
The case for “Subtle Energy” Draft 1: 1/16/10 updated 4/8/10

“Try and penetrate with our limited means the secrets of nature and you will find that, behind all the discernible concatenations, there remains something subtle, intangible and inexplicable.” - Albert Einstein ¹

Modern physics recognizes four energetic forces: gravity and electromagnetism, which act over macroscopic distances, and the strong and weak nuclear forces, which act within the atomic nucleus.

Classical Maxwellian, Maxwellian, and non-Maxwellian (quantum potential) fields

Classical Maxwellian electromagnetism does not incorporate all of Maxwell’s original thoughts on the subject. Maxwell admired Michael Faraday, and felt his concept of an electrotonic state was worthy of study. With the aid of work by George Green, William Thompson, and George Gabriel Stokes, Maxwell found a mathematical expression that matched exactly Faraday’s concept. He developed a physical interpretation: the angular momentum of a localized electromagnetic field. Like a flywheel, the localized field would store energy, reacting with a counterforce to resist any change in angular momentum. This takes the form of an electromotive force which could drive a current.

In *The Dynamical Theory* Paper, Maxwell expressed his results in eight equations for the electric and magnetic fields. Today’s four canonical Maxwell’s equations omit electrostatic scalar potential, magnetic scalar potential, and magnetic vector potential. ²

Chen Ning Yang, of the Institute for Theoretical Physics, State University of New York, confirms that Maxwell identified his vector potential with Faraday’s electrotonic state. He also notes that the vector and scalar potentials do have measurable meaning in quantum mechanics, and should not be eliminated. ³

In 1959, Yakir Aharonov and David Bohm proposed that a moving electron can have its phase altered (ie, a quantum effect) by the vector potential of the electromagnetic field of a nearby object, without actually encountering the object or its magnetic field. Using an advanced form of electron microscope, in several sets of tests, Akira Tonomura demonstrated conclusively in 1982 and 1986 that the Aharonov-Bohm (AB) effect was real. “Physicists may differ in their interpretation of the AB effect, but no one doubts its existence”. ⁴

Aside from disenfranchisement of scalar and vector potential from standard electromagnetic theory, further complications can arise within the electromagnetic fields themselves.

Fields satisfying Maxwell’s equations (ie, EM fields) normally have their E and B vectors oriented perpendicularly (orthogonal to one another) and oscillate perpendicular (transverse) to the direction of propagation.

Maxwell’s equations lead to the appearance of longitudinal waves under some circumstances, in either plasma waves or guided waves. ⁵

A plasma is a quasineutral electrically conductive fluid which in the simplest case is composed of electrons and a single species of positive ions. ⁶ Due to its electrical conductivity, a plasma couples to electric and magnetic fields. This complex of particles and fields supports a wide variety of plasma waves, which are an interconnected set of particles and fields which propagate in a periodically repeating fashion. ⁷

Also distinct from “free-space” waves are Zenneck waves, which propagate according to Maxwell’s equations at a boundary between free space and a half space with infinite conductivity.
<http://web.mit.edu/redingtn/www/netadv/zenneck.html>

Using a self canceling electrical coil, William Hooper claimed to have identified some fundamental qualitative differences between types of electric fields distinguished by their origin. He patented a "motional electromagnetic field" which has allegedly been shown to be unshieldable. ⁸

Tortion fields

"Torsion fields" have been studied by several groups of Russian scientists for at least three decades and most of that time in secret. What are torsion fields? According to A. Akimov, these fields come in at least three types: E-fields, S-fields, and G-fields. The E, S, and G stand for Electric, Spin, and Gravity fields. The torsion field is apparently related to the quantum vacuum (?) and its emanations are considered subtle energy fields. They are separate and distinct from classical Electric, Magnetic, and Gravity fields. ⁹

Geomagnetism

Robert Becker ¹⁰ describes briefly the dynamic scope of geomagnetic energies our earth is enveloped in:

The earth's surface and the ionosphere form a resonating cavity that produces low frequency pulsations called the Schumann Resonance.

This is a set of spectrum peaks in the ELF portion of the Earth's electromagnetic field spectrum. Schumann resonance is due to the space between the surface of the Earth and the conductive ionosphere acting as a waveguide. The limited dimensions of the earth cause this waveguide to act as a resonant cavity for electromagnetic waves in the ELF band. The cavity is naturally excited by energy from lightning strikes. Since the seventh overtone lies at approximately 60 Hz, the cavity is also driven by the North American power grid. The lowest-frequency (and highest-intensity) mode of the Schumann resonance is at a frequency of approximately 7.83 Hz. Detectable overtones extend upwards into the kilohertz range. The phenomenon is named after physicist Winfried Otto Schumann who predicted it mathematically in 1952, but it was first observed by Nikola Tesla and formed the basis for his scheme for broadcast power and wireless communications (Tesla 1905). ¹¹

Solar Flares (and sunspots and prominences) shower the earth and ionosphere with charged particles, causing magnetic storms, with attendant effects of the Aurora Borealis and Australis (Northern and Southern Lights)

Every lightning flash releases a burst of radio energy which travel along the magnetic lines of force and bounce back and forth between north and south poles before fading out. (Further, lightning flashes and storms are associated with only recently discovered upper atmospheric phenomena such as "elves", "sprites", and "jets".)

The earth surface and the Ionosphere act as charged plates, building up an electro static potential of hundreds of thousands of volts.

Large DC currents flow within the Ionosphere and within the earth (telluric currents), which interact and form additional electromagnetic fields.

The magnetic field of the sun is divided from pole to pole in sections of opposite polarity so that every eight days a new section effects the earth. The transition from one to the next section induces several days of turbulence in the geomagnetic field.

In addition, the polarity of atmospheric ions has been shown to correlate with human physical and emotional health. Negative ions are believed to be healthful, while positive ions are believed to be harmful.

The US Geological Survey (USGS) recognizes earthquake lights to be a real phenomena, noting that most are white to bluish flashes or glows lasting several seconds, are associated with moderate to large earthquakes, and have been reported infrequently by observers since ancient times. "A satisfactory theory to explain EQL, however, has been elusive and is still not agreed upon. Proposed mechanisms include piezoelectricity, frictional heating, exoelectron emissions, sonoluminescence, phosphine gas emissions, and fluid injection (electrokinetics), but the most recent theory suggests that EQL are caused by separation of positive hole charge carriers that turn rocks momentarily into p-type semiconductors"¹²

Geomagnetism is described as the effect of earth's electromagnetic field. This field results from the interaction of the magnetic core of the earth and the ionosphere, and varies as the moon revolves around the earth, and as the earth revolves around the sun.

Lightning as well as the aurora and ionosphere form plasmas¹³. It has also been suggested that the earth's core may be plasma like.¹⁴ Longitudinal resonant standing wave patterns are formed by waves confined within a cavity.¹⁵ Therefore the Schumann resonance is a standing EM wave. Therefore living things appear to be immersed in a sea of non-classical electromagnetic radiation.

Biological "Electromagnetism" (Biomagnetism) and Quantum biology

Electromagnetism has been scientifically recognized as a force within living systems. Work by Harold Saxton Burr, E. J. Lund, Robert O. Becker and others leads to the conclusion that organisms tend to express quasisystemic electric changes when perturbed, and, conversely, will tend toward wellness either through endogenous repair currents or the application of equivalent external currents.¹⁶

Over forty years, from 1916 to 1956, Harold Saxton Burr published, either alone or with others, ninety-three scientific papers on this subject.¹⁷

Measurements were made with a vacuum tube microvolt meter, so Harold Saxton Burr's "L fields" were electromagnetic phenomena. The voltage measurements he used are not doubted, but the scientific community ignored Burr's term "L-field" and his interpretation of the field as a *blueprint-like mold for all life*. The scientific community seemed to think that all electromagnetic fields were the same, which we know is not the case.

<http://en.wikipedia.org/wiki/L-Field>.

In the early 1990s, Cyril Smith experimentally demonstrated that vector potential fields, ignored by standard electromagnetic theory, can produce macroscopic effects by imprinting water with coherent information.¹⁸

Smith proposes biocommunication between organisms in the presence of light and a weak electromagnetic field. He suggests that this unseen information transfer is accomplished by the macroscopic systems relying on photon exchange in the presence of magnetic vector potentials. His theory has clear links to Popp's concept of biophotons.

<http://www.nutrienergetics.com/tech-quantum-biology.html>

Quantum fields have also been associated with living systems. Matti Pitkanen, a Finnish theoretical physicist, has proposed that many principles of quantum physics can be applied to biological systems. He suggests that information transfer in biology takes place via superconductive pathways, and that electrons and photons are the carriers of this information.¹⁹ This work was supported by experiments performed by Freeman W. Cope in the 1970s. Cope produced pivotal work linking physics and biology, and developed a solid-state theory of biological processes. He deduced that the activity in the cell is not just electrochemical, and looked at the cell function as if the organelles were three-dimensional semiconductors. His theory suggests that all the structures within the cell can be considered to be in a field in which there is constant interaction between all subatomic particles, not just between the charges on electrons.

<http://www.nutrienergetics.com/tech-quantum-biology.html>

Glen Rein, a quantum biologist, notes that standing waves may have both of these properties altered: Some standing waves have their E and B vectors parallel, whereas others oscillate in the direction of propagation, and are called longitudinal waves.²⁰ He notes another type of standing wave is called “force-free,” since the Lorentz force is zero. Force-free fields can be generated in plasmas,²¹ or put another way, plasma waves can also occur in force-free magnetic fields. http://en.wikipedia.org/wiki/Longitudinal_wave. There are also time reversed waves (classical fields travel forward in time), solitary waves, and tachyon energy. Physicists use the term non-Maxwellian, non-Abelian and non-dispersive.²² Rein uses the inclusive term “quantum potential field” to refer to any of these fields, which he calls subtle energy fields. The idea of quantum potential was introduced by David Bohm.²³

Coils and healing in biological systems

Mobius and Caduceus coils are self canceling, and are described in sources as producing alleged “scalar wave” (some web refs) These coils are said to produce beneficial effects of on biological systems

Rein notes that the first application of self canceling coils was by Nikola Tesla, whose magnifying transmitter used two spiral coils where the oscillations were phased to generate opposing EM fields.²⁴ Tesla demonstrated that such coils could transmit energy over long distances without losses.²⁵ Tesla proposed that longitudinal waves were produced, and used the term non-Hertzian to describe this new energy field because it did not behave according to standard Maxwellian EM theory. Tesla’s coil designs worked by producing a broad spectrum of high frequency emissions which appeared to create beneficial resonance conditions with living tissue.

Dr. Gustave Kolischer stated at the American Congress of Physical Therapy in New York on September 6, 1932, “Tesla’s high frequency electrical currents were bringing about highly beneficial results in dealing with cancer, surpassing anything that could be accomplished with ordinary surgery.”

Russian radio engineer Georges Lakhovsky used unique antenna designs with this technology, and he is said to have worked in Paris with doctors successfully curing cancer in the 1930s. he also immigrated to the US, and received patents for his medical applications.²⁶

Rein found that the output of a self canceling bifilar coil canceled the magnetic field and vector potential, yet whatever else was left, which he calls a quantum field and which he terms subtle energy, produced a small increase in UV absorption in water. from this Rein concludes that quantum fields exist in the radiations of such coils; are distinct from B (EM) and A (potential) fields, and are able to induce a measurable macroscopic effect on water.²⁷

Rein’s quantum field seems to correspond to the “scalar wave.”

Rein’s Quantum Energy Healing Model proposes that the human bio-energy field is composed of at least three types of fields: EM, potential, and quantum fields. beqf

Rein assumes that the quantum field exist in this higher dimensional level, and proposes that healing information originates at the most fundamental level in the implicate order, that of spirit.

Bohm’s implicate-explicate order somewhat corresponds to a spectrum of subtle energies, though for Wilber Prana is implicate to matter while for Rein, potential fields are implicate to the explicate electromagnetic field, in a nested series of “subtle energies.”

Higher dimensional energy fields have been characterized by Elizabeth Rauscher as being complex; ie; they have a real and imaginary component. (Rauscher, 1968). Seiki also used the concept of complex numbers in describing the imaginary components of quantum fields generated from mobius coils. (Seiki, 1990). Imaginary particles are a part of quantum physics according to Dirac, although the energy fields associated with such particles is not part of mainstream quantum physics.²⁸

Dr. William Tiller finds that human consciousness; that is, human beings, can generate a physical space "conditioned" by subtle energy, that this subtle energy is related to the magnetic vector potential of classical electrodynamics, and that this subtle energy may result in psi phenomena. The conditioned space effects material properties globally, throughout the room, resulting in oscillations in air and water temperature, pH, and electrical conductivity of water. All exhibit the same Fourier spectral components and are in freq range of 10-2 10-3 hz.²⁹

Glen Rein also notes that mobius and caduceus electrical coils, which result in a canceling of the electromagnetic field, result in local anomalies with respect to energy, temperature, inertia, mass and gravity measurements.³⁰

According to Rein, even though classical potentials produce physical effects, they are not considered "real", because they are not gauge invariant. This has caused several responses from physicists: Some have modified Maxwell's equations to produce gauge independent potentials. New mathematical expressions can also be used to describe potentials, which also describe energy fields with unique properties. A third approach has been to decompose classical potentials into more fundamental components. Thus, classical potentials can be further decomposed into "super-potentials" and super-fields". These are often used in supersymmetry field theories and string theories. Super-potentials and super-fields have unusual global properties associated with negative energy states of subatomic particles.³¹

Being electromagnetic in nature, biological organisms have been shown to be sensitive to the complex processes of geomagnetism, discussed above. The extent of this sensitivity has not been completely determined. Human brainwaves, for example, are entrained by the Schumann resonance.

Biological organisms are also sensitive to the electromagnetic smog produced by human electronic technology.

Subtle Life Energies

The history of human experience also recognizes energetic forces, which seem to reside most importantly within living systems. Common to many of the world's wisdom traditions is the idea of a spectrum of energies and consciousness. Ancient Indian spiritual tradition, over 5000 years old, speaks of a universal energy called Prana, the breath of which gives all living things life. The Chinese, in the 3rd millennium BC posited the existence of a vital energy they called Ch'i. This Ch'i is said to contain two polar forces, yang and yin. Kabbalah, the Jewish mystical theosophy of 538 BC refers to Astral Light, which may manifest around people.³²

The human energy field, according to these ancient traditions, includes an etheric, astral, causal, and spiritual level.

A universal energy, perceived as a luminous body, was first recorded in western literature by the Pythagoreans about 500 BC. Paracelsus called this energy "Illiaster", and said it was composed of a vital force and vital mater.

In the 1800's, Baron Karl von Reichenbach made a fortune in iron, steel and metallurgy. In 1839 he retired, devoting himself to scientific research. He accumulated an abundance of experimental evidence on a force he called Odyle or Od. This force was distinct from heat, electricity, and magnetism, and he believed it was

the one recognized by the ancients. This force had polarity, and it could also be conducted by metals, glass, resin, silk, and water.

The Eeman relaxation circuit, or biocircuit, developed in the 1920s, consisted of two units; each unit consists of a copper handle attached to a copper screen by a length of wire. The copper screens are placed under a reclining subject's head and pelvis, and the copper handles are held in the subject's hands. A length of copper wire connecting the two screens completes the Optimal Eeman biocircuit. When polar opposites are connected together, whether within one subject, or between two or more subjects, the effects noted include greater relaxation, recovery from fatigue and disease, greater capacity for work, and better health.³³ Eeman received a U.K. Patent around 1922 for his bio-circuit device.³⁴ In 1991, an article *A Double Blind Study of the "Biocircuit," a Putative Subtle-Energy-Based Relaxation Device* appeared in the ISSSEEM Journal *Subtle Energies*, and has been quoted in professional literature sources.³⁵

In 1938, Dr. Aubrey Westlake retired early from general practice to devote complete attention to identifying what was responsible for the healing process, and how that process could be accelerated. He investigated Bach's vital force in flowers, radionics, Reichenbach's Odyle force and Reich's Orgone energy. He believed the healing power in all these methods was the same. Westlake was impressed by Eeman's new science of biocircuitry. Because Reichenbach found that silk conducted his Odyle life force, Westlake suggested that Eeman substitute silk pads for the copper ones he had been using.

Earlier Eeman had found that his copper biocircuit continued to work, even when the copper wire was cut and placed on glass. The energy was conducted by the glass. In 1949 Eeman tried the silk biocircuit and found that it was superior to copper as a conductive medium. Thus, the energy conducted by the biocircuit is similar to the energy described by Reichenbach.

Eeman worked with cooperative biocircuits, where multiple people, each with a complete biocircuit, are "wired together" into a larger group circuit. Eeman concluded that if one member of a cooperative circuit displayed an "abnormal physical factor", the other members reacted in a similar manner. Eeman theorized that a subject in a circuit radiated the equivalent of a "carrier wave."

Eeman found that when he dissolved aspirin in water and placed this in a biocircuit with a febrile patient, the fever would be reduced. He speculated that any agent placed in a circuit would influence a circuit's members with its frequency. Controlled experiments with drugs were performed, which validated the effects of drugs being communicated through the biocircuit.³⁶

Eeman also found that members of a cooperative circuit were able to send and receive thoughts more easily. Eeman conducted numerous telepathy tests with receivers in and out of a biocircuit, and concluded that the relaxation circuit fostered telepathic reception.³⁷

Peter Lindemann carried on biocircuit research in the 1960s, largely, as in Eeman's case, in search of relief from a specific health problem. Of Eeman's drug circuits, Lindemann concluded that "the relaxation circuit must be able to carry detailed vibrational information" ...

Lindemann wanted to communicate with his energy body directly, so he could discover and supply the healing information that would actually relieve his symptoms, and he considered trying radionics.³⁸ Although the drugs used in Eeman's drug experiments were not identified, radionics practitioners, using radionics devices, consistently identified the drugs' effects on the subjects' glands and organs.

The practice of radionics is illegal in the US. From both a common sense and mechanistic-scientific perspective, it does not do anything "real." In radionics, a vibrational frequency is assigned to almost everything. Radionics electronics devices are not hooked up to anything that logically effects anything else, and in some cases the knobs are not connected to anything. Lindemann found however, that radionics worked well for him while he was in the biocircuit, enabling him to "dial in" a frequency which decreased his symptoms dramatically.³⁹

Lindeman's explanation summarized: "Many people agree the power of the mind is central to healing. Malcolm Rae, among radionics theorists, has even called radionics devices 'thought simulators.' The radionics device is an objective vehicle through which abstract information can be symbolically expressed. In the biocircuit there is a subtle transfer of information that the radionics device responds to. The radionics device seems to be able to speak effectively through the biocircuit to the body's cellular intelligence."⁴⁰

This process, which he terms "vibrational grafting", does not depend on radionics. It could include anything introduced into the biocircuit, including drugs, herbs, homeopathy, cell salts or even flower and gem essences.⁴¹

Lindemann described 'vibrational grafting' as a way of conversing directly with the body's DNA.⁴² The insight is that all remedies are made in the body by the DNA. Vibrational modalities including radionics, are merely a means of activating information already in the DNA.⁴³

In his early career a distinguished Freudian analyst, Wilhelm Reich searched for physical evidence of the "life force", (as he called it). His research led him to announce that he had identified this universal energy, which he called orgone, and that it could be accumulated in boxes made of alternating layers of organic and inorganic materials. Peering into the darkness within such boxes, a dull green dance of energy could be seen, moving in characteristic spiral formations. When Reich claimed that this accumulated orgone could be used for weather control and healing, he brought the full wrath of orthodoxy down onto his head, and he died in an American jail in 1957.⁴⁴

Reich suggested that physical materials would either absorb or reflect this bioenergy. He used this principle to build an orgone accumulator in 1940. He classified organic materials as absorptive and metals as reflective, and found that reflective materials are conductors, and organic materials insulators. Silk, although organic, functions like a conductor of this energy.⁴⁵

Leslie Patten, author of *Biocircuits: Amazing New Tools For Energy Health*, recruited Thomas Hirsch, a psychic healer, to describe the energy flow through subjects in copper and silk biocircuits. He observed three distinct phases with both: an intensification of imbalances, a stable polarization of the energy, and, an energy surge which gradually disappears. The copper biocircuit energy was greenish blue, and the effect more mechanical; the energy of the silk was bluish white, and seemed more "conscious". Thomas felt the silk was engaging a subtler energy. This corroborates the general observation that copper is good for mechanical obstructions, while silk is the choice for higher level work.⁴⁶

In general, the observations of Jack Schwarz, N.D., a documented psychic,⁴⁷ agreed with those of Hirsch.⁴⁸

Earth Energies

A wide body of literature exists on earth energy grid theory, which falls under the heading of pseudoscience. This earth radiation is a theoretical geophysical phenomenon described primarily by the German authors Manfred Curry and Ernst Hartmann. They both describe a mystic force field (similar to Odic force, Mana, Qi) that covers the earth at regular intervals and can be detected by dowsing using a divining rod. It is not supposed to be detectable by common scientific instruments. Placing people or other living things in certain spots of the earth radiation knots is believed to be beneficial/harmful depending on radiation flow direction. It connects to the Gaia philosophy and vitalist school and is very popular in certain New Age circles in Europe, especially in Germany.⁴⁹

Closely related to the concepts of the Curry and Hartmann grids is feng shui, the ancient Chinese skill of keeping a balance of forces in the land. When building or planting, or altering the landscape in any way, the traditional Chinese aim to balance the forces of yin and yang, the two counter-balancing forces of the universe. For example, hills and mountains are pictured as dragons, full of yin, while valleys are seen as tigers, embodying the balancing yang force.⁵⁰ The goal of the grids, as well as feng shui, is to access the "good" energy, and avoid the "bad".

Becker and Hagens, building on the work of Ivan P. Sanderson, developed a planetary grid system with the earth represented by a 120 point polyhedron [the Unified Vector Geometry 120 Polyhedron] . Sanderson provided the baseline structure by locating *vile vortices*, or areas of the Earth where mysterious disappearances, mechanical failures and other anomalous phenomena were seen to occur. Dr. Lefors Clark has contributed to the energetic interpretation of the map, introducing such concepts as the "diamagnetic energy vortex". The creators of this map see it as describing the "matrix of cosmic energy" that encircles the Earth. ⁵¹

Are all of these notions delusional, or at best misconceptions?

Earth Energy at sacred sites

Certain ancient human sites, including ancient mounds, burial places, prehistoric standing stones, and old churches, have been shown to have a relatively high energy content. This has usually been due to higher than background levels of electromagnetic and or weak force (ie radioactive) energy content at these sites.

In 1978, Paul Devereaux formed the "Dragon Project" To study "earth energy" at sacred sites. The name was taken from a Chinese symbol for terrestrial currents. Using scientific monitoring, this project has concluded that the location of stone circles in Britain, and apparently many monuments around the world, are in close proximity to geological faulting. Magnetic anomalies, including low level periodic magnetic fluctuations in specific stones; and permanent magnetism of certain rocks due to high iron content were discovered. Natural radioactivity, especially high concentrations of radon, also occurs at a number of sites. Ultrasound energies were detected at the RollRight Stones, a megalithic site 20 miles NW of Oxford, England. Project researchers reported unusual visions, which Devereaux speculates may have been caused by mild hallucinations. He and his co-workers believe megalithic builders could sense these energy fields, and colocated their building projects with them. ⁵²

In his book *Earth Lights Revelation*, ⁵³ Devereaux argues that earthquake lights represent a new type of energy. He also notes that it is interesting that certain prehistoric mounds were also constructed from alternating organic and inorganic layers, much like Reich's orgone accumulators. ⁵⁴

John Burke has argued that humans were able to amplify the natural background electromagnetic energy levels occurring at ancient sites. ⁵⁵

In 1922 Alfred Watkins discovered what he perceived to be a linear alignment in the position of ancient mounds, burial places, prehistoric standing stones, and old churches. There had long been an idea that there was some other significance to the Ley system; that perhaps they were aligned with magnetic forces. ⁵⁶

Allegedly, some ley lines points (ie, the intersection of Ley lines) possess higher magnetic energy than the average. ⁵⁷ However, the intersection of Ley lines, which included all manner of structures including megalithic stone sites, burial mounds, and churches, could themselves account for any higher magnetic energy they might possess, without dependence on the Ley lines. Further, the significance of the ley lines themselves as marking energy routes is severely challenged by the fact that the Ley lines themselves appear to be random. It has been found that 80 four point alignments can be found in a set of 137 random points. ⁵⁸

Some connect the energy associated with the Curry-Hartmann lines with the geomagnetic Schumann resonance and telluric currents, which are detectable by scientific instruments. ⁵⁹

Earth Energy and Consciousness

Michael Persinger is a cognitive neuroscience researcher and professor at Laurentian University, Sudbury, Ontario Canada. Persinger has argued that the temporal lobe of the human brain is sensitive to electromagnetism, having conducted numerous experiments subjecting volunteers to temporal lobe stimulation which produced a variety of hallucinations. He has proposed a tectonic strain theory which

asserts that areas of fault activity produce electromagnetic fields which may induce hallucinations. One criticism of his theory questions why man made electromagnetic fields do not cause such hallucinations.⁶⁰

Relationship of science based biological energy fields to the biological energy fields of human experience.

Glen Rein believes that potential fields may be considered a bridge between quantum and EM fields. Quantum fields are similar to those described in quantum field theory, and by David Bohm's "subtle information fields". Classical EM fields exist at the level of Bohm's explicate order, which has imbedded within it the potential field, which in turn has imbedded within it the quantum field. "According to Bohm the implicate order is composed of a series of levels, each imbedded within the next, where each level is increasingly more subtle and fundamental. According to Rein, if one adds to this model the quantum physics of hyperspace, eventually a subtle level will be reached which is higher dimensional. These could correspond to the multiple subtle energy levels of the human chakra system; etheric, astral, etc.

Ken Wilber sees the quantum vacuum as prana, which gives rise to matter. He believes David Bohm's concept of a single implicate and single explicate order was too simplistic. For Wilber Prana is implicate to gross matter; etheric is implicate to prana; astral is implicate to etheric, etc. According to Wilber, Bohm later added several epicycle orders to his theory, including "super-implicate" and "beyond super-implicate" orders, supposedly all based on physics.⁶¹ He also believes that the etheric, astral, and psychic fields are part of the manifest realm, as is the quantum vacuum (prana) and so they are the proper object of study of science (as "subtle energies").⁶²

Summary and questions

A body of scientifically based research exists

The magnetic vector potential produces macroscopic physical and biological effects.

A scientific basis for biological energy fields has been firmly established, both electromagnetic and quantum.

Rein's Quantum Energy Healing Model proposes that the human bio-energy field is composed of at least three types of fields: EM fields, potential fields, and quantum fields. **beqf**

Many different forms of electromagnetic fields exist, and many of these are not represented by the four equations of classical electromagnetism. To say then that geomagnetism, as well as biomagnetism, which is also subject to the complexities of geomagnetism, is "just" electromagnetism, misses the mark. In geomagnetism for example, lightning as well as the aurora and ionosphere form plasmas. It has also been suggested that the earth's core may be plasma like. Thus, these forms of geomagnetism may be non Maxwellian.

The history of human experience also recognizes biological energetic forces; prana, chi, Paracelsus' "Illiaster," Reichenbach's odyle, Reich's orgone; the subtle energies of the human chakra system. These may or may not be related to the science based biological energy fields, but Reichenbach's odyle energy has a counterpart in the bio energy amplified by Eeman's biocircuit, as both may be conducted by glass and silk as well as metal. The quantum vacuum, as well as Bohm's levels of explicate and implicate may correspond to the etheric, astral, causal bodies of the human energy field.

Classical Potentials as well as "quantum fields" can produce macroscopic effects on water, which in turn could influence human health.

Electromagnetism can be produced in a number of different forms. Electromagnetism, potential and quantum fields can be produced artificially (in coils) Do these artificially produced forms occur in nature?

potentials and quantum fields, as well as alternative forms of electromagnetism could be considered "subtle energy."

Geomagnetism associated with plasma formations, such as the aurora and lightning, appear to be non Classical. The Schumann Resonance, which envelopes the geosphere and all life, is a standing wave (so what?)

The human temporal lobes appear to be selectively sensitive to "electromagnetism". Could they be selectively sensitive to potentials and quantum fields, as well as alternative forms of electromagnetism?

Bohm's implicate-explicate order somewhat corresponds to a spectrum of subtle energies, though for Wilber Prana is implicate to matter while for Rein, potential fields are implicate to the explicate electromagnetic field, in a nested series of "subtle energies."

Do the higher levels (etheric, astral, etc) reside in non-living as well as living systems, or are they specific to life, or to consciousness? Is consciousness specific to life?

Can the technological healing energies be coorelated to the life energies?

Non-Maxwellian: does not obey Maxwell's equations: which equations? Maxwell's EM?
Can a field not obey Maxwell's EM equations, but still be "EM"?

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bio-information perspectives

To integrate:

effect of stored subtle energy on DNA

Conformational Changes In Human DNA

Characterize The Radiated Energy From The Aulterra Formulation

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[This paper promotes a commercial product, however, the introduction provides interesting general information]

Introduction:

Information content associated with both classical and non-classical (subtle, non-Hertzian, scalar) electromagnetic energy can be stored in physical objects. These objects include water (Rein, 1992, Schwartz, 1991), geometric patterns (Rein, 1997), electronic circuits (Dibble & Tiller, 1999) and even paper (Omura, 1990). For water and electronic circuits, preliminary evidence suggests that the stored information can be subsequently retrieved or utilized by biological systems, thereby producing a biological effect. In this sense these objects have a memory of the information stored within them. Although long-term storage of information in physical objects is considered an anomaly in the eyes of traditional science, it has been demonstrated experimentally.

The author's own research in this area has demonstrated that subtle energy generated from "free energy" devices and those associated with human intention can be stored in water for several months if the optical properties of water are measured using a special form of ultraviolet (UV) spectroscopy (Rein, 1992). Furthermore, the stored energy is biologically active when the water is exposed to a variety of biological systems (Gagnon and Rein, 1990). One of the biological targets

used in these studies was the DNA molecule. In addition to these responses to stored or imprinted energy, DNA has been shown to act as an antenna for other forms of subtle energy (Rein, 1994a, 1996, 1997). Thus, it has been discovered that in addition to classical EM fields (Semin, 1995), subtle energy resonates with the DNA molecule and causes physical changes in its secondary structure (winding and unwinding of the helix).

<http://www.toolsforwellness.com/75339-study.html>

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What is hFM?

hFM stands for heart-guided Frequency Modulation. In vibrational medicine, there are what are called **frequency windows** of specificity, in other words certain frequencies / wavelengths that can **jump-start** or unlock the natural healing potential present in our body-minds. For whatever reason, that connection and healing capability can *contract* or *armor* itself when faced with various traumas and life situations. Vibrational techniques excel at unlayering and revealing truer parts of ourselves.

In sound and electromagnetic modalities, frequency generators of various types have had a long history of use. For an excellent overview of this, see James Oschman's book, [Energy Medicine - the Scientific Basis](#).

[HIGS](#) stands for Heart Intelligence Guidance System, a way of reading out information from the intelligence and wisdom source present in the heart and pulse. It is an extension and further development of the work of Dr. Paul Nogier, who invented a system of pulse reading (in the 60's) known as the VAS, Vascular Autonomic Signal.

Heart Intelligence Guidance System: seems to be a lightfield.com concept

<http://www.lightfield.com/hfm.htm>

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Appendix

Qi fields

From the book *Subtle Energy* by John Davidson [CW Daniel Company 1988]p. 92:
Ball Lightning and Particle Spin: The research of Dr. Geert Dijkhuis, director of a Rotterdam based company, has centered on the artificial creation of ball lightning. He was able to produce a 10cm ball lasting 1 second, and wants to increase the time duration.

¹ http://en.wikiquote.org/wiki/Albert_Einstein

² Vector Potential RAH

³ *Vector Potential, Gauge Field and Connection on a Fiber Bundle*

<http://qhxb.lib.tsinghua.edu.cn/myweb/english/98n1/980101.html>

⁴ Proceedings of the National Academy of Sciences: Profile of Akira Tonomura

⁵ In working with Maxwell's equations, Oliver Heaviside came to the conclusion that electromagnetic waves were not to be found as longitudinal waves in "*free space*" or homogeneous media.

http://en.wikipedia.org/wiki/Plasma_wave

⁶ It may also contain multiple ion species including negative ions as well as neutral particles.

http://en.wikipedia.org/wiki/Plasma_wave

⁷ Waves in plasmas can be classified as **electromagnetic** or **electrostatic** according to whether or not there is an oscillating magnetic field. An electrostatic plasma wave must be purely longitudinal. An electromagnetic plasma wave, in contrast, must have a transverse component, but may also be partially longitudinal.

http://en.wikipedia.org/wiki/Plasma_wave

⁸ <http://www.tfcbooks.com/mall/more/566-mef.htm>

Hooper also proposed that self canceling EM coils can cause a weight change of objects placed underneath . effects due to "motional field" NASA study shows no weight change:

http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19950022472_1995122472.pdf

Hooper: "Equivalence of the Gravitational **Field and a **Motional field****

<http://www.rexresearch.com/hooper/horizon.htm>

⁹ Now Come Torsion Fields: original website: www.padrak.com/ine/NEN_5_11_2.html

¹⁰ The Chapter "Breathing with the Earth", in the book "The Body Electric: Electromagnetism and the Foundation of Life" By Robert O. Becker, M.D., and Gary Selden. Quill Books, William Morrow and Co., Inc 1985

¹¹ <http://www.crystalinks.com/grids.html>

¹² <http://earthquake.usgs.gov/learn/faq/?categoryID=8&faqID=103>:

- Freund, Friedemann T., Rocks that Crackle and Sparkle and Glow: Strange Pre-Earthquake Phenomena. *Journal of Scientific Exploration*, 17, no. 1, p. 37-71, 2003.
- St-Laurent, France, and Freund, Friedemann T., Earthquake Lights and the Stress Activation of Positive Hole Charge Carriers in Rocks. *International Workshop on Seismo Electromagnetics (IWSE)*, 2005

¹³ <http://www.plasma-universe.com/Plasma-Universe.com>

¹⁴ <http://www.wincom.net/earthexp/n/owen.htm>

¹⁵ http://en.wikipedia.org/wiki/Longitudinal_wave.

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- ¹⁶ <http://www.liebertonline.com/doi/pdf/10.1089/107555304322848940> Journal of Alternative and Complementary Medicine Vol. 10 Number 1 2004 pp 41-47.
- ¹⁷ http://www.bio-plasmics.org/xdevices/pulsar/dr_harold_saxton_burr.htm.
- ¹⁸ Glen Rein *The Biological Effects of Quantum Fields* www.item-bioenergy.com/infocenter/BiologicalEffectsofQuantumFields.pdf on Cyril Smith. See Dowsing: **magnetic vector potential** <http://www.thefreelibrary.com/Dowsing+as+a+quantum+phenomenon-a0163395919>
Dowsing as a quantum phenomenon. By Cyril Smith, pub. Frontier perspectives
- ¹⁹ Superconduction of biomolecules was confirmed by Frohlich, Popp, and Smith in the 1980s. Popp also demonstrated that EM fields emanating from the body (and their particle counterpart, biophotons) occur at the quantum level, and are coherent. **Beqf.**
- ²⁰ Rein BEQF
- ²¹ Rein BEQF
- ²² Rein BEQF
- ²³ Glen Rein: BEQF Bohm (1975)
- ²⁴ Glen Rein BEQF (Sector, 1916).
- ²⁵ Glen Rein BEQF (Tesla, 1904).
- ²⁶ <http://issseem.org/onlinedocs/Maret-Karl-EnergyMedicineinAmerica-July-09.doc.pdf>
- ²⁷ A bifilar coil, using more simplified geometric windings, was used to determine the relative roles of quantum, potential, and EM fields. William Tiller of Stanford provided calculations for the strength of the magnetic (B) and vector potential (A) fields. Both were found to be very small. 10-12 for B and 10-14 for A. The primary field present then, was the quantum field. Glen Rein BEQF
- ²⁸ Rein BEQF
- ²⁹ Some Science Adventures in Real Magic by William Tiller, Walter E. Dibble, and J. Gregory Fandel
- ³⁰ Glen Rein :Aspden, 1991
- ³¹ Rein BEQF
- ³² Barbara Brennan *Hands of Light* p. 29 f.
- ³³ Leslie Patten *Biocircuits: Amazing New Tools For Energy Health* p. 42 f.
- ³⁴ <http://www.freepatentsonline.com/5458142.html>
- ³⁵ Isaacs, J. Patten, T. (1991). A Double Blind Study of the "Biocircuit," a Putative Subtle-Energy-Based Relaxation Device. *Subtle Energies*, 2(2). http://www.issseem.org/storejournals_detail.cfm?articleid=17
See American Psychiatric Association Annual Meeting Course: Intro to Neurofeedback, San Francisco May 19, 2003
XV. Literature References http://tbrod.bol.ucla.edu/courses/Intro_to_Neurofeedback.html
- ³⁶ Patten P. 78 f.
- ³⁷ Patten P. 130.
- ³⁸ Patten P. 159.

³⁹ Lindemann speculated that radionics might be a useful tool for reading his disease and providing a remedy. He wired a radionics device into a reclining chair equipped with a biocircuit, and dialed in the radionics frequency of herpes simplex, which was causing him painful symptoms. When he was in the biocircuit, the device confirmed the presence of the same frequency in his system. When he dialed up on the radionics device to be treated for that frequency, he immediately felt a powerful shift in his energy field. His herpes symptoms diminished dramatically. Patten P. 159 f.

⁴⁰ Patten P. 161.

⁴¹ Patten p. 163.

⁴² Lindemann's colleague, Marty Martin, found that if for any reason the RNA function of the body is depressed, radionic treatments always failed. By first stimulating the RNA with a specific treatment, all radionics treatments became effective. Patten P. 164.

⁴³ Patten P. 164.

⁴⁴ Places of Power by Paul Devreux
Blandford Press 1990
Pg 21

⁴⁵ Patten P. 48.

⁴⁶ Patten, P. 60.

⁴⁷ For over 30 years, Swartz has been considered an authority on human energy systems and voluntary control of ordinarily involuntary biological functions. His paranormal abilities have been studied at the Menninger Foundation, Langley-Porter Neuropsychiatric Institute, and Stanford Research Institute.

⁴⁸ Patten P. 61.

⁴⁹ <http://www.crystalinks.com/grids.html>

⁵⁰ <http://encyclopedia.farlex.com/Feng+Shuei>

⁵¹ <http://www.crystalinks.com/grids.html>

⁵² Paul Devereux *Secrets of Ancient and Sacred Places* Blandford UK 1992; *Mystic Places*, a Time Life Book

⁵³ Paul Devereux, *Earth Lights Revelation: Ufo's and Mystery Lightform Phenomena The Earth's Secret Energy Force*

⁵⁴ John Mitchell, in his book *The New View Over Atlantis* 1969 notes: "It is difficult not to suspect that this form of energy [orgone] was known and controlled in prehistoric times. Many of the greatest works of the megalithic builders involved the construction of a hidden chamber set deep within the earth or at the heart of some great artificial edifice. . .The chamber itself is lined with stone covered with a layer of turf and with successive layers of clay and sod. These layers are carefully built up, different types and colours of clay being used at each stage. Finally the whole structure is buried under a great mound of earth." Places of Power by Paul Devreux pg 21.

“Dr. Wilhelm Reich called it ‘orgone energy’. - It provides the medium through which magnetic and gravitational forces manifest their influence. - This energy could be trapped or accumulated by the construction of a chamber lined with some inorganic material and covered on the outside with alternate layers of organic and inorganic matter. Many of the greatest works of the megalithic builders involve the construction of a hidden chamber set deep within the earth, or at the heart of some great artificial edifice. - different types and colours of clay being used at each stage.” John Mitchell, in his book *The New View Over Atlantis* 1969

⁵⁵ John Burke *Seed of Knowledge, Stone of Plenty* 2005

⁵⁶ Danny Sullivan *Ley Lines: The Greatest Landscape Mystery*

⁵⁷ “This has been investigated and published about in sources such as *Places of power* (Paul Devereux; Blandford Press, 1990) and *Lodestone Compass: Chinese or Olmec Primacy?* (John B. Carlson: Science, 1975) among other sources. Theories of magnetic interaction at ley line points suggest to some observers that these points were used to induct energy. “:

http://www.experiencefestival.com/ley_line_-_scientific_investigation

⁵⁸ http://en.wikipedia.org/wiki/Ley_line. This random collection of lines looks a lot like the Ley lines plotted for Seattle in the 1980s. <http://www.geo.org/qa.htm>.

⁵⁹ <http://www.crystalinks.com/grids.html>

⁶⁰ http://www.absoluteastronomy.com/topics/Michael_Persinger

⁶¹ For this reason Wilber believes that Bohm professed a colossally reductionistic game that reduced the levels of biology and psychology to hidden variables in his theory of the quantum mechanics of gross matter-energy.

⁶² **Ken Wilber** believes that the scientific community which has associated the quantum world and the quantum vacuum with consciousness and spiritual potentiality and are incorrect, because the quantum world and quantum vacuum have physical properties (The vacuum has energy density). “Unfortunately, the physicists who started equating quantum realities with the Tao were simply ill-versed in the philosophical subtleties of the great traditions. Oddly, the original and pioneering physicists themselves—from Schroedinger to Planck to Einstein—refused to make that confusion—refused, that is, to identify the findings of quantum or relativistic physics with any sort of spiritual reality”. Based on the traditional wisdom of many cultures he subscribes to the two truths doctrine, which states that there exists absolute or nondual truth, and relative or conventional (ie scientific) truth, and they are of radically different orders.

<http://wilber.shambhala.com/html/books/kosmos/excerptG/part2.cfm>