do it. I think this interview is going to be incredibly powerful for many people.

WT: Yes, I think so too. It has that potential. I quite agree. I have found it to be very useful and it certainly seems, I suspect, that the unseen is very happy with the words between us.

MB: That’s good. I’m very glad you’ve found it useful too, because I was really hoping that it would be a two-way process.

WT: Well, it’s been an act of creation. Yes, and that’s always nice.

MB: Thank you so much.

END