

TOWARDS A QUANTITATIVE SCIENCE AND TECHNOLOGY THAT INCLUDES HUMAN CONSCIOUSNESS

by

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Introduction

We humans pursue scientific inquiry in order to quantitatively understand the environment we consciously perceive. We attempt to gather reliable data by careful observations of this environment. We seek a consensus among the observations of many observers in order to strengthen our conclusions and then we try to first formulate a qualitative model of the nature of this environment that appears internally self-consistent with all earlier accepted observations. We proceed to the building of tools to reproducibly and quantitatively measure the many phenomena observed in this environment. Then we attempt to convert this qualitative model into a quantitative one. The quantitative structure of the model is always based upon various assumptions, both stated and unstated, plus various hypotheses concerning the fundamental nature of this environment. Via

subsequent, carefully designed experiments, we attempt to test these assumptions and hypotheses to determine if they are completely valid. In this way, we bootstrap ourselves towards a consensus worldview of our environment that changes, mostly slowly but sometimes quickly, with respect to the passage of seemingly repetitive cycles of change in our environment. These major worldview changes we have come to call paradigm shifts.⁽¹⁾

From another perspective, we have learned that we interface or connect with this environment via various types of sensors that are built into our bodies and these sensors direct information signals to other structures in our bodies that interpret, selectively amplify or reject some data streams as not being meaningful. It is these latter processes that introduce an individual and subjective flavor into our observations. Of these many body sensors, we have selected five that our present worldview deems to be important.⁽¹⁾ We call these our five physical senses and have constructed a picture of physical reality based upon them and upon our various instruments designed to be consistent with this class of sensors but which greatly extend the spectral range of our internal sensors. These instruments are a part of what we may call our "outer" technology. We also have an "inner" technology which relates to diligent refining and expanding the range of, and scope of, these in-the-body sensors. Present day indigenous peoples of many lands excel in the use of their inner technology; however, the reality of, and importance of, this quality is almost unrecognized and certainly unappreciated by Western societies who have placed value largely on outer technology.

Using our internal sensors and our instrument sensors, we, in the Western world, have fashioned a fairly reliable mathematical structure to quantitatively describe the multiple phenomena expressed by our environment. We have come to discriminate four unique fundamental forces underlying and governing these manifold expressions of nature and have learned to articulate the variations of their magnitudes in terms of four fundamental coordinates that is our current consensus reference frame (RF) for describing all phenomena in physical reality. We call this RF spacetime and it is comprised of three, orthogonal, spatial coordinates, (x,y,z) , and

one, temporal coordinate, t . Our successes in describing nature in this way has led many current day scientists to talk about, and write books about, a theory of everything (T.O.E.). The hubris involved in such a declaration provokes this author to respond by calling such a very, very, very little T.O.E. because they have neglected to take into account a huge amount of experimental data that cannot begin to be explained by this type of T.O.E.

A fundamental assumption of our present day quantum mechanical (QM) paradigm, and of our earlier classical mechanics (CM) paradigm, is that “no human quality of consciousness, intention, emotion, mind or spirit can significantly influence a well-designed target experiment in physical reality.” One needs only look at the formal mathematical structure of these two levels of physics to see that, currently, there is no place in these formal structures where such human qualities might enter.

The primary purpose of this article is to first point to only a small collection of this neglected data base and then to expand the present paradigm model to allow incorporation of all this neglected data to naturally coexist with the presently accepted data. Finally, some of the philosophical implications of the expanded model for humanity will be discussed.

Some Experimental Data Negating this Fundamental Assumption of Science

In a recent book, Radin⁽²⁾ has provided clear and incontrovertible evidence to support the existence of ESP capabilities in humans. Likewise, Benson⁽³⁾, Wolf⁽⁴⁾ and Enserink⁽⁵⁾ have clearly demonstrated the reality and power of the “placebo” effects in medicine and pharmaceuticals. Further, Puthoff and Targ⁽⁶⁾, Jahn and Dunne⁽⁷⁾, Targ and Katra⁽⁸⁾ and Dossey⁽⁹⁾ have clearly shown that humans are capable of highly accurate long range (~800–8000 km) cognition of location details plus events and of eliciting human health transitions at such distant locations.

From the foregoing, one might certainly ask the question "Can these partially developed human capacities have meaningful relevance for materials science?" The answer is a definite "yes" from the interesting results in References 10 and 11. This data clearly indicates that both Qigong masters and adepts can significantly influence materials and processes both locally and non-locally located. Surely it is well past time for scientists to begin looking seriously at the structure of our present physics paradigm wherein there is no place for the human qualities of spirit, mind, emotion, intention and consciousness to influence the forces of nature.

The experimental work of this author falls into two categories, (1) personally validating the existence of significant human interactions with, or perturbations of, various physical phenomena and (2) focusing on a single area of human activity to reveal some details of the new physics. Item (1) above occupied ~30 years of investigation (~1965-1995), some of which is detailed in Reference 12 and in ~60 publications. All of this was carried out as an avocational pursuit in parallel to my normal professorial duties at Stanford University. Item (2), which is still ongoing, has occupied the period 1995 to the present and began after I took early retirement and Professor Emeritus status. This work has been chronicled in Reference 13 and in an additional ~50 publications (References 14 and 15 encapsulate some of this). It is this Item 13 work that I will focus on briefly in this section. For the many details, one must look elsewhere.⁽¹²⁻¹⁵⁾

The basic concept was to try and imprint a specific, well-articulated intention into a simple, low tech, electronic device so as to influence a companion, specific, well-designed, target experiment. This device imprinting was to be achieved from a meditative state while holding the specific intention in mind for the duration of this meditative process.^(13,14) The device was then sent, via Federal Express ~1500 miles to a laboratory where my colleagues had set up this particular target experiment. The device was placed ~6" from the continuously running and continuously computer-monitored target experiment and switched on (total output electrical power rate was less than ~1 microwatt). Over time (~1-3 months), the recorded

results from this target experiment changed in the direction of the specific intention and this change eventually reached the selected magnitude of the specific intention. This category of device was labeled an IIED (intention imprinted electrical device) and four different target experiments were initially chosen to test the ability of human consciousness to significantly influence physical reality. By using the IIEDs as a transportable host for specific human consciousness, one is able to separate the supposed variable source of this consciousness from the experimental interaction itself between the consciousness-modified surrogate and the specific target experiment. By using two identical devices, one not imprinted to act as a control and the other imprinted to the IIED state, we thought to provide an even more objective measurement of human consciousness influencing fundamental physical processes in both inanimate and animate matter.

In our very early days with IIEDs and control devices, we discovered that these boxes (~7"x 3"x 1") even in the electrically switched-off state and separated by ~100 meters, the intention imprint would transfer (via some unknown mechanism) from the IIED to the control device so that we would lose our "control" within a week. Presuming that electromagnetism (EM) must play some part in this information transfer process (although not the key part), we wrapped each device in aluminum foil and placed each in its own electrically grounded Faraday cage (FC) for storage. The foil would block optical EM frequencies while the FC would greatly reduce the amplitude of gigahertz, microwave and radiowave frequencies. With such procedures, although we were unable to block low frequency information transfer, we were able to maintain a viable intention imprint in the IIEDs for ~3-6 months. This procedure allowed serious experimentation with IIEDs to be pursued.

These IIEDs were intended to significantly alter the measured properties of inanimate and animate materials. The target materials selected for this study were (1) purified water in equilibrium with air, (2) the liver enzyme, alkaline phosphatase (ALP), (3) the coenzyme, nicotinamide adenine dinucleotide (NAD), (4) the main cell energy storage molecule,

adenosine triphosphate (ATP) and (5) living fruit fly larvae, *Drosophila melanogaster*.

From this set of target experiments we first observed: (1) a shift in pH of purified water, in equilibrium with air, either up (one IIED) or down (another IIED) by one full pH unit with a measurement accuracy better than ± 0.01 pH units. This constitutes a total swing of hydrogen ion concentration of 100, with a signal size 100 times our measurement accuracy, a very robust effect indeed (effect sizes $\sim 10,000$), (2) an increase in the thermodynamic activity of in vitro ALP, NAD, and ATP by a very significant amount (effect sizes $\sim 10-25$) at high statistical significance ($p < 0.001$) and (3) a reduction of in vivo larval development time to the adult fly state by $\sim 15\%-25\%$ at $p < 0.001$. For items (2) and (3), four simultaneous, side-by-side treatments were tested, (a) an unshielded sample, (b) a sample alone in a grounded FC, (c) a sample with an "on" control device in a grounded FC and (d) a sample with an "on" IIED in a grounded FC. By comparing results from pairs of these four treatments, we also found that (1) just shielding out some of the high frequency EM radiation of the environment significantly enhanced the thermodynamic activity of these molecules plus the fitness of the fruit flies, (2) just adding less than ~ 1 microwatt of microwave frequency radiation via the control device significantly reduced both the thermodynamic activity of these molecules and the fitness of the fruit fly larvae and (3) just changing from a control device to an IIED, with presumably the same EM output power but with an intention imprint to increase either thermodynamic activity or fitness, the quality degradation from the EM radiation was overcome by whatever the specific consciousness imprint added to yield a statistically significant, beneficial effect. Thus overall, our case was robustly proven, this fundamental, unstated assumption of general science concerning the relevance of human consciousness to property measurements in physical reality is false!

In addition to the foregoing remarkable results, a totally unexpected and critically important phenomenon arose during repetitive conduct of any of these IIED experiments in a given laboratory space. It was found that by

simply continuing to use an IIED in the laboratory space for approximately 3-6 months, the laboratory became "conditioned" in some very fundamental way and that it was the state of that "conditioning" that determined the robustness of the above-mentioned results. In this "conditioned" space, new physics appeared in the experimental data.

At least three characteristic experimental "signatures" heralded the onset of the space "conditioning" process: (1) air and water temperature oscillations, pH-oscillations, electrical conductivity oscillations, etc., with both large amplitudes ($\sim 10^2 - 10^3$ times larger than our measurement accuracy) and strong periodicity in the ~ 10 -100 minute range developed. These oscillations were sustained in the locale, even after removal of the IIED from the locale, (2) with measurement instruments in both an almost unconditioned space and a strongly conditioned space several hundred feet away, when a pH-increasing IIED was turned on in the unconditioned space and arranged to produce a well-defined pattern of these pH-oscillations, a highly correlated pattern of pH-oscillations was observed to appear in the strongly conditioned space. Such correlated pH-oscillations were not observed in several unconditioned spaces also several hundred feet away and (3) in an unconditioned space, if one places a disc-shaped magnet under a pH-measurement vessel, as in Figure 1a, and continuously monitors the pH for several days before turning it over (so that the opposite pole is pointing upwards) and continues pH-monitoring for several more days, one observes no significant change of pH with magnetic field polarity. However, in a "conditioned" space, when one performs the same experiment, a significant $\Delta\text{pH} = \text{pH} (\text{South pole up}) - \text{pH} (\text{North pole up})$ is observed. Figure 1b illustrates an example of such behavior.

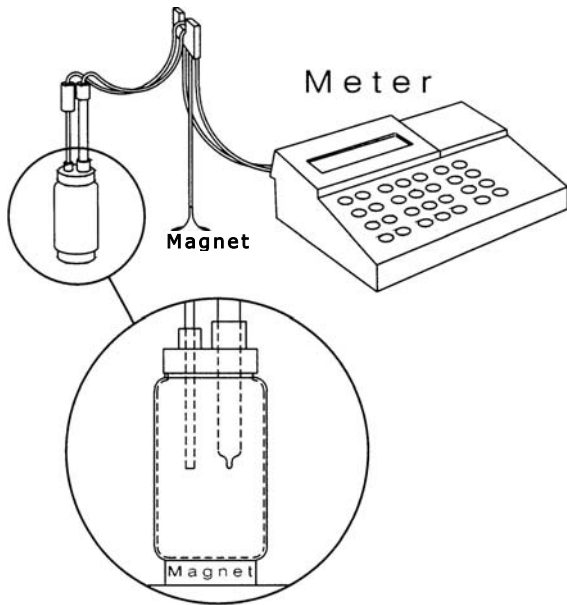
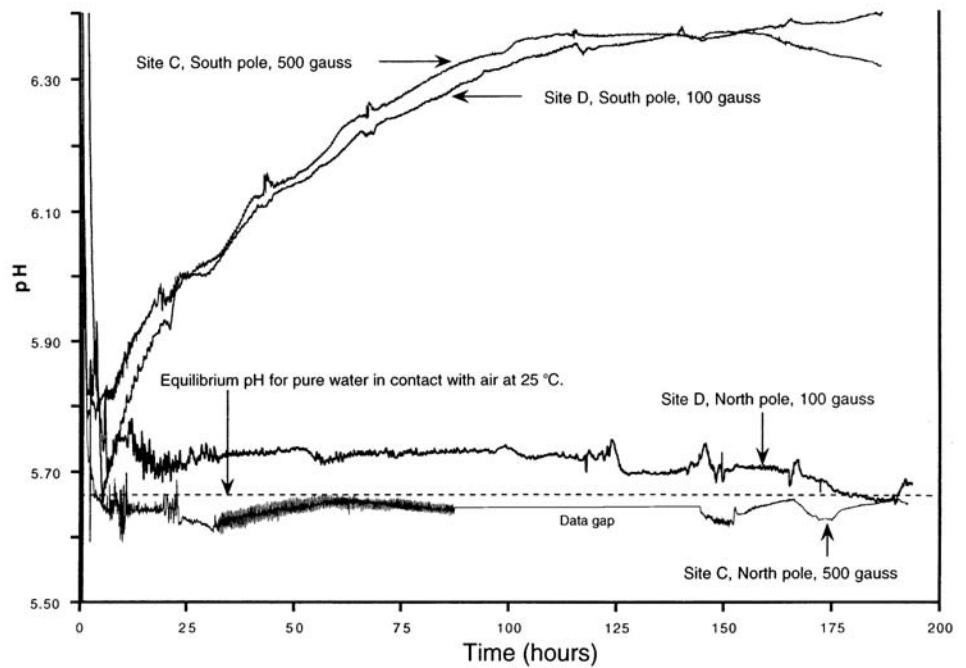


Figure 1a.
Experimental setup for testing changes due to a DC magnet placed under the water vessel with either the N-pole or the S-pole axially and vertically aligned.

Figure 1b.
pH changes with time for pure water for both N-pole up and S-pole up axially aligned DC magnetic fields at 100 and 500 gauss.



All three of these observations are profound relative to normal expectations with, at the moment, the third telling us something very fundamental about the nature of a "conditioned" space relative to an unconditioned space. The electric/magnetic nature of our normal physical reality (an unconditioned space) is that (a) both electric monopoles (single +

or - charges) plus electric dipoles (pairs of + and - charges separated by a very short distance) are observed and thus said to exist and (b) only magnetic dipoles are observed and thus said to also exist. This means that any magnetic force in normal physical reality is proportional to the gradient of the square of the magnetic field strength, \bar{H}^2 , so that just reversing the sign of \bar{H} should not change the magnetic force at all. This further means that $\Delta\mu H = 0$ should be observed in the Figure 1 experiment, which we found to be true for an unconditioned space but not for a "conditioned" space.

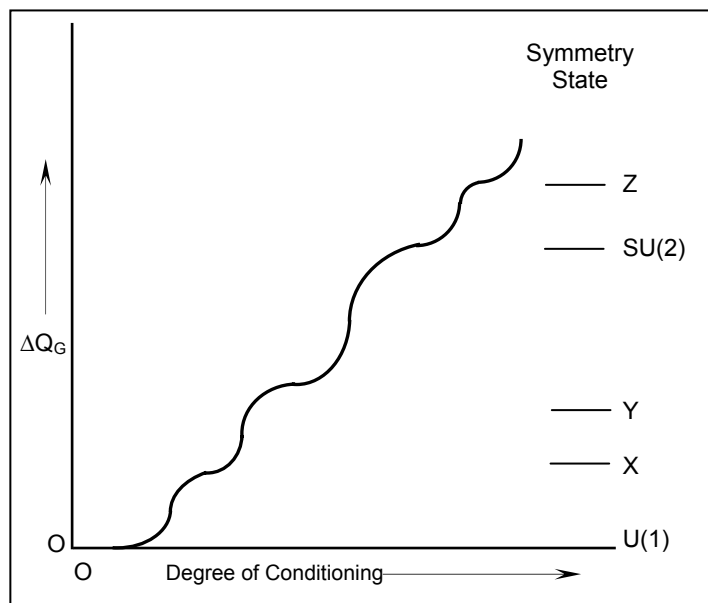
If we ask ourselves how one is experimentally able to observe such a DC magnetic field polarity result as that given in Figure 1b, the only reasonable answer seems to be that somehow we have accessed magnetic monopoles in nature. Somehow, this space-conditioning process via the use of IIEDs has changed a basic symmetry state in nature and a heretofore structural element, that has resisted detection for a century (and billions of dollars have been spent searching for it in normal physical reality), appears to have become experimentally accessible in a "conditioned" space.

Interestingly, if one peruses exotic theoretical physics literature dealing with fundamental particles, one finds that our normal state is called the U(1) electromagnetic (EM) gauge symmetry state and that there is a higher EM gauge symmetry state called the SU(2) state wherein electric and magnetic monopoles naturally coexist. The place where one might come across such discussions is with work related to the "big bang" hypothesis. In this concept, a magnificent explosion occurred at the beginning of time and expanded outwards. As the fireball of radiation cooled with the passage of time, the state of the fireball "soup" went through various stages of unfoldment as bits of matter appeared which eventually became quarks and then what came to be called fundamental particles, etc. During this process, the bits of matter went through various exotic gauge symmetry states as the thermodynamic free energy per unit volume of this "soup" continuously decreased via the cooling process. Eventually, a type of plasma developed, thought to perhaps consist of electric and magnetic charges, and one of these states was labeled the SU(2) EM gauge symmetry state. With

continued cooling, the thermodynamic free energy per unit volume was further lowered and the magnetic monopole charges combined to form a plasma with just magnetic dipoles plus electric monopoles and dipoles and a different EM gauge symmetry state. Further cooling led to a lower thermodynamic free energy per unit volume state wherein atoms and molecules of gas formed. Further cooling led to condensation of this gas into liquid and eventually solid forms which eventually became our normal U(1) EM gauge symmetry state.

This has been a necessary long-winded description to make the point that (1) the SU(2) EM gauge symmetry state does exist in a possible and proposed description of the formation of our universe, (2) that this SU(2) state does involve the co-existence of both electric and magnetic monopoles and (3) that the SU(2) state is a higher thermodynamic free energy per unit volume state than the U(1) state. The importance of this third item, which is illustrated in Figure 2, is that if one could create a device which was at the SU(2) EM gauge symmetry state and connect it to a world that was at the U(1) EM gauge symmetry state, it would be able to do useful work of all types in that U(1) state world. This is exactly what we observe with our IIED experiments.

Figure 2.
Schematic illustration of free energy change, ΔQ_G , from the ground symmetry state, U(1), as the degree of locale conditioning increases.



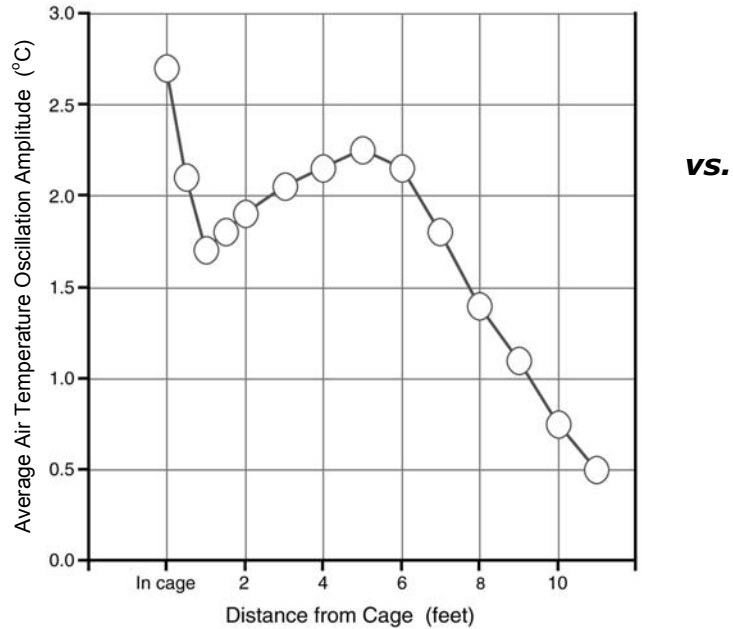
My working hypothesis is that, via our human consciousness (intention) from the meditative state, we have interacted with some process of nature so as to have raised the EM gauge symmetry state of our device from its natural U(1) EM gauge symmetry state to an IIED at the SU(2) EM gauge symmetry state level with its higher thermodynamic free energy per unit volume condition. At this SU(2) level, the IIED is able to access magnetic monopole currents to generate and broadcast magnetoelectric (ME) waves, even in the electrically "off" state, and these carry the primary intention information to the "control" device causing it to become imprinted. These IIEDs then, in the electrically "on" state, can broadcast a coupled ME/EM signal modulated by the intention imprint information to the target experiment causing it to change in the direction of the intention imprint statement for purely thermodynamic reasons. An additional, profound, philosophical conclusion to be drawn from this line of reasoning is that *"human consciousness has the potential to reverse the normal direction of increasing entropy production in natural processes so as to lift a system to a higher thermodynamic free energy per unit volume state"*.

Some Experimental Insights on "Conditioned" Space Physics: A set of subsequent experiments to the foregoing revealed interesting information concerning the home of these supposed magnetic monopole effects. Let us now look briefly at these.

In a highly conditioned space room, we set up one of our 12" diameter Faraday cages containing a central water vessel with pH-monitoring and temperature(T)-monitoring electrodes. In addition, air T-monitoring probes were positioned at 6" intervals in a radial direction, from the center of the cage to a point in the hall 11 feet away. We first observed large T-oscillations throughout the room that were in phase with each other. After a few weeks the T-oscillation amplitudes at these various probe locations exhibited a spatial T-profile like that shown in Figure 3. This is a very anomalous profile for normal physical behavior. Next, we directed a strong fan at this line of T-

probes to see if this pattern might be caused by some strange air convection pattern in the room. However, the basic pattern just jiggled in the strong breeze and did not disperse as it would have if it was produced by a natural air convection phenomenon. This led us to conclude that the basic oscillation phenomenon has its origins at the vacuum level of physical reality. (see below for an explanation).

Figure 3.
Composite amplitude
distance plot for air T-
oscillations.



The next step in this basic experiment was to remove this FC and water vessel from the building to watch the decay or rearrangement of these T-oscillations. Surprisingly, the pattern did not collapse quickly; in fact, what we came to call the phantom profile, tended to decay only very slowly with an expectation time of weeks to months. The final step in the experiment was to place a large, natural quartz crystal at a position within the original confines of the FC. Initially the crystallographic orientation of the crystal was with its C-axis pointing upwards. For this case, the phantom profile just sharpened up a little, increased the T-oscillation amplitude slightly and left the actual shape of the oscillation wave relatively unchanged. Next, the quartz crystal was rotated 90 degrees to lie flat on the table, on one of its prism faces, and pointing along the line of the T-probes. Immediately, the T-

oscillation wave shape inverted, increased its oscillation frequency by a factor of ~ 3 and reduced its amplitude by a factor of ~ 3 .

We have concluded from this that "conditioning" a space produces a meaningful change in the degree of order present at the vacuum level of physical reality; that it is this structural change that somehow generates the global, in-phase, room oscillations of T, pH, etc., and that the intention to perform a particular type of experiment in the room shapes the oscillation pattern in a particular (and unexpected) way as if a kind of vacuum level substance is profiled. This postulated vacuum level substance we have called the phantom substance can rearrange itself either very slowly (as in the FC removal experiment) or very rapidly (as in the quartz crystal experiments).

Concerning the vacuum level, here, when one takes a gas pumping device and starts to suck out the atoms and molecules from the space (reducing the number per unit volume), one creates a partial vacuum with the degree of vacuum increasing as the number of atoms and molecules left in the space decreases. This is similar to the vacuum condition found in outer space. A richer definition of vacuum, which is the one I am using, is that, because atoms and molecules are comprised of incredibly small sized (compared to atom size) fundamental particles, most of the interior space inside atoms and molecules is empty space (like outer space vacuums). Thus, what I am calling the vacuum level is the empty space not occupied by fundamental particles, both exterior to and interior to, atoms and molecules. For me, it is this physical vacuum level space that is the primary home for magnetic monopole-constructed substances.

The majority of people tend to think that the physical vacuum is entirely empty, that there is nothing there at all. However, very prominent physicists like John Wheeler, David Bohm and others have shown that, for relativity theory and quantum mechanics to be internally self-consistent, the vacuum must contain an energy density equivalent to $\sim 10^{94}$ gms of mass energy (of the $E=mc^2$ type). This is a huge energy but what does it mean in more practical terms? Let us take the simple exercise of comparing the vacuum energy stored inside a single hydrogen atom (volume $\sim 10^{-22}$ cc) to

the total mass energy of all the planets, stars and space debris in a sphere the size of our universe (a radius of ~ 15 billion light years) under the approximation that the universe is flat (which astronomers tell us is approximately true). For such a case, the energy stored in the vacuum of this single hydrogen atom is \sim a trillion times greater than that stored in the physical mass of our entire universe. Obviously, the vacuum is our future energy source and we should push serious investigations of the vacuum state now!

What Can This “Conditioned” Space State Say About Humans?:

About a year after completion of the above experiments, I had the thought “what if humans had a body organ or body system that was at a high EM gauge symmetry level, like the SU(2) level, present from birth while the rest of the body was at the normal U(1) level?” If so, this would act as an enlivening source for the whole body. It could direct chemical, electrical and optical flows in the body; cause the heart to pump; cause neural synapses to open and close, etc. It would appear to provide all the physical attributes that we associate with life.

To test for this possibility, we performed an experiment that some Kinesiologists had been doing for years. Using an expert Kinesiologist as part of the experimental team, we addressed various muscle groups of the body to determine their natural level of strength response. Then, we used a pencil-shaped DC magnet to assist in a repetition of this testing. We found that bringing the south-pole of the magnet into the near-field of an acupuncture point associated with a particular muscle group appreciably strengthened that muscle group. Bringing the north-pole of that magnet into the near-field of the same acupuncture point appreciably weakened that same muscle group. We had found a DC magnetic field polarity effect associated with acupuncture points and, via the same reasoning as used earlier in this article, the human acupuncture meridian/chakra system must function at a higher EM gauge symmetry state than the U(1) state. ⁽¹⁶⁾

All humans, and probably all vertebrates, have their acupuncture meridian/chakra system at some high EM gauge symmetry level like the SU(2) level. Not only does this make human bioelectromagnetism different than normal, Maxwellian electromagnetism, but it provides an internal mechanism for human intention to influence both body function and human output performance. Excellent performance in any area of human endeavor is thought to be associated with the unconscious development and refinement of our acupuncture meridian/chakra system. This is what allows a QiGong master to do the remarkable things he/she does. At this point in time, I have come to associate ME energy with Qi so that the acupuncture meridian/chakra system can be thought of as a Qi/Prana pump and, as an analogue to our familiar EM spectrum, the ME spectrum is the Qi/Prana spectrum.

From our earlier work, I have come to think of the magnitude of “conditioning” of a space, Q , as depending on four separate, important factors, ⁽¹³⁾ (a) Q_{LS} , the history of the local space and of the objects in that space, (b) Q_D , the imprint intention “charge” remaining in an IIED located in that space, (c) Q_E , the consciousness and biofield strength of experimenters or other beings (seen or unseen) occupying that space and (d) Q_{eq} , the level of potentization of the measurement equipment located in that space. Items (a) and (c) have been the important factors allowing humans for millennia to create “sacred spaces” through their sustained devotion and love. I have come to think that any human interaction, either as a performer, a practitioner, a teacher, a parent, a friend, etc., involves the five elements illustrated schematically in Figure 4. Each one is important in any communication event and it is both the spectral bandwidth and the spectral power of one’s Qi/Prana pump that makes the difference.

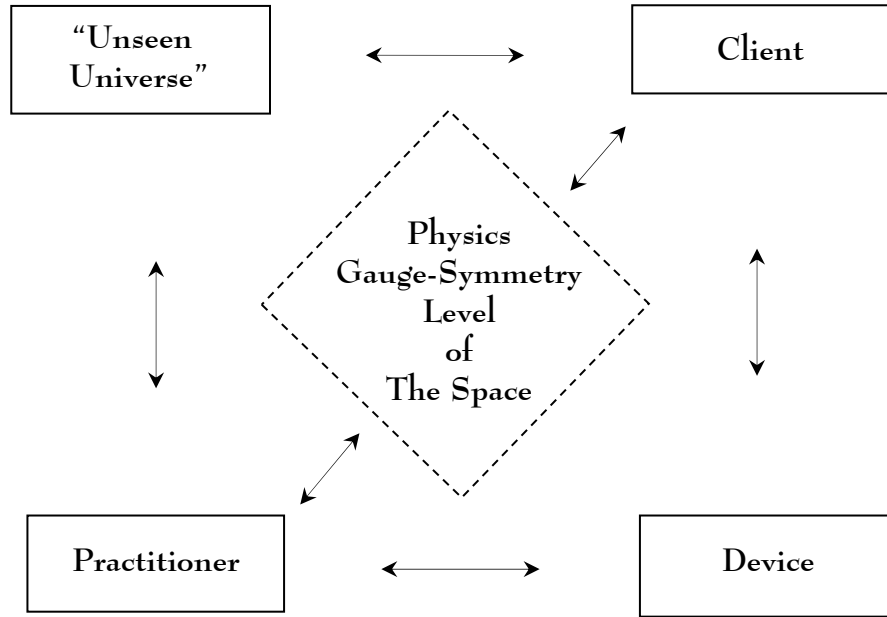


Figure 4.
Schematic illustration of the five key interactive elements involved in any human exchange.

Most Recent Experimental Results: For the past two years we have undertaken a "remote sites" experiment to prove that one of our early, Minnesota results⁽¹³⁾, could be reproduced in the laboratories of others provided they followed our protocols. This was the pH-increasing, 1 pH-unit IIED result. Figure 5 shows the location of the four selected remote sites.

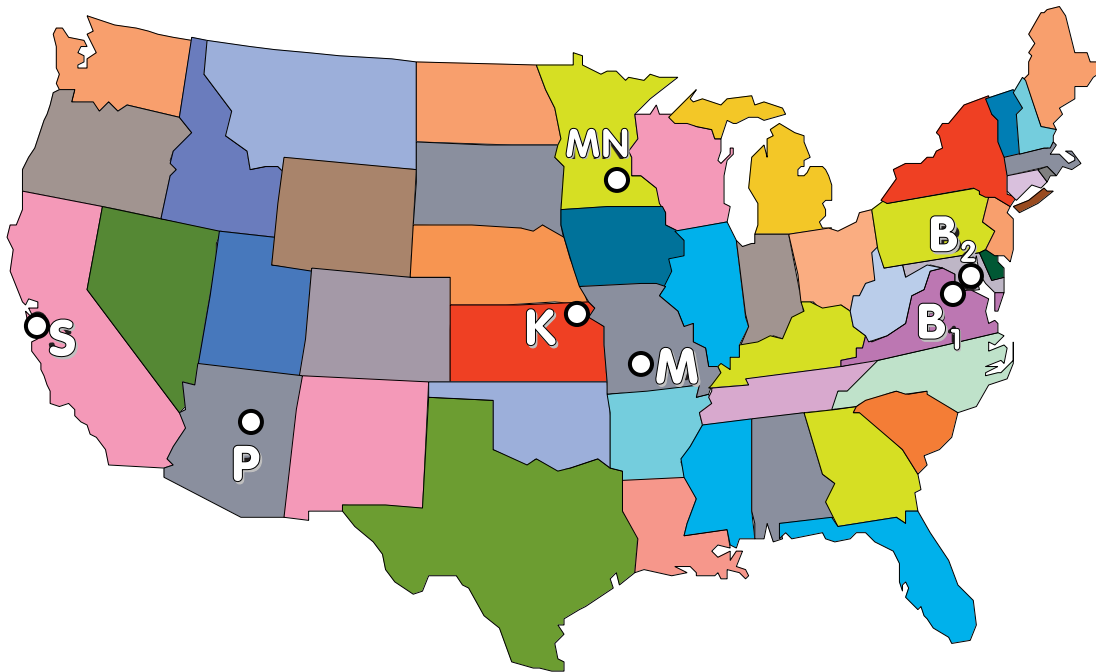


Figure 5. Geographical location of the various experimental IIED-sites involved in the "remote-sites" experiment.

Although we began this general line of experimentation at Stanford in 1997, it was soon moved to a Minnesota facility where we had more laboratory space available. My family and I moved from California to Northern Arizona in mid-1998 and, when our Minnesota work was forced to shut down early in 2000, I built a laboratory on the Arizona property to continue the work. This laboratory was "conditioned" by early 2001 but the remote site experiments began at the Kansas and Missouri sites late in 2001. Experiments at the Baltimore and Bethesda sites did not seriously begin until the fall of 2001 and they served primarily as control sites for the first 6 months.

For all sites, the pH-monitoring equipment was shipped directly to them from the manufacturer, purified water (HPLC) was shipped directly to them from Fisher Scientific and we provided all IIEDs. Fresh water was placed in the pH-monitoring vessel every two weeks and the pH-electrode recalibrated, then, both pH and water temperature were continuously

monitored via computer. Diskettes of the two-week cycle data were periodically sent, via regular postal service, to us at the Payson laboratory for analysis. Each laboratory set up a "control" site ~2-20 miles away from their IIED site and all procedures at the control site were the same except that an unimprinted device instead of an IIED was used. We attempted to minimize any electronic information transfer between the remote sites and the Payson, AZ laboratory site. No IIED was ever present at a control site in the overall experiment.

The results showed that, for each two-week cycle, the fresh water exhibited the temperature-determined theoretical value for the U(1) EM gauge symmetry state at $t=0$ and then increased in an almost exponential fashion over time, t , to a value higher by ΔpH , at $t=2$ weeks. With each successive two-week cycle, the value of ΔpH increased and, in ~2 months, reached $\Delta\text{pH} \sim 0.8 - 1.0$ pH units. This occurred at the IIED sites in Payson, Kansas and Missouri so reproducibility of the results following identical procedures was observed for each laboratory. This was wonderful confirmation to us as scientists; however, a surprising result also occurred. Almost identical behavior was experimentally observed at all of the control (except that ΔpH was smaller) sites! Some heretofore unappreciated type of information entanglement was occurring between IIED sites and control sites indicating that the control sites were also becoming "conditioned" sites.

Because of this novel information entanglement possibility over ~2-20 miles, we decided to test the concept more fully by having the Baltimore (B_2) and Bethesda (B_1) sites serve as control sites for ~3-4 months. Here, ~1000-2000 miles separated these control sites from any IIED site. Over a ~3 month time period, although the Bethesda site responded more slowly and more variably than the Baltimore site, both sites developed ΔpH -values of ~0.6-0.8 pH units with a measurement accuracy of ± 0.01 pH units. Information entanglement was confirmed and some mechanism in nature allowed it to occur over ~1000-2000 miles from one laboratory of ~500 square foot area to another of comparable size. This is not the quantum entanglement of photons or fundamental particles that we have all heard

about, nor could it have occurred via an electromagnetic carrier wave, so something entirely new is the carrier for this new phenomenon. We, naturally enough, presume that the information carrier is magnetoelectric energy and that the phenomenon is somehow connected to the space “conditioning” process and magnetic monopoles at the vacuum level of physical reality. Now, how might we begin to understand all of the strange phenomena encountered thus far in this experimental section?

Theoretical Modeling to Rationalize the Experimental Phenomena

Truth is always in the experimental data while uncertainty dwells in the data interpretation and in the theoretical modeling. Thus, this section must be considered a work in progress, as it has been for ~35 years. I will unfold my current working hypothesis in a step by step fashion via a series of key postulates.

POSTULATE 1: *A Better Reference Frame Than a Single 4-Space, (x,y,z,t) , for Viewing the Expressions of Nature is a Biconformal Base-Space (BCBS) Imbedded in a Higher Dimensional Framework. The Appropriate BCBS for our World is Comprised of two Reciprocal 4-Spaces, One of Which is (x,y,z,t) , so the Other is $(x^{-1},y^{-1},z^{-1},t^{-1})$. The Latter are Spatial and Temporal Frequencies.*

With this classical shift in reference frame (RF), we gain the following:

1. A framework for viewing nature’s various expressions from a simultaneous particle (D-space or direct space RF) and wave (R-space or reciprocal space RF) point of view.
2. A framework wherein a particular quality, Q , has two contributions, one coming from the D-space part, Q_D , and the other from the R-space part

Q_R . This particular RF quantitatively relates the equilibrium value of Q_R to the magnitude of Q_D , and vice versa, via a Fourier transform pair relationship. Thus, in principle, an experimental measurement of Q can be separated into its Q_D and Q_R parts.

3. In this particular RF, every point in D-space is connected to every other point in D-space via R-space and vice versa. Thus, no point-like singularities can arise and every object has some spatial and temporal extension. The degree of this connectivity depends on other factors.
4. Objects like planets and stars, which are far away from each other and from earth in D-space, are clustered close together in the very low frequency domain of R-space.
5. This particular RF yields local forces from the D-space part and non-local forces from the R-space part.
6. This particular RF shows that a mathematical connectivity exists between different parts of a defined experimental system even though these parts may be spatially and temporally separated. This forms a solid basis for information entanglement to exist between the various parts of the system. This is a classical type, as distinct from a quantum mechanical type, of entanglement.

De Broglie's 1920's concept of a particle, and a companion pilot wave that guided the particle, became a cornerstone of quantum mechanics (QM). Subsequent relativistic, QM analysis of this concept from a spacetime perspective showed the following to hold true,

$$\mathbf{v}_p \mathbf{v}_w = c^2 \quad (1)$$

where c is the velocity of EM light, \mathbf{v}_p is the particle velocity and \mathbf{v}_w is the velocity of the wave components making up the pilot wave envelope illustrated in Figure 6a. Our biconformal RF would require 6a to become 6b. In Equation 1, v_p is always less than c because it has physical mass; thus, v_w must always be greater than c . In order to avoid difficulties with relativity theory, these pilot wave components came to be called "information" waves. This leads to the next postulate.

Figure 6a.
A group of pilot waves for a physical particle located somewhere in the group.

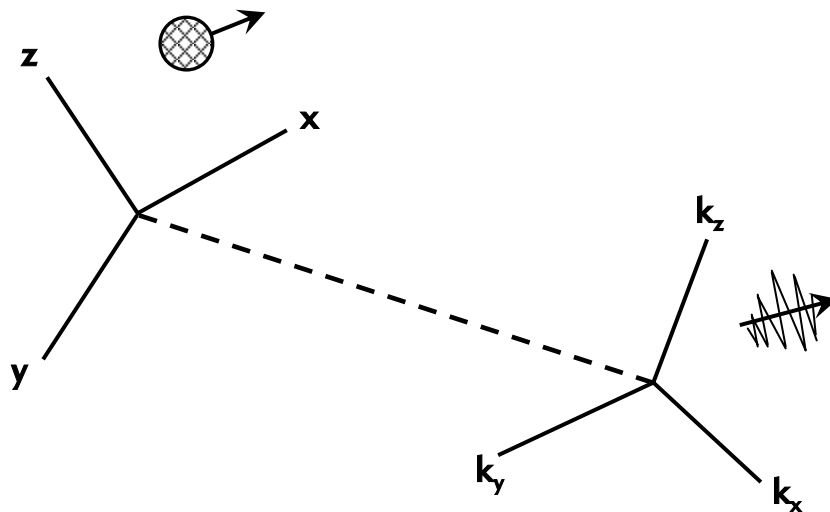
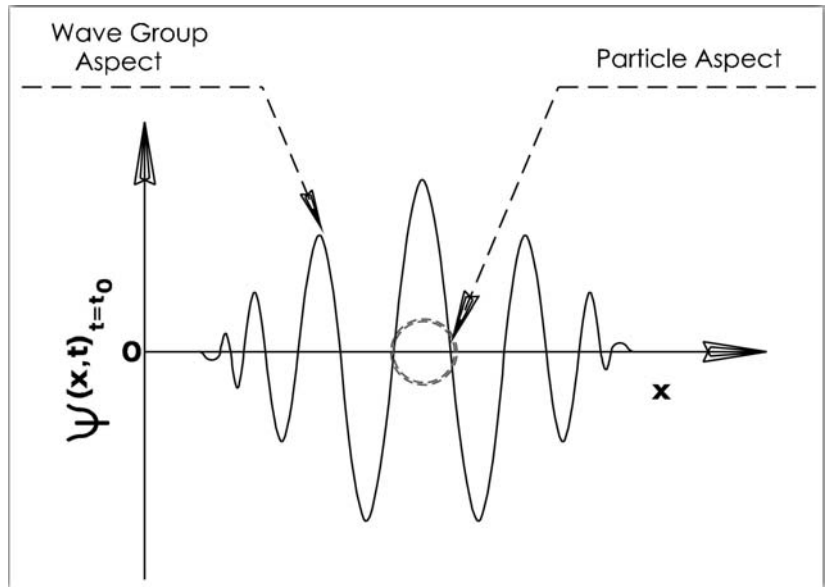


Figure 6b.
D-space particle event (left) connected to R-space pilot wave event (right).

POSTULATE 2: *Physical Reality Expresses Itself Via Two Uniquely Different Kinds of Materials, (a) Relatively Coarse Particulate and Mainly Electric Monopole-Constructed Types of Substances Apparently Constrained to Move at Velocities $v < c$, the D-Space Light Speed and (b) Fine Information Wave-Generated Patterns from a Substance That Travels at $v > c$.*

With this postulate plus the next one, magnetic monopoles are brought into the picture. However, they are experimentally inaccessible via our current instrumentation based on electric signals that must always travel at $v < c$. But this does lead to a potential problem for electromagnetism if we want to have magnetic monopoles (with some type of mass), moving at $v > c$, interact with electric substances, moving at $v < c$. Thus, this requires a third and fourth postulate.

POSTULATE 3: *It is Magnetic Monopole Types of Substance in the Coarse, Physical Vacuum That "Write" These Information Waves as Polarization Traces in That Vacuum and These Give Rise to Magnetic Dipole Images in D-Space. These Magnetic Monopoles Function at a Higher Electromagnetic (EM) Gauge Symmetry Level Than the Standard $U(1)$ Gauge.*

POSTULATE 4: *A Higher Dimensional Substance, Falling Outside the Constraints of Relativity Theory and Able to Travel at Velocities $v \gtrless c$, Acts as a Coupling Agent Between the Electric Monopole Type of Substance and the*

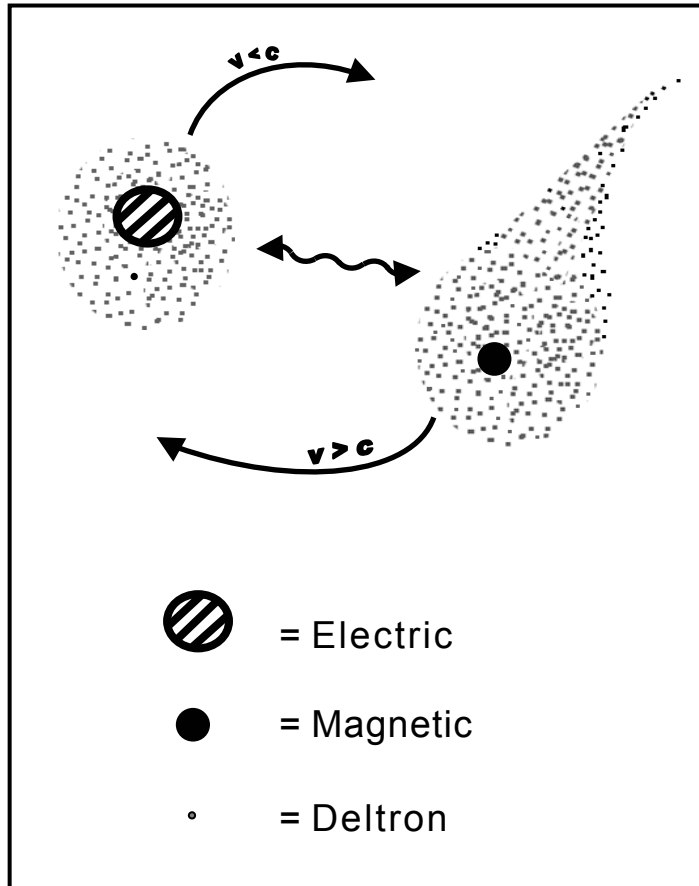
Magnetic Monopole Type of Substance to Produce Both Electromagnetism and Magnetoelectrism. This Unique Substance is Thought to Come From the Domain of Emotion and Has Been Labeled "Deltrons".

This deltron substance, from the supposed higher dimensional emotion domain, acts as a coupling medium between magnetic monopole-constructed substances, all traveling at the physical vacuum level, and the electric monopole-constructed substances to produce a picture of physical substance having the following schematic structure

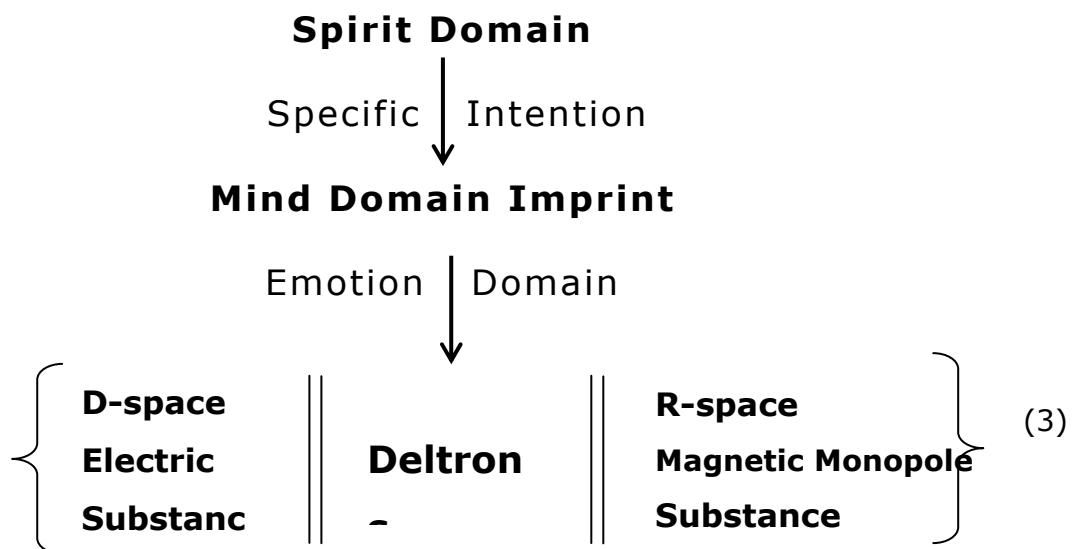
$$\left. \begin{array}{l} \mathbf{D\text{-}space} \\ \mathbf{Electric} \\ \mathbf{Substanc} \end{array} \right\} \parallel \mathbf{Deltron} \parallel \left. \begin{array}{l} \mathbf{R\text{-}space} \\ \mathbf{Magnetic Monopole} \\ \mathbf{Substance} \end{array} \right\} \quad (2)$$

A pedagogically useful picture to illustrate this type of interaction is shown in Figure 7. Here, it is the secondary, deltron-deltron interaction that allows the two classes of materials to influence each other. It is via the low velocity tail of the deltron spectrum that magnetic monopoles become accessible to detection and measurement by conventional electrical instruments. At quite low deltron activation we obtain normal, U(1) EM gauge behavior with non-zero but very small effect size human consciousness perturbations of physical reality. At this deltron activation level, very careful statistical data must be gathered to discriminate the human interaction effect. However, using our IIED procedures, a relatively large deltron activation level is reached so that Q_R grows strongly in magnitude relative to Q_D and is very easily discriminated from Q_D .

Figure 7.
Illustration of how deltron sheaths can allow faster than light particles to interact with slower than light particles.



Because, via our IIED procedures, we can both raise a given space to a higher EM gauge symmetry state than the U(1) state and selectively tune it to one or more specific intentions, Equation 2 should be altered to illustrate this fact, i.e., Equation 2 becomes



An intention from the spirit level of self is thought to imprint a highly correlated unique pattern on the domain of mind. In turn, excitation of waves by this pattern does two things, (1) it activates deltrons at the emotion domain level and (2) it imprints a highly correlated pattern on the R-space domain. In turn, this R-space pattern, via the deltron activation, imprint a correlated pattern into the D-space domain which is detected by our neural senses to become a conscious experience in physical reality. Thus, overall, human intentions modulate the degree of deltron coupling between R-space and D-space substances so as to alter experimentally observable physical reality. Finally, since average humans are thought to do this at a weak level all the time, we are led to the last postulate concerning how they do it.

POSTULATE 5: *Human Consciousness, and Specifically Human Intention, Can Activate this Deltron Population and Thereby Modulate the Electric/Magnetic Monopole Substance Coupling so as to Alter the Specifics of the EM Gauge Symmetry State of the Space Wherein a Material Object Rests and Thus the Measured Properties of Such a Material Object.*

It is the acupuncture meridian/chakra system at the R-space level of the body that interacts with intentions from the higher dimensional aspect of self to create actions in our neurally-sensed D-space world. The full model^(12,13) is richer in detail than that described above; however, for the purposes of this article, the foregoing should provide a sufficient picture for most readers.

From the framework for a T.O.E., the foregoing allows us to expand on the very, very, very, little T.O.E. of conventional science mentioned in the introduction. Figure 7 shows the various stages in the development of a possible T.O.E. using the first four postulates outlined above.

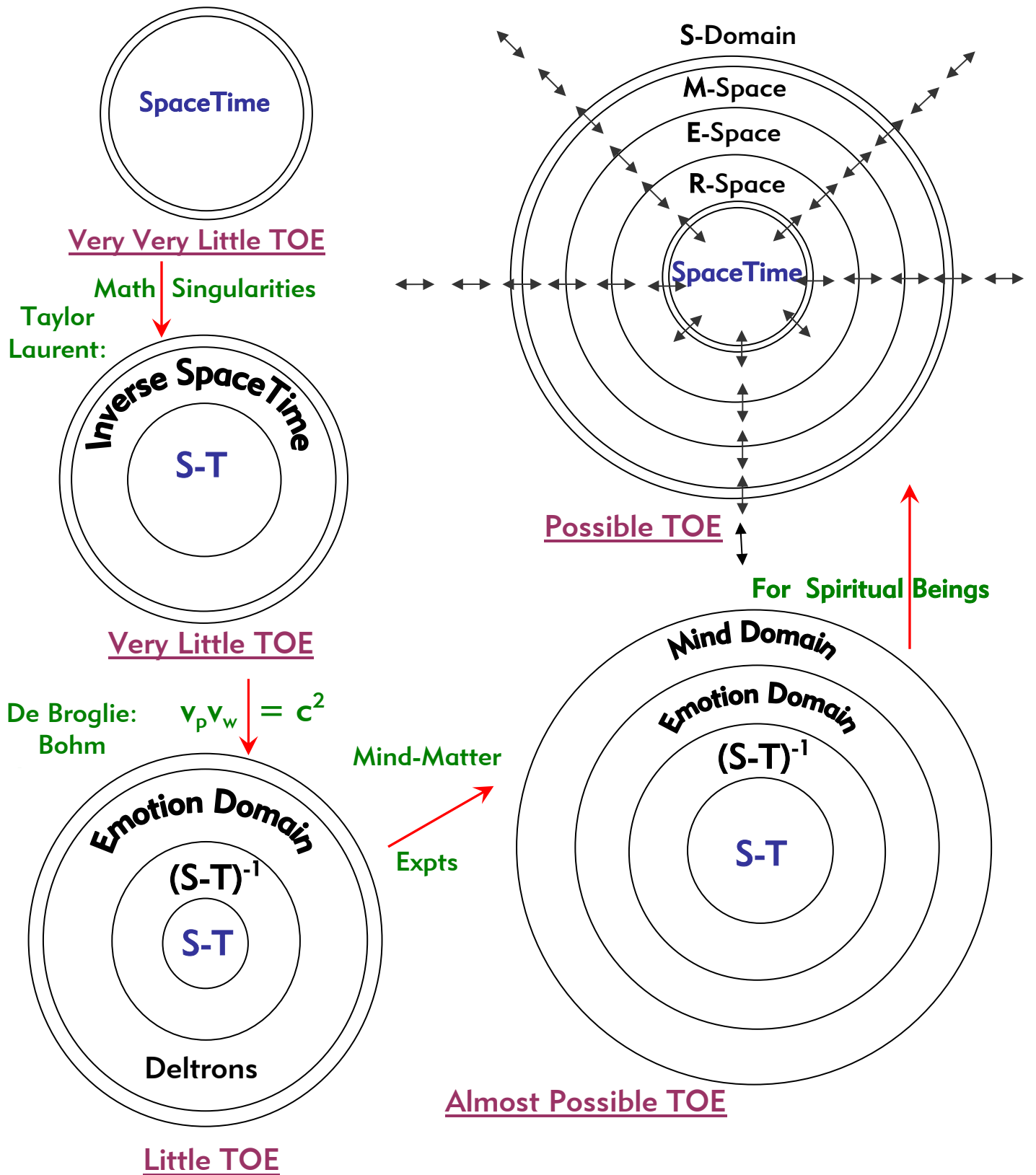


Figure 8.
Physics requirements for modeling and articulating a language of spirituality.

Some Implications for Humanity, Science, Technology and Philosophy

For Humans: First and foremost, humans matter and make a substantial difference in the world. With their Qi/Prana pumps they can potentially alter the substratum nature of physical reality. Those who discipline their higher EM gauge symmetry system with focused intentions can significantly alter experiments in physical reality. Statistically, as a species, our effect size in this regard is small but definitely non-zero.⁽²⁾ It is up to us as individuals to believe this and to care enough to make the sustained effort to build both the bandwidth and spectral power of this Qi/Prana pump system via focused intention on our self-development. The three main practical steps for this are, (1) regular practice with some meditation technique followed by (2) regular practice with some QiGong exercise technique and (3) put the results of both of these to work in one's daily life.

We have recently developed a technique⁽¹⁷⁾ for monitoring an individual's or a group's ability to raise the EM gauge symmetry state of the space that they occupy, relative to the U(1) state. In a few years, useful biofeedback devices should be available to display the real-time magnitude of this quality. Then, self-directed evolution of our species should accelerate. Dedicated people in the distant past have created sacred spaces whose field quality can still be felt today. Now we are in a position to achieve such a goal more quickly. In fact, we are in the position to change the entire earth from a U(1) EM gauge symmetry state to an SU(2) EM gauge symmetry state, and eventually even beyond that state, via the fruits of our consciousness.

For Science: A new door has been opened in physical reality with this experimental work. Magnetic monopoles and the physical vacuum have become more accessible for exploration. The effects of human consciousness, via IIEDs or other techniques, on the various chemical or radiation processes presently known to materials science can begin to be explored. Many

behavioral qualities of materials, heretofore thought to be an exclusive property of a quantum mechanical description of nature, can begin to be explored as a simple, classical expansion of our basic reference frame for viewing nature. Almost all properties of materials have heretofore been shown to depend exclusively on electromagnetism via Maxwell's four beautiful equations and this field has been ploughed extensively for the past century. Now, we see a way to expand that picture, to incorporate the dynamics of the magnetic monopole and lift the whole electric/magnetic interactions processes to an entirely new level. On such a path, we will learn to understand and harness ME energy as a new communications vehicle and to step confidently across the boundary separating slower than EM light processes ($v = c$) from faster than EM light processes. We will also learn to understand and harness information entanglement processes for the benefit of humanity. Most importantly, we will learn more about the fundamental nature of consciousness, how it connects to various energies and how it should be expressed in our equations, both classical and quantum mechanical, to enhance their predictive power as we bootstrap our way towards a more realistic T.O.E. The door has been opened, I invite the scientists of this readership to walk through!

For Technology: From what we have learned thus far, the IIED technique appears to have application to enhance the performance of every technology on the earth today and to create new ones. The essential steps are, (1) condition the space that houses key technological equipment to \sim the SU(2) level, (2) tune the space via specific intentions to realistic performance enhancement goals, (3) continuously monitor the degree of elevation of the EM gauge symmetry state above the U(1) state and (4) develop the human team so that their collective "experimenter" effect pumps the space "up" rather than drains it "down". Not only various utilities, manufacturing and transportation applications but medical, professional, educational, correctional, etc., facilities should benefit from these techniques. Three obvious limitations to all of this will be, (1) the willingness of employees to

become sufficiently inner self-managed to be “pumper uppers” rather than “drainer downers”, (2) the willingness of the “unseen universe” in Figure 6 to cooperate in the creation of the particular IIED needed for the specific application and (3) our ability to further shield against natural imprint leakage processes in the basic IIED technology.

To Philosophy: From this work, at least the following items have serious implications for philosophy:

- (1) Directed human consciousness, via intentions, can, under some circumstances, robustly and reproducibly have a significant effect upon well-designed target experiments in physical reality,
- (2) Continued use of IIEDs in a specific space can raise the EM gauge symmetry of that space to an appreciably higher level than our normal $U(1)$ state,
- (3) A form of intelligence can be housed in a simple electronic device via the IIED creation process,
- (4) Directed human consciousness can decrease entropy production so as to create a higher thermodynamic free energy per unit volume state in a space hundreds to thousands of cubic feet in volume,
- (5) Humans, and perhaps all vertebrates, have their acupuncture meridian/chakra system at a higher EM gauge symmetry state than our normal $(U)1$ gauge state, and thus drive most physical body processes,
- (6) A biconformal base-space RF of the type proposed here has many advantages over a single, four dimensional, spacetime RF for viewing the many expressions of nature and
- (7) With (6) imbedded in a still higher dimensional RF, it appears to be possible to violate strict relativity statements that hold for a single four dimensional RF.

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Addendum - A

by

William A. Tiller

In this addendum, I want first to remind the reader that these activated IIEDs radiate a quality that “conditions” or lifts the inner symmetry state (electromagnetic gauge symmetry state) of the room it is in. such a state is a higher thermodynamic free energy per unit volume state than our normal background state. Second, a unique IIED (a specific intention) polarizes or tunes this space in such a way that the detailed intention statement becomes manifested and materialized in suitable experiments conducted in that space. It is as if this radiated quality, among other things, embodies an informational intelligence sufficient to the task set for it. This is not well understood, but it happens anyway.

Figure 1 of the previous paper shows us that a DC magnetic field polarity effect on pH is a property of such a “conditioned” space. Such a polarity effect indicates access to magnetic monopoles and an altered EM gauge symmetry state. We have also experimentally found that a DC magnetic field polarity effect is present in the strength of various muscle groups in humans and we deduce from this that the person’s acupuncture meridian/chakra system is also at such a higher inner symmetry state.⁽¹⁾ We presume from this that humans, in turn, are capable of lifting the inner symmetry state of the space around them to some degree so that, in such a space or around such a person, seemingly anomalous properties of materials are manifested.

In addition to the foregoing, our experiments show that this IIED-radiated quality partitions into the equipment and furniture of the room and that the manifested "anomalous" properties depend upon all factors present in the room. It is as if all were a part of some single circuit or some interconnected reaction equation whose performance or function are all parts are interdependent. This appears to be the reality when the inner symmetry state is raised above our normal U(1) level.

I now ask the reader to hold the previous three paragraphs in mind while we consider what I have come to call "the garage inventor effect", a topic very relevant to this readership.

Let us suppose that some inventor has worked for years in his garage to construct and perfect a subtle energy conversion device of extremely high efficiency and eventually, to his satisfaction, he is successful in achieving his goal.⁽²⁾ He then calls his close friends in and demonstrates his achievement to them. They see the experimental data with their own eyes and, in their excitement, plan to mount a business venture on the work. However, as part of the deal, this prototype equipment needs to be moved to an independent testing laboratory in a nearby city for rigorous evaluation by others. This is done and the tests are carried out carefully in this new location but, "surprise, surprise", the high conversion efficiencies of the original garage tests are not substantiated. Only normal behavior is observed for the device.

Most people concluded from this that the inventor was either (1) not a careful investigator, (2) was imagining his earlier results or (3) was practicing fraud. In this, everybody makes the implicit assumption that one space for the experiment is the same as another, that one collection of equipment is the same as a set of physically identical equipment and that one careful experimenter is the same as another careful experimenter. Our accumulated data of the past seven years shows, unequivocally, that this assumption is false. In reality, the garage inventor unknowingly lifted the inner symmetry state of his garage and equipment with his long-held intention and desire to succeed in his experimental goal. This allowed new physics to come into play for the garage test. However, as the equipment

was moved from that garage, the intention-generated quality “stuff” that made the garage test so special slowly decayed from both the equipment and the garage so that, by the time the tests were made with the reassembled equipment in the nearby city, only U(1) gauge symmetry physics could come into play. The testing investigators did not approach these tests with any negative bias, it is just that their testing space and equipment are at the U(1) EM gauge symmetry level and the properties that manifest at that inner symmetry level are constrained to be U(1) gauge properties.

The very important item to realize from all this is that the human factor, the experimenter effect, can be significantly large and that a change in the EM gauge symmetry state of the experimental space can occur to a sufficiently high level that new physics enters the game and this new physics can be thermodynamically influenced by human intention. Our experimental data show that, by being aware of such possibilities, one can design experiments in such a way as to benefit from the partial accessibility of this new physics.⁽³⁾

About a year ago, we invented a procedure for experimentally monitoring the thermodynamic elevation of an experimental space above the U(1) level.⁽⁴⁾ We will reveal the details of that procedure after this new patent issues (~December, 2004) and we are exploring new patent opportunities in this area. The bottom line here is that, within the next year or so, devices will be available for (1) continuous measurement of an experimental space with respect to its EM gauge symmetry state and (2) measurement of an individual’s acupuncture meridian/chakra EM gauge symmetry state.

Although we have a great deal to learn about the new energies that our experiments are revealing, the work to date still indicates that via following 4 careful protocols, IIED technology can enhance the efficiency and effectiveness of all our present day industrial and human technologies and create entirely new ones. We are embarking upon an interesting new adventure and we will all be changed by it!

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