

A SPIRIT-DRIVEN TILLERIAN HYPOTHESIS FOR THE BIOCONSTRUCTIVE PROCESS

A TRANSDUCTIVE CHAIN SYNTHESIS

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ABSTRACT

The main point of this paper is to frame a process that will create a physiology to support the emerging view of human capabilities with phenomena and biostructures that have been and continue to be discovered by both MEST and MESTIC sciences. Underlying this is a reasoned belief that our physiology is 'soaked through' by the quantum plenum, even into the tiniest of its component particles, and that particles and plenum are in continuous intercommunication. Information is passed by means we can barely perceive that shapes our particulate selves into sentient transducers that are affected by and affect our environment, including our human and spiritual environments. In other words, the paper attempts to sketch a process that will create and do what humans can do, because that is the 'ground truth' against which we must judge our explanatory and exploratory efforts.

The paper develops, through operational analysis, a Tillerian hypothesis for the basic mechanism of bioconstruction by focusing on the action elements of cybernetically guided human bioconstruction, the process that transforms the fertilized egg into a living baby. It is characterized by in-formation, literally 'formation within', involving biochemical, biophysical, and bioinformative activity, and extremely rapid biotemporal access to the immediate future and immediate past. Beyond these fairly easily recognized processes lies biovolitional activity that created the multiverse that we experience. For purposes of this paper it is considered to be the 'ultimate potential'. Its human manifestation is the 'Nous' – the ability to discern order in chaos, and its traditional name is Spirit.

At extremely small scale the interrelated phases of bioconstruction and biomaintenance work to provide and maintain our individual human interface with the quantum plenum, enabling Spirit to cybernetically in-form life and consciousness. The paper 1) develops Tiller's concept of physics as coupled segments of differing informational connectivity contingently joined by focused consciousness, 2) creates a Tillerian model for cybernetic bioconstruction, 3) develops a Burr-Coulomb and Hall-Lorentz model for the basic bioconstructive mechanism based on recent observations of micro-biostructures that should enable 'unconventional' informative biocommunications, and that support the conceptual convergence of the living matrix and the acupuncture systems, and 4) adopts the temporal displacement and spin generation phenomena of torsion science as seems required for biomolecule morphogenesis and tissue knitting. It concludes with a novel interpretation of the origin and action of biophotons and observations on the Tillerian informational coupling of three distinct types of CRORACELLS.

Keywords: Biofields, Bio-electric field, Bio-magnetic field, Bioconstruction, Embryology, Cybernesis, Cybernetics, Negentropy, Organizing principle, Superluminal communication, Biophotons, Torsion Science, Spirit

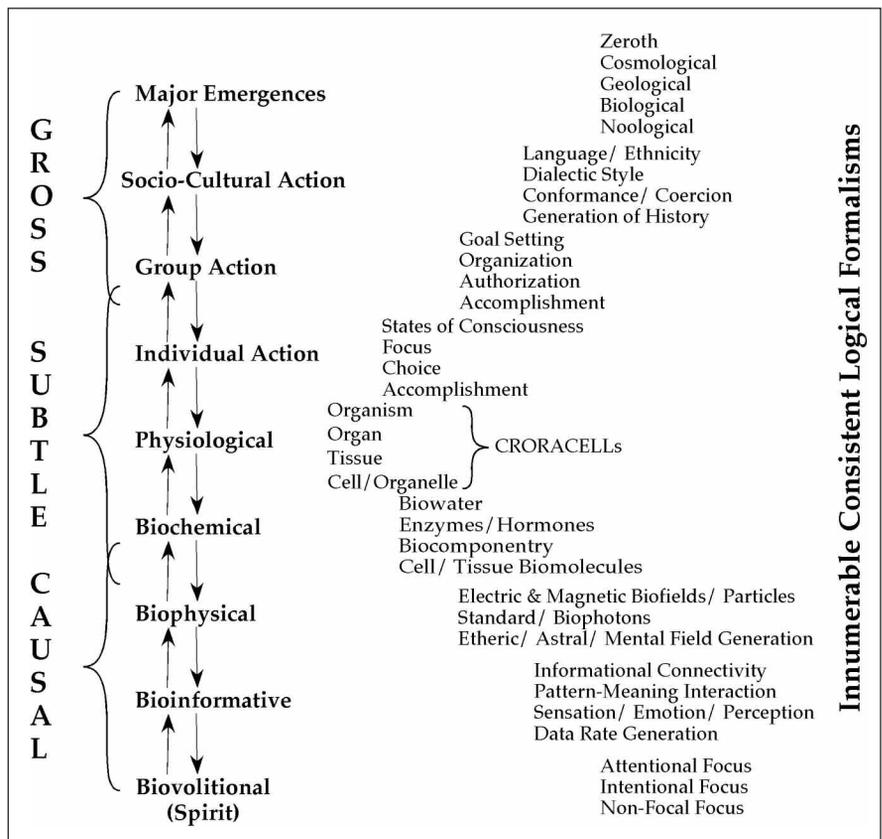
This paper develops, through operational analysis, a Tillerian hypothesis for the basic mechanism of bioconstruction by focusing on the action elements of cybernetically guided human bioconstruction. Bioconstruction is the process that transforms the fertilized egg into a living baby. It is characterized by in-formation, literally ‘formation within’, involving biochemical, biophysical, and bioinformative activity, and extremely rapid access to the immediate future and immediate past. Beyond these fairly easily recognized processes lies biovolitional activity that created the multiverse that we experience. For purposes of this paper biovolition is considered to be the ‘ultimate potential’. Its human manifestation is the ‘Nous’ – the ability to discern order in chaos, and its traditional name is Spirit.

At extremely small scale the interrelated phases of bioconstruction and biomaintenance work to provide and maintain our individual human interface with the quantum plenum, thereby providing Spirit a means to cybernetically in-form life and consciousness. Based on experimental and experiential evidence, the processes by which such in-formation operates are being investigated to expand the boundaries of dominant MEST science (Matter-Energy, Space and Time) to include Information and Consciousness (MESTIC science).

The Transductive Chain Approach treats both explicit and implicit reality as a concatenation that arises from the mutually interacting aspects of human life and consciousness that in turn arise from the ultimate potential of Spirit. See Figure 1 where the major transductive levels are

arranged against mystical yogic descriptors of quantal vibratory levels. These vibratory levels were developed in Scott Anderson’s work on the Summa Time Scale as well as my own derivative analysis of the characteristics of quanta as frequency and corresponding wavelength vary.^{1,2} ‘Causal’ is the yogic name given very high frequency, short wavelength quanta. ‘Subtle’ energy quanta are lower frequency, longer wavelength and are associated with living physiology. ‘Gross’ energy quanta are those low frequency, long wavelength quanta associated with group, organizational and cultural action and interaction. At extremely long wavelengths the association of gross quanta is with the sweep of history, and beyond that, to the characterization and sequencing of the major emergences of our universe. These emergences are described for us by cosmologists, geologists,

Figure 1. Major Levels of the Transductive Chain Concept



archaeologists, paleontologists and students of the developmental interaction among the emergences. Of course, as we contemplate the zeroth emergence, we run into the ultimate difficulty of 'creation-out-of-nothing'.³ In MEST science such creation is deemed impossible, but in MESTIC science it can be approached by recognition of Spirit with perceptive, creative and operational resources of different nature and scope than our own.

As predicted by Gödel's Insufficiency Theorem and supported by Thomas Kuhn's historical observations on the progress of science, each of the levels of Figure 1 can be expected to require different formalisms and methodologies to describe the observed reality.^{4,5} And Tiller has gone well beyond the formalisms of MEST science to analytically describe the unexpected phenomena exposed by his experiments.⁶

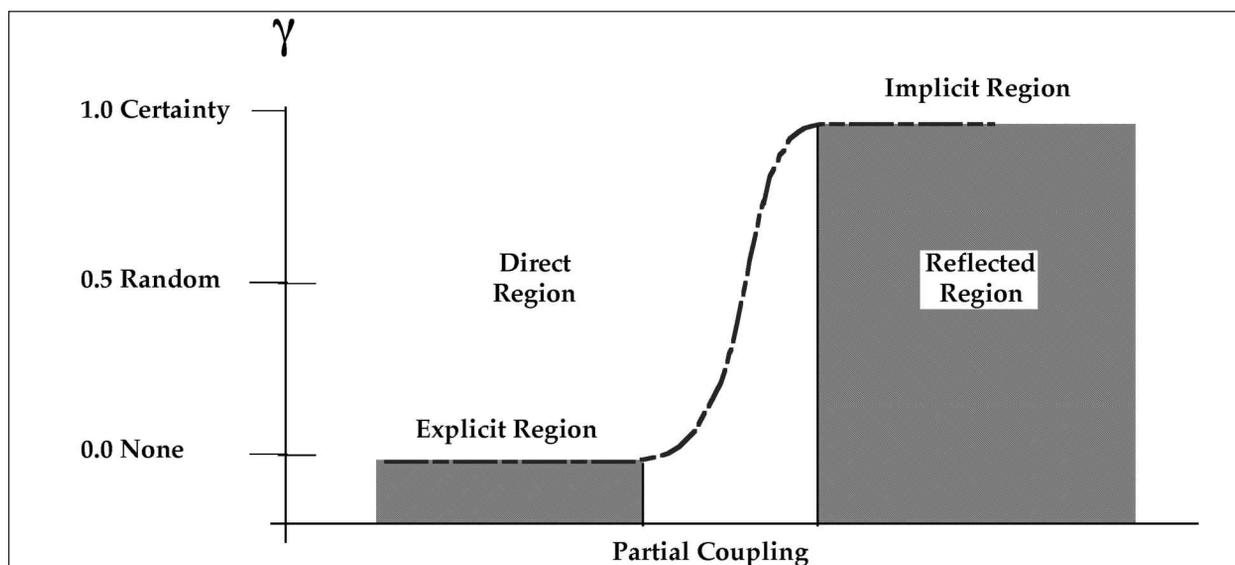
Tiller's MESTIC approach to the interaction between biophysics and bioinformation is diagrammed in Figure 2 and related to David Bohm's more easily grasped language. Bohm described reality as explicit and implicate. Explicate reality is the relatively easily sensed aspect of objects, forces, space and time. Implicate reality is comprised of those aspects that

must be deduced as necessary for the explicate to function, such aspects as basic particles, charges, fields, etc. The boundary between explicate and implicate has changed over time with continuing discovery of underlying phenomena, such as light as electromagnetic waves, the equivalence of energy and matter, or the quantal approach to analyzing matter. Thus Figure 2 represents Tiller's view of the current boundary between the explicate and the implicate based on his experiments and consequent analysis, and summarized by the equation:

$$\text{Physics} = \text{Physics}_{U-1} + \gamma \text{ Physics}_{SU-2}$$

Here U-1 and SU-2 are gauge symmetries that symbolize different informational connectivities, i.e. the way that information interacts with reality must be expressed using different mathematical rules for the two cases. γ is a coupling factor varying between zero and one that expresses the ability of consciously focused intentionality to join the two regimes. At zero coupling, only the explicit regime prevails. At unity coupling both regimes are fully active, and the ability of mentally focused intention to produce physical action is then clear. In between a mixture of physical and direct mental action manifests, which in the

Figure 2. Tiller Explores Bohm's Physics



interval $0.5 < \gamma < 1$ indicates an increasing physical significance to the reality of Physics_{SU-2}, whereas lower couplings yield less and less manifestation of the implicate.⁷ However, it is important to realize that, although the boundary between explicate and implicate changes over time, our window into the implicate reality remains the explicate since that is where our experimental and experiential clues appear.

This Tillerian vision of Bohm's realities derives from an 11-dimensional model of the conscious human in which there are *in our physiology* 4 dimensions of explicit (U-1) reality faced against 4 dimensions of implicit (SU-2) reality through an inverting mirror (designed to model the ability of focused intention), plus 1 dimension each of superposed Emotion, Mind and Spirit. Tiller's view is that the acupuncture system is at SU-2 informational connectivity and mediates magnetic information waves that guide not only bioconstruction but also the various states of aware consciousness.

From the ISSSEEM 2009 conference several developments converge to reinforce the perception of very high bandwidth 'unconventional' inter-communication in living organisms:

- 1) Mae-Wan Ho's development of zero-entropy energy use in living organisms, and recognition of (biopowered) 'jump conduction' of protons.¹
- 2) Mae-Wan Ho's and Rustom Roy's separate analyses of the many different phase structures of intra-tissue and intra-cellular water that, under the influence of very high electric gradients at atomic/molecular scales, enable water to be 'disassembled' into two protons, two electrons and an oxygen atom, from which configuration they 'burn' (i.e., recombine in detail molecule-by-molecule) to contribute significantly to bodily heat energy.⁹
- 3) Oschman's development of gap junctions enabling the 'living matrix' to be a much greater bandwidth system (i.e. much faster) than the nervous system.¹⁰
- 4) Tiller's use of the De Broglie relation ($v_{\text{particle}} v_{\text{wave}} = c^2$) to postulate superluminal information waves that conceptually can guide magnetic information

waves in the D-regime aspect of bioconstruction.

- 5) Claude Swanson's report on the development of 'torsion science' in Russia, and the torsion phenomena's ability to operate in past and future as well as present time. While his subsequent article in *Subtle Energies and Energy Medicine* does not expressly recognize this ability as necessary to detailed bioconstruction, he makes a strong argument for torsion fields to be the information-driven mechanism of bioconstruction.¹¹

Independent input from Charles Shang indicates that the acupuncture system 'unfolds' during embryogenesis to serve as a continually evolving physiological morphogenetic matrix.¹² Closely allied to these perceptions is the work of F.A. Popp and colleagues on biophotons and their generally perceived morphogenetic activity.¹³ Also an earlier operations-analytic white paper of my own concluded that the embryological process exhibits informative inputs that cannot be explained in biochemical terms, and these inputs do require access to the very near term past and future as well as present to produce the observed D-domain effect.¹⁴ More recently, in a presentation to the staff of Portsmouth Regional Hospital, based on experimental evidence with specialized electromagnetic waveguides, by Nimtz, I identified gap junctions, microtubules, Ho's exclusion zones between fascia and membranes, and possibly even ion pumps as candidate biostructures capable of instantaneous, non-electromagnetic communication through their orifices.^{15,16} In-formation should jump through such waveguides to form the electromagnetic output from the electromagnetic input in no-time-at-all.

Figure 3 represents an informational model of the cybernetic bioconstructive process that combines the Tillerian and Transductive Chain approaches and incorporates the biocommunication phenomena sketched above. Across the top row are the elements of the Tillerian model. The rows below sketch predominant associations for physico-plenal interfaces, general informational contributions and natures, a 'first

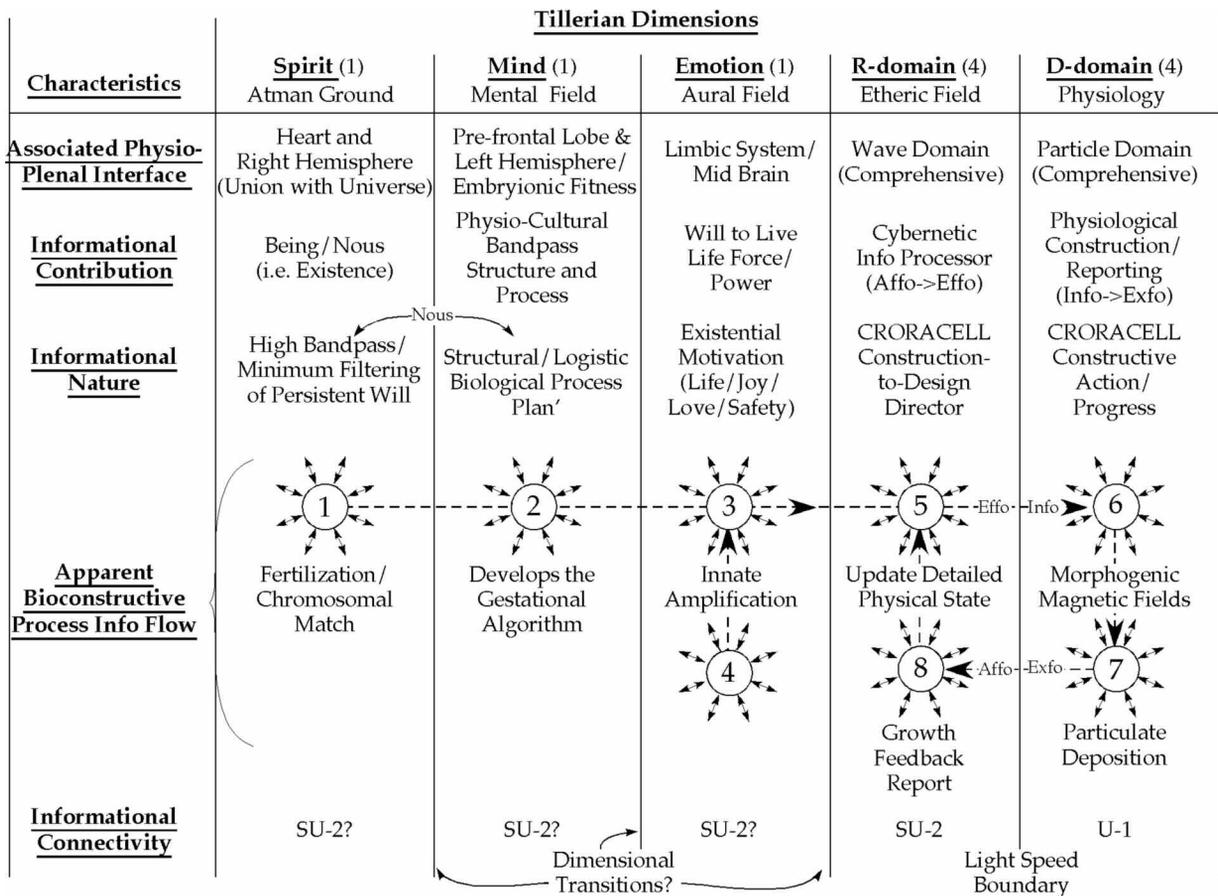


Figure 3. In-formation Into Action Conceptual Tillerian Bioconstructive Flow

cut' apparent bioconstructive information flow, and the informational connectivity attributable to each. The cybernetic focus for this paper is on the bioconstructive control loop cycling through items 5, 6, 7 and 8 that converts information into physiology. The double-headed arrows radiating from each item indicate the totally interconnected unconventional communications sketched above.

Figure 4 concentrates on this bioconstructive loop to indicate that developing physiology receives information (info) at 6 from the implicit R-domain as to the next detailed bioconstructive action required. Per Tiller's thought, physical action to comply is executed by resultant magnetic fields in the context of the complex micro-electric environment existing, which results in a changed physiological configuration

at 7. This change is confirmed as information from 7 exiting (exfo) across the light speed boundary where it is received as a growth feedback report of afferent information (affo) at 8. Affo is used in the context of the immediate and total bioconstructive situation to calculate the next morphogenetic steps in detail, which results in efferent information (effo) from 5 being sent across the light speed boundary where it is received at 6 to begin the next cycle of info-action steps.

The extended operation of this basic cybernetic cycle, in context of parallel activity occurring concurrently throughout the developing organism, is mentally overwhelming in terms of data rate, volume and speed of action. In other words, the cycle is being performed in every cell and tissue concurrently not only as to the detailed construction of each cell, but as to their

Maxwell's Mechanical Model

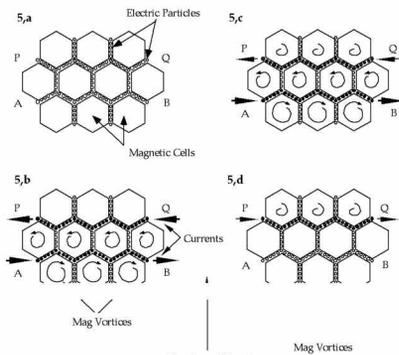


Figure 5a

The Dirac Magnetic Monopole as a Plenal Element — and Its Electric Counterpart

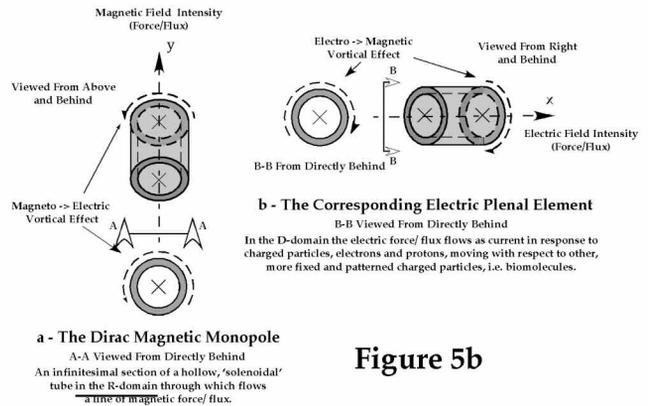


Figure 5b

Figure 5 Conceptual Evolution of Magnetic Monopoles

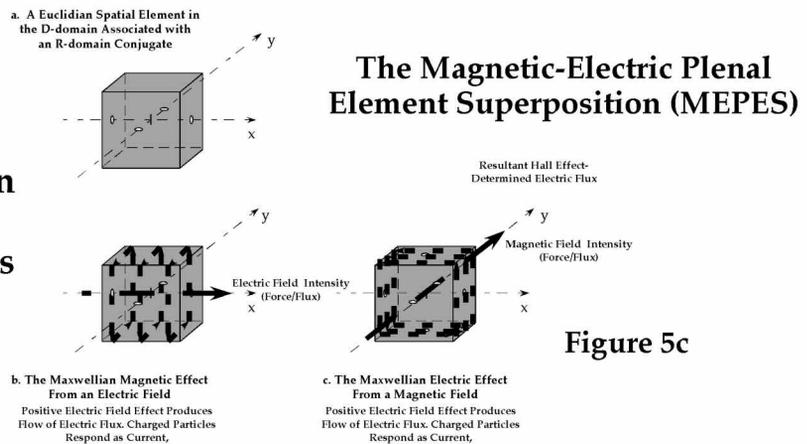


Figure 5c

Figure 5. Conceptual Evolution of Magnetic Monopoles

both electric and magnetic particles interacting in space.²⁰ The electric ones flowed, but the high inertia magnetic ones twisted on axes at right angles to the electric particle flow. This model was good enough for him to distinguish: 1) light as transverse waves of coupled electric and magnetic fields at right angles to each other with their plane at right angles to the direction of motion at constant speed. The light speed he calculated from this arrangement agreed well with experiments of the time. 2) The actions of these electric and magnetic fields extended right into matter to displace charged particles, even if the material was a non-conductor. Apparently a bit ashamed of his clunky model, he put his results into a mathematical 'black box'

(the famous four Lagrangean differential equations). But Maxwell's magnetic particles were monopoles, and, despite his disclaimer and the black box, subsequent physicists have searched for them in vain. Figure 5b sketches one of these attempts, Paul Dirac's early quantum conception of the magnetic monopole as a kind of hollow cylinder that performed the magnetic twisting functions and linked together end-to-end to form a string around and along magnetic lines of force.²¹

Most physicists finally concluded the monopoles did not exist. Even in theory, there was a great contradiction in justifying a tiny basic magnetic

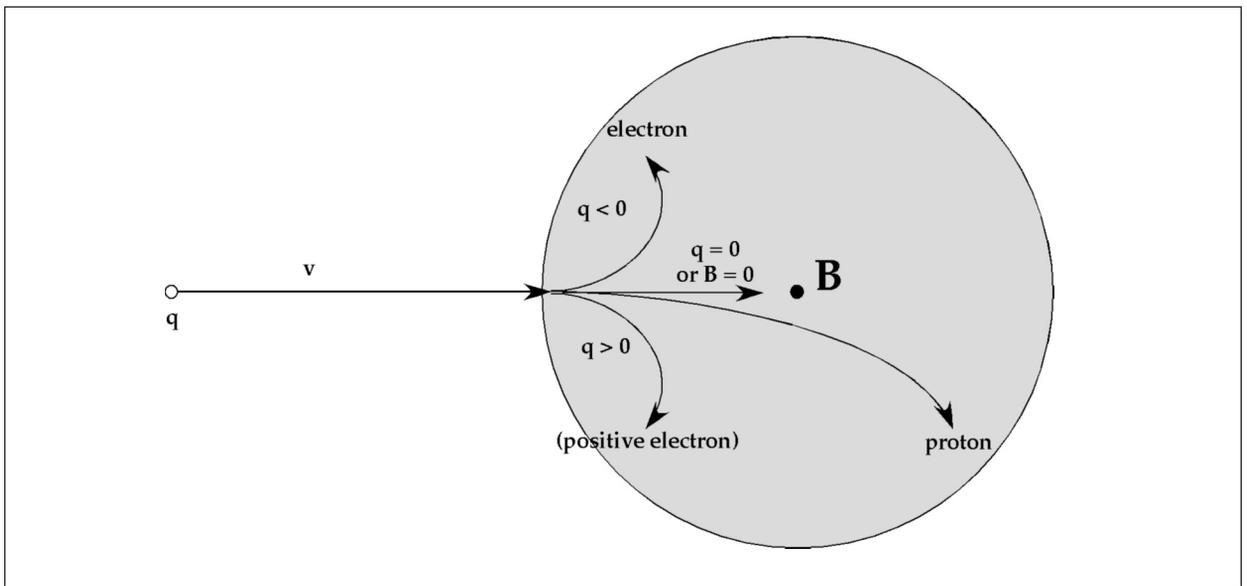


Figure 6. The Lorentz Force Action Plane

particle and the large rotational inertia required. But that was before work near absolute zero revealed a 'zero point field' of enormous energy density, so empty space became thought of as the 'quantum vacuum', then as the 'quantum plenum' since it is not empty, but full — of energy and pure potential. With the transductive equivalence of energy and matter (i.e. $E = mc^2$) there is justification for the magnetic monopole to be conceptually replaced by a high energy-density vortex in a continuous plenum (represented by Figure 5c).²² Tiller places magnetic monopoles, however, in the implicit R-regime of the quantum plenum so I shall think of them as vortex-monopoles and visualize them as superposed with the electric field to avoid any lingering concern over preconceptions about 'solid' particles with finite boundaries.

Figure 6 sketches the action of a magnetic field on a moving particle q , called the Lorentz force. The particle is here moving left to right in explicit reality at velocity v . When it encounters uniform magnetic field B , which rises perpendicularly out of the plane of the paper, it will curve leftward if negative and rightward if positive. If the particle is neutral, it will proceed as if there were no field. The common charged particles that compose explicit matter are, of course, the negative

electron and the positive proton. While they are symmetrical (equal but opposite) in charge value, they are not in mass. The proton is on the order of 1000 times 'heavier'.²³ Consequently the proton curves much more slowly than the electron. By symmetry, if there were such a thing as a positive electron, one would expect it to curve right to mirror the electron's path.²⁴ However, the electron will be made to curve right if the magnetic field vector is made to go directly into the paper's plane. Such switching can occur if the entire action plane is made to 'twirl' about the axis of the velocity vector, or, if the magnetic vector (a collection of spins) is 'flipped' instantly as could occur through an informed torsion spin action. In the latter case, the inertial component of the vortex-monopole, reacting to the impulse of the instantaneous torsion spin flip, should result in a very quick (i.e. not mathematically singular) axial twirling in explicit time. The directional sense of the twirl would seem to depend on whether the molecules of biological environment are paramagnetic or diamagnetic.²⁵ It is in the combinations of these actions that the informative references to immediate past (for accomplishment) and immediate future (for next bioconstructive step/s) seem to take place. In living biological matter, polar protein molecules under

Lorentz action, as in catalysis, would tend to have their negative ends follow an electron-like path and the positive ends follow a proton-like path, and experience an asymmetric twist as the magnetic axial twirl goes on.²⁶ The action on water molecules, with relatively small moments of inertia should be especially pronounced and should favor the orbital electronic oscillations characteristic of Van der Waals bonds. Of course, in living biological matter 'jump conduction' (Mae-Wan Ho's preferred term) occurs commonly for both protons and electrons, as well as continuous charged-particle current-like movement.²⁷ Nevertheless, the general thrust of this Hall-Lorentz action sketches a mechanism for the construction of tissue from biomolecules, including the tendency for production of such helical molecules as DNA, collagen and myosin (and structures such as microtubules made up of highly polar tubulin 'modules') that Oschman and Pollack have noted.²⁸

Figure 7 sketches a bit more of the biological microenvironment and its interaction with electric and magnetic forces in the D- and R-regimes, especially to illustrate:

- 1) that the bioconstructive action of electromagnetism results from a superposition of Burr-Coulomb and Hall-Lorentz effects,
- 2) that extremely high electric and magnetic gradients are active in biology albeit at low energy levels, and
- 3) that a new interpretation of the action of biophotons seems to be supported by the experimental evidence.

On the left side of the figure is an electron being repelled by a negative point charge that exerts a Coulomb force on it.²⁹ It proceeds from left to right in a force field that decreases inversely as the square of the distance, soon becoming markedly subluminal, so its informational pilot wave becomes markedly superluminal.³⁰ Note the relative electric field strength (isopotential) circles centered on the electric field source, varying from 32 at a distance to 2048 nearest the field source. Halve the radius once more from the 2048 circle, and the field strength increases to 4096, then again to 8192 and so on. The trend is clear, but to yield a more intuitive grasp of the magnitudes, look

to the implied electric action of the neural impulse as it fires in the neuron.³¹ The peak voltage between the inside and outside of the axon is on the order of 90 millivolts. The axonal membrane is about 8 nanometers thick. This figures out to be about 3,750 volts per foot! Of course, relatively few quanta cross through the membrane from this peak as the axon, after firing, neutralizes and restabilizes. But the electric gradients are dynamically great, and the movement of charged particles (sodium, potassium and calcium ions) through the membrane will generate a toroidal magnetic field that rolls down the axon toward the synapse as the impulse progresses. Such electric fields power the proton gradients that Mae-Wan Ho and colleagues have found at tissue interfaces, and also the battery action they have found. Further, they power the dissociation of water noted by Ho and by Roy into 2 protons, two electrons and an oxygen atom ($H_2O \rightarrow 2H^+ + 2e^- + O$) from whence it recombines entropically ($2H^+ + 2e^- + O \rightarrow H_2O$), releasing heat energy essentially in the same mass-efficient way that hydrogen-oxygen rockets do. This is how living matter 'burns water' molecule-by-molecule to supplement the well-known ATP \leftrightarrow ADP biochemical energetic contribution of the mitochondria.³² Interestingly, the activities of healers and spiritual practitioners show the heat thus generated to be subject to conscious control. This battery action is the power source for Harold Burr's electro-dynamic fields that were the motivation for my presentation at ISSSEEM 2009.³³ I therefore label the left side of the diagram 'Burr-Coulomb Effect' because these effects are what Harold Burr measured in the late 1930s with his especially designed voltmeter, and from which he deduced a morphogenetic 'organizing principle'.³⁴

In similar fashion I label the right side of the diagram 'Hall-Lorentz Effect' because Edwin Hall discovered this effect in 1879, thirteen years before Lorentz derived and published his equations. Maxwell's earlier work foreshadowed each of theirs, and Hall's experiment was one more validation of Maxwell's insight that the effects of magnetism and electricity can truly reach into matter to act. Hall's finding was that current (i.e. electron flow) within a conductor tends to displace transversely with

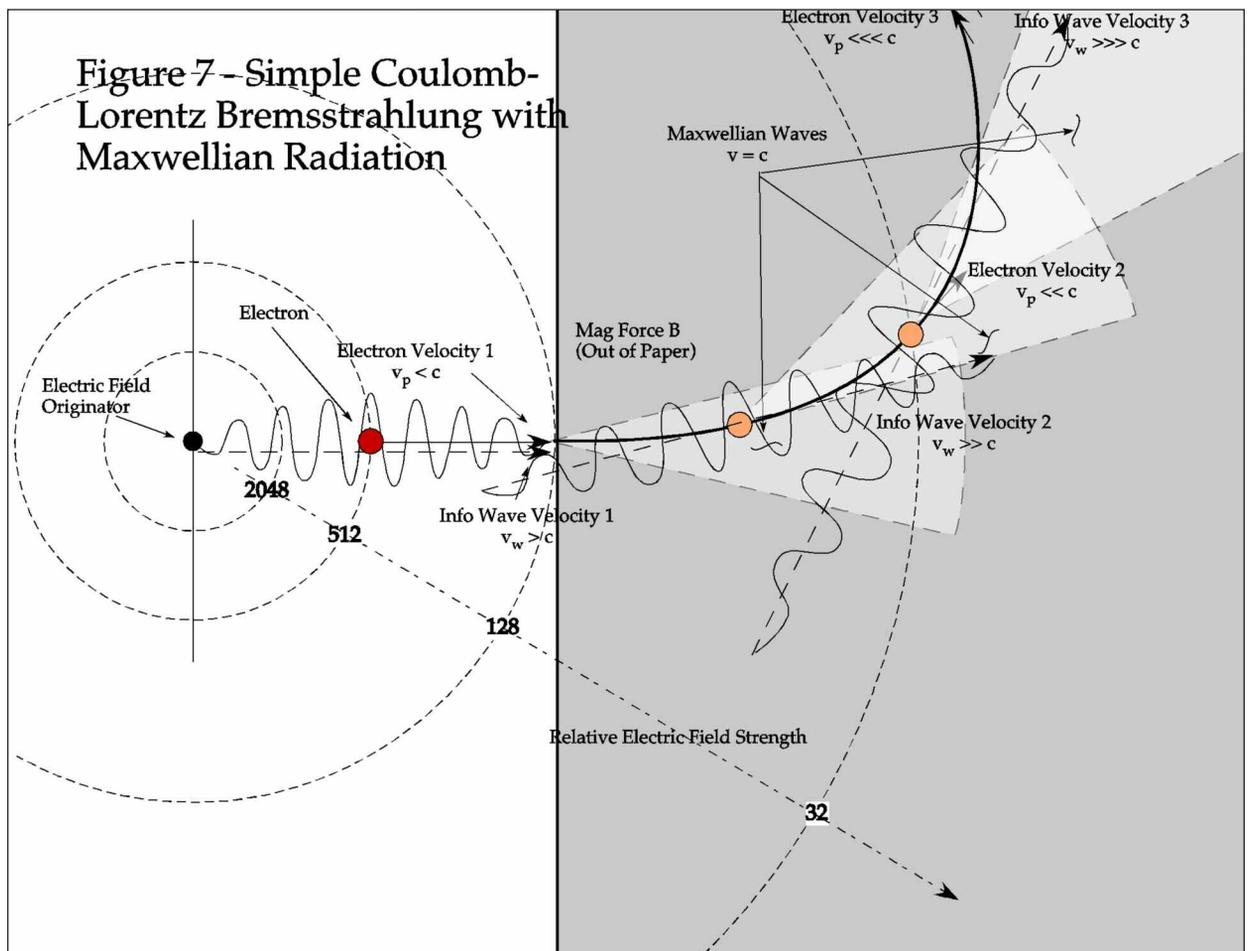


Figure 7. Simple Coulomb-Lorentz Bremsstrahlung with Maxwellian Radiation

respect to the plane of the current and the magnetic field. That is, the electron flow is no longer evenly distributed across the conductor's cross-section, but is displaced by the magnetic field within it. But we know from the above that there are free electrons, protons and polar molecules available in the bioconstructive environment.

In theoretical terms, the Lorentz force is responsible for the Hall effect, and that is what we see happening to the electron as it enters the magnetic field (which again is coming out of the plane of the paper). But another thing begins to happen to the curving electron – it begins to emit in a fan shaped pattern of Maxwellian radiation, guided in time by torsion phenomena, in the acceleration plane due to the lateral acceleration that is causing the electron to curve. This radiation is similar

to the synchrotron radiation described by Claude Swanson in Volume I of his book *The Synchronized Universe*, as a mechanism central to his synchronized universe model, but is at low power whereas synchrotrons and similar particle accelerators are at the high power end.³⁵ More specifically, this is the radiation, called 'bremsstrahlung' (braking radiation) in the MEST context, and is usually associated with electrons stopping in matter under the influence of Coulomb force only. Here we are concerned with electrons slowing and radiating in *living* matter under morphogenetic construction, thus becoming a 'bio-bremsstrahlung' that clearly has magnetic aspects. The kind of morphogenetic radiative activity that has been especially well investigated is biophotonic, particularly by F.A. Popp and colleagues.³⁶ I suggest that

understanding of biophotonic phenomena can be expanded in the context of the scenario that has been developed herein:

Biophotonic activity derives from the torsion-guided Maxwellian bremsstrahlung radiation activity in bioconstruction. What is detected goes through two spectral 'notch filters'. The first is the absorption spectrum of the biological material; the second is the absorption spectrum of the photomultiplier's inorganic sensing material. These two are not the same, thus our biophotonic knowledge is gained by secondary association. In other words, the first filter absorbs the majority of the potential Maxwellian energy photon-by-photon for bioconstructive work across a broad band of the Maxwellian frequency range, leaving only a relatively small bandwidth to be sensed through the photomultiplier sensor's relatively narrow absorption capability. Further, the sensor is receiving Maxwellian light energy only from those beams directed at it instant by instant. Thus the readings we call biophotons are indicators, not directly causal, of bioconstructive (and biomaintainative) activity, nor is their 'sparse' field strength indicative of the intricacy and volume of the underlying Maxwellian effect.

The Maxwellian bremsstrahlung electromagnetic wave energy that escapes absorption by the biomaterial should then power the etheric and aural fields and the chakras that are visible to those talented individuals whose neurological visual processing (filtered through rhodopsin sensor molecules) differs from that of 'normal' persons.

Now, in accordance with the foregoing argument, it is the Maxwellian energy that is cybernetically guiding the bioconstructive process of material deposition. It is itself guided by Burr's organizing principle to perform what normally would be considered to be a negentropic task. Torsion science, with its view of time density and access to past and future as well as present seems to be developing a formalism that will change our outlook, not only at a cosmological level (where it was

discovered) but also on the construction of life through guidance of the dynamic etheric field → physiology process.³⁷

In conclusion, I would like to draw a parallel to a basic observation underlying the Transductive Chain Approach, i.e. the CRORACELL. Part of the enjoyment of participating in what Kuhn calls scientific revolutions, when anomalies in the accepted explanations develop, and intuitive, creative thought is needed to develop better explanations, is the privilege of creating acronyms to serve as crutches for emerging thought.

As outlined in Figure 8, the term CRORACELL is one of these, made up from cavity resonator, orgone accumulator and cell. Happily, the acronym still fits for this instant interpretation of Tiller's physics as examples of the degree to which different couplings of explicit and implicit realities occur, both in the lab and in nature.

The blackbody, Figure 8a, the basic thermally driven cavity resonator, was the device that gave Max Planck, in the late 1890s, the inspiration for his quantal approach to analyzing energetic activity in the transduction between electromagnetism and thermal heat. No particular function was assigned to the varied complex standing wave patterns that occur within the blackbody as the temperature is varied. There were no suspicions whatever that a torsion wave pattern might exist concurrently or that time might not flow continuously only in one direction. The perception was framed by early MEST science, energy flow was thought to be entropic only. Further, there was no early association of the quantal findings with what might be going on within living creatures. The Tillerian coupling coefficient, Υ , of the blackbody is essentially zero.

Figure 8b sketches the kind of ORAC (Wilhelm Reich's own acronym for orgone accumulator) that a young Bernard Grad used to help recover his health in the mid-20th century. This version of ORAC consisted of a metallic inner liner surrounded by a wool filler between the metal and an outer wooden structure.

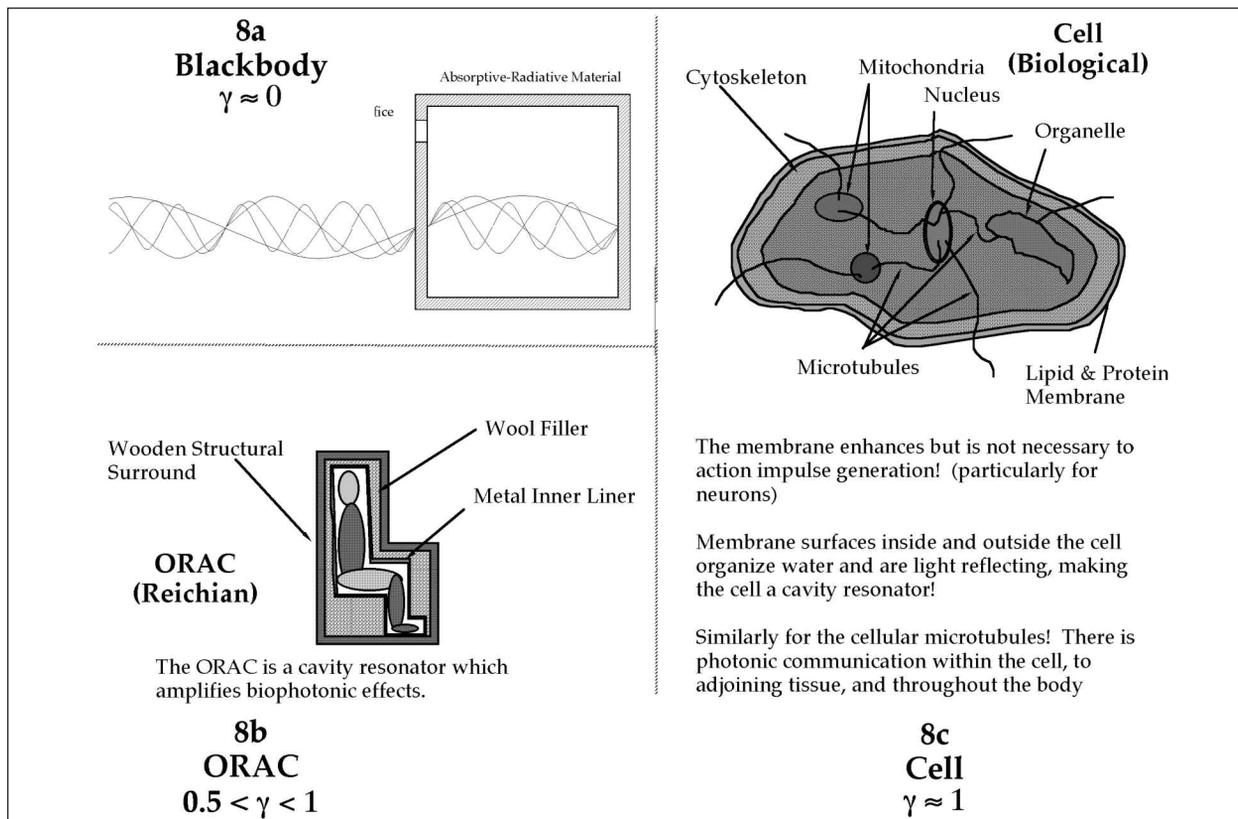


Figure 8. Coupled CRORACELs (CR + ORAC + CELL)

There was a seat inside, a small window to fight claustrophobia and a layered door that fit snugly in place. The patient simply entered, closed the door and sat for a prescribed time. Sessions were repeated regularly. Grad's experience convinced him that Reich's perception of orgone energy was more than fantasy. The two men became friends. A fine experimenter, Grad later performed numerous controlled healing experiments with mice in ORAC cages showing clearly that the procedure significantly shortened healing times, thus, in the current context, its coupling coefficient is significantly greater than one-half.³⁸

Reich himself was not a physicist, he was a psychoanalyst, the youngest of Freud's disciples, who broke with Freud because he perceived human drives to be manifestations of real energies, whereas Freud converted his own perceptions into abstractions. Reich's perception of orgone energy was not just internal to the organism, but that it was somehow a

universal phenomenon, operating both inside and outside the body. Many of his less well known experiments had to do with the conduction of orgone on or across the surface boundary of earth and atmosphere and the effect that bodies of water seemed to have. Thus he pioneered the concept of continuous, intimate interaction between living organisms and their implicit environment. His explorations along this line included experiments that convinced him that the effect of ORACs could be increased if they were made of multiple layers of the basic substances, i.e. a CRORACELL of CRORACELs.³⁹

Turning to Figure 8c we see that the cell itself is a CRORACELL of CRORACELs, containing within the cytoskeleton and membrane a nucleus and numerous other organelles and sub-organelles, each with a distinct functional, yet interconnected, role to play in maintaining life. In the boconstructive case, the developing embryo in the womb is a

CRORACELL of CRORACELLs within the mother, herself a CRORACELL of CRORACELLs. This infers a bioconstructive process with a coupling coefficient extremely close to one, a process manifestly quite capable of negentropically organizing and executing the construction of new life in the context of interaction with all of the universe. And, as our perception of the nature of the universe is an evolving one, so must our perception of the construction and maintenance of life evolve accordingly.⁴⁰

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4. A) Jacob Bronowski, *The Origins of Knowledge and the Imagination*, (Yale University Press, 1978); See especially Ch 4, The Laws of Nature and the Nature of Laws.
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- In these books Tiller presents a complete picture of his groundbreaking experimental and theoretical work that convincingly shows: 1) that focused intention can not only affect water, living physiology (fruit flies) and in-vitro enzymatic reactivity, but can precisely change them through focused intention. 2) that concomitant to this process there is a coupling to electromagnetic phenomena that can charge a simple oscillating circuit (called an Intention Imprinted Electronic Device, an IIED) to act as surrogate for human imprinters. 3) that this imprinting can occur in the IIED through electromagnetic shielding, 4) that intention, so focused, changes the nature of space-time in the vicinity of the imprinting process to one that enables or favors negentropic (organizing) activity. 5) that IIEDs so charged can imprint other non-charged IIEDs over intercontinental distances without further human assistance. While torsion science supports negentropic influence capable of coherent intention-penetration of electromagnetic shielding, Tiller's work infers a connection between symbol and underlying meaning that is much more strongly interwoven into the basic frame of reality than that gleaned to date in the fields of etymology and semantics.
7. Ibid. 6C) above, See especially Ch.2, 'Birthing the Scientific Method'.
 8. Mae-Wan Ho, 'Quantum Jazz', Presentation to ISSSEEM 2009, DVD available on request through <http://isssem.org/>. Dr. Ho also stressed 'exclusion zones' as micro-structures that create electric gradients that power 'jump conduction' of protons, and the body's ability to 'burn water' from its dissociated components, $2H^+ + 2e^- + O \rightarrow H_2O$.
 9. A) Ibid. 8 above.
B) Rustum Roy, 'The (Im)possible Dream', Presentation to ISSSEEM 2009, DVD available upon request through <http://isssem.org/>. Dr. Roy stressed the many phases and combinations of water in living biology that act very differently than liquid, showed slides of electromagnetically dissociated water burning macroscopically, and noted experimental evidence that human intention does affect water phases in biology.
 10. James Oschman, 'The Music of the Heart', Presidential presentation to ISSSEEM 2009, DVD available upon request through <http://issseem.org>. Note especially the topic of authentic vs. thoughtful action largely based on visual information splitting by the rods and cones into the neural system versus by the Müller cells into the living matrix.
 11. A) Claude V. Swanson, 'The Torsion Field and the Aura', *Subtle Energies and Energy Medicine*, V. 19, No. 3, p. 43. This is an excerpt of Chapter 7 from B) below. It describes pioneering and developmental work on 'torsion science', an emerging science of spin currently being investigated primarily in Russia. It has resonant similarities with Baron von Reichenbach's 19th century work on 'od' energy, Wilhelm Reich's 20th century work on 'orgone energy', and also the current work of Fritz-Albert Popp and colleagues on biophotons.
B) Claude V. Swanson, *Life Force, the Scientific Basis: Breakthrough Physics of Energy Medicine, Healing, Chi and Quantum Consciousness*, (Poseidia Press, Tucson AZ, 2009-2010). This is Volume II of Swanson's 'Synchronized

- Universe Model' and seems sure to affect his thinking as expressed in Volume I. See especially Ch. 7 'Time and Torsion' and references therein. 'Spin', insofar as people try to categorize it, is usually thought of as a particulate property, e.g. gyroscopes, electrons either singly or in clouds, nuclei, protons, neutrons, etc. This paper considers the mutual particulate-plenal interaction of spin. See Figure 5 and exegesis, which deals with magnetic monopoles in light of Maxwell's and Tiller's insights thereon, i.e. the magnetic monopole as a plenal vortex implicit to SU-2 informational connectivity.
12. A) Charles Shang, 'The Mechanism of Acupuncture – Beyond Neurohumoral Theory', Download at: <http://acupuncture.com/education/theory/mechanismacu.htm>.
B) Charles Shang, 'Prospective Tests on Biological Models of Acupuncture, Department of Medicine, Cambridge Health Alliance, Harvard Medical School, Download from: <http://ecam.oxfordjournals.org/cgi/content/full/nem122v1>.
 13. Fritz-Albert Popp, 'Biophotons — Background, Experimental Results, Theoretical Approach and Applications', *Frontier Perspectives*, (The Center for Frontier Sciences, Temple University, Vol. 11, No. 2.)
 14. Garvin McCurdy, 'A Formalistic Review of Plenal-Biological Interfaces'. See Figure 10, p.59 and exegesis for context. Download 'A Plenal-BioReview.doc' from <http://homepage.mac.com/infoland/Sites/FileSharing6.html>.
 15. Garvin McCurdy, 'The Infant Life Science Behind Reiki, Primarily About Intentionality, Biostructures and Biocommunication', CME presentation for staff of Portsmouth Regional Hospital, NH, April 2010. PowerPoint DVD available on request to author at <mailto:infoland@mac.com>.
 16. Gunter Nimtz, 'Superluminal Signal Velocity', II. *Psychisches Institut, Universität Köln*, (July 10, 2004), [arXiv:physics/9812053](http://arxiv.org/abs/physics/9812053) v1 31 December 1998. Download 'NimtzPaper.pdf' from <http://homepage.mac.com/infoland/Sites/FileSharing6.html>
 17. Private conversation between author and John Pearson, M.D.
 18. Ibid. 14 above..
 19. Ibid. 11B) above.
 20. Basil Mahon, *The Man Who Changed Everything, The Life of James Clerk Maxwell*, (John Wiley & Sons, Chichester, W, Sussex, England, 2004). See especially Chapter 7, *Spinning Cells*, and exegesis of Figures 2a-2d, p.p. 100 & 101.
 21. Wikipedia, the Free Encyclopedia: See "Dirac String", at http://en.wikipedia.org/wiki/Dirac_string.
 22. Ibid. 20 above. Especially see Ch. 7, 'Spinning Cells'; Indeed, in discussing his early model, Maxwell first used the term 'vortex' as perhaps more descriptive than the magnetic cells he had intuited in mechanical context See comments on p.104 of paperback edition.
 23. The role of the neutron in explicit matter is to add mass, along with the proton, to the positively charged atomic nucleus. A nucleus with neutrons would respond even more sluggishly than the proton does.
 24. The positron is an experimentally verified antiparticle with electron's mass and positive charge that exists in the antiworld's reality in which time flows backward with respect to our explicit perception.
 25. 'Magnetic Materials Group', University of Birmingham, U.K at <http://www.magnets.bham.ac.uk/magneticmaterials/types.shtml>. All materials exhibit some magnetic properties that depend on their inner spin organizations. Paramagnetism is the tendency of some materials to orient their inner spin structure in line with an imposed magnetic field. Diamagnetism is the tendency of others to orient their inner spin structure across the field. Ferromagnetism, as in lodestone or common permanent magnets made of iron, is an extreme form of paramagnetism. Magnets incorporating rare earth elements, such as used in wind turbine generators, are even more paramagnetic. Other than these, in everyday life both para- and diamagnetic substances are considered non-magnetic because the action is quite weak, the molecules having nearly random spin orientations.
 26. Annette Sievers, Malte Beringer, Marina V. Rodnina, and Richard Wolfenden, 'The Ribosome as an Entropy Trap', *Proceedings of the National Academy of Sciences*, (PNAS May 25, 2004 vol. 101 no. 21 7897-7901). Down load from: http://www.pnas.org/cgi/content/abstract/101/21/7897?ijkey=a195a2ea0cfe6bbd5f53.24ae4d4b29f681625c3d&keytype=tf_ipsecsha. Such actions seem required for very low entropy catalytic action such as found on the active sites of RNA molecules.
 27. A) Ibid. 8 above. As Dr. Ho announced at ISSSEEM 2009, the quantum jumping of protons has been verified by Ho and her colleagues at ISIS.
B) Robert Becker and Gary Selden, *The Body Electric, Electromagnetism and the Foundation of Life*, (William Morrow & Co., N.Y., N.Y. 1985.) Quantum jumping of electrons in biology seems to have been first detected by Becker whose discovery of semiconductive biological activity is developed in this book. Semiconduction is characterized by jumping electrons as opposed to continuous flow through the conduction orbitals of conductors. The explicit regime difference is manifested by higher resistance exhibited by semiconductors as a class than conductors.
 28. A) James Oschman, *Energy Medicine in Therapeutics and Human Performance*, (Butterworth-Heinemann,, Philadelphia, PA, 2003).
B) Gerald H. Pollack, *Cells, Gels and the Engines of Life*, (Ebner & Sons, Seattle, WA, 2001).
Oschman mentioned the marked tendency for biomolecules to be built in helical configurations in his presidential address to the ISSSEEM 2009. These two references offer numerous examples of this tendency, such as DNA, RNA, microtubules, the different contractile muscle molecules, flagellae, etc.
 29. Wikipedia, the Free Encyclopedia, see 'Bremmstrahlung' at <http://en.wikipedia.org/wiki/Bremmstrahlung>. Figure 7 depicts a special case of the more general one that the electron in biomatter would be more likely to be traveling on a path skewed to the electric field, and hence would experience a turning force from that interaction. Thus curving particle paths should arise from electric forces as well as magnetic.
 30. Ibid. 6A above. See page 22. Tiller develops the concept of placing his 'inverting mirror' at the speed of light, c , from the DeBroglie relation $v_{\text{particle}}v_{\text{wave}} = c^2$, consequently as a particle

- slows its information wave aspect accelerates beyond c.
31. James W. Kalat, *Biological Psychology*, (Brookes-Cole, Pacific Grove, CA, 1995) This illustration derives from the old model of a neuron as a membrane enclosing a bag of water and a nucleus. Subsequent models, such as Pollack's (See Reference 28B above) that include organelles and the cytoskeleton, render this calculation obsolete, but strengthen the argument for a complex role of high voltage, low-energy gradients and their instantaneous discharge.
 32. Ibid 28B above. See especially "Cycling of ATP and Charge", pp. 263-264.
 33. Garvin McCurdy, 'Informational Implications of Harold Burr's Electro-Dynamic Fields, An Analysis of Bio-organizing Mechanism in Mitosis per the Transductive Chain Approach', Download 'BurrElectroDynamicFields' in .doc or .pdf formats from: <http://homepage.mac.com/infoland/Sites/FileSharing6.html>. The paper was the basis for a Poster Presentation at ISSSEEM 2009 Conference; it identifies several critical informative inputs to mitosis that biochemistry alone does not explain.
 34. Ibid 4B above.
 35. Claude V. Swanson, *The Synchronized Universe, New Science of the Paranormal*, (Poseidia Press, Tucson, AZ, 2003), especially pp. 244-247.
 36. Fritz-Albert Popp, 'Biophotons — Background, Experimental Results, Theoretical Approach and Applications', (Frontier Perspectives, Center for Frontier Sciences at Temple University, Vol. 11, No. 11 Spring 2002). Note especially Section 2 on measurement of biophoton properties.
 37. In MEST science, 'Maxwell's demon' illustrates the impossibility of negentropic progress. In MESTIC science, informative bioconstruction illustrates the requirement for negentropic effect.
 38. This author was privileged to attend a seminar given by Dr. Bernard Grad in Portland, Maine, in 2004 on the 50th anniversary of the conviction of Dr. Wilhelm Reich on charges brought by the FDA and tried in that city. He discussed his relationship with Reich, which started as a relatively young man who used an ORAC to improve a chronic illness. Instances of Grad's subsequent life and work can be gleaned from:
 A)'Subtle Energies, Orgone, & Healing', This paper is a third party overview of Dr. Bernard Grad's contribution to An Esalen Invitational Conference called 'Subtle Energies and the Uncharted Realms of Mind', June 6 – 11, 1999 at Esalen Center, Big Sur, CA. For this commentary on Dr. Grad's experiences and experimental work see: <http://www.esalenctr.org/display/confpage.cfm?confid=2&pageid=7&pgtype=1>.
 B) Daniel J. Benor, *Spiritual Healing, Scientific Validation of a Healing Revolution*, Vol I, (Vision Publications, Southfield, MI, 2001). Dr. Benor's book assesses and rates 'early' research done on the healing aspect of subtle energies. Together with Volume II, it is the most comprehensive effort of its kind, identifying exploratory efforts that 'pay off' by opening new lines of investigation that are followed up with more and more thorough, well-designed experiments. Dr. Grad's ratings indicate consistently productive research. See pp. 7, 42-43, 201, 295-298, 317-319, 322, 326, 328-329, 345-346 for specific instances of his work and influence. In the context of this paper Reich's orgone work, von Reichenbach's 19th century work on 'Od energy', and torsion physics appear to be exploratory perceptions of various aspects of the same phenomena.
 C) Richard A. Blasband, *The Orgone Energy Accumulator in the Treatment of Cancer in Mice, Subtle Energies & Energy Medicine*, V. 20, No. 2, pp. 7-14.
 39. At the 2004 seminar in Portland, Maine mentioned in reference 38 above, Dr. Grad discussed Reich's work with ORACs-within-ORACs. Records of this work seem to have been lost in the final destruction of Reich's papers. Reich's laboratory near Rangeley, Maine is maintained as a museum containing many of his instruments and notes. It was here that he and Grad met and established their friendship. It reflects much of his earlier life as the psychoanalyst who coined the terms 'body language' and 'sexual revolution' that have entered into everyday language, but little of his conversion from political activist to apolitical scientific explorer. My own visit there, and the 2004 seminar, gave me a deeper understanding of Reich as a complex, charismatic, driven man far ahead of his time, whose life turned truly tragic, and ended with his death in prison.
 40. Fritjof Capra, *The Web of Life*; Anchor Books division of Random House, N.Y., N.Y., Paperback edition, 1997. See especially Chapter 7, *A New Synthesis*, which describes the construction of the cell as autopoietic, i.e. through self-assembly of the particulate aspect of matter through replicative biochemistry. Yet in Chapter 10, *The Unfolding of Life*, especially pp. 220 – 226, Capra describes the arguments leading up to a conclusion: "Evidently the study of the coordinating and integrating activities of the whole genome is of paramount importance, but this has been hampered severely by the mechanistic outlook of conventional biology." Thus this paper is one more item in the effort to arrive at a more comprehensive view of bioconstruction that goes beyond biochemistry. That Capra appreciates the total interconnectedness of life is shown by his choice of his book's theme-setting poem on page xi.
 "These things we know,
 All things are connected
 Like the blood
 Which unites one family. . . .
 Whatever befalls the earth,
 Befalls the sons and daughters of the earth.
 Man did not weave the web of life;
 He is merely a strand in it.
 Whatever he does to the web,
 He does to himself.
 TED PERRY, inspired by Chief Seattle"

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