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Kundalini from the Edge of Science

Jeanne Lim

Introduction

Kundalini has been a phenomenon cloaked in the mystery and myth of ancient traditions, and continues to be a subject that fascinates ancient sages and modern scientists alike. It is ironic that in the East, Kundalini is perceived as a spiritual awakening to be revered, but in the West, Kundalini has sometimes been diagnosed as a physical or psychological disorder. Lee Sannella (1987), in *Kundalini: Psychosis or Transcendence*, says the spiritual process often triggers alterations in thoughts and emotions and bodily symptoms that “result in this process frequently being mistaken for mental illness” (p. 10).

Spiritual traditions and culture play an important part in creating this dichotomy in perception and interpretation between the East and the West, but another reason is in spite of an increasing body of theories and experiential accounts about Kundalini in the West, there are no academic institutions governing and validating this knowledge, and there seems to be a lack of funding for proper research. In a survey of published information, there have apparently been many attempts in piecing together physical, mental, and spiritual interpretations of the Kundalini awakening experience, but relatively few explorations on the origin of Kundalini as energy and the actual cause of the awakening phenomenon. As a result, the Kundalini phenomenon has remained very much a mystery.

What is Kundalini?

An attempt in answering the simple question: *What is Kundalini?* Uncovered a myriad of different interpretations and definitions of Kundalini. A key problem seems to be that Kundalini is a word from Hindu scriptures and there is no real equivalent for the word in English. Even the translations of many of the Hindu texts are either incomplete or incorrect as they try to fit Eastern spiritual concepts into the Western construct.

The word Kundalini is derived from Sanskrit: *kund*, which means *to burn*; and *kunda*, which means *to coil or to spiral*. It is often described as the primordial dormant energy present in three-and-a-half coils at the base of the spine in a triangular bone called the sacrum. Kundalini is usually presented as sexual energy that is with us from birth, in either a manifested or un-manifested form. It is said that as one progresses through life, Kundalini becomes increasingly blocked and diverted from its normal path through conditioning and behavioral patterns that one memorizes consciously and unconsciously.

There are some who make references to different Kundalinis. In his book *Spiritual Nutrition* (2005), medical doctor and spiritual teacher Gabriel Cousens distinguishes three types of Kundalini: *Spiritual Kundalini*, *Shakti Kundalini*, and *Mundane Kundalini*. In his view, Spiritual Kundalini is the universal vibrational cosmic energy called cosmic prana. He says this energy condenses into a physical form and manifests as a residual cosmic energy in the body, which he calls Shakti Kundalini. In a potential energy state, it is said to be *coiled like a serpent* below the first chakra near the base of the spine. Shakti Kundalini is the potential energy that powers the energy that runs in the body, which Cousens calls Mundane Kundalini. A discernment of Kundalini energies is also made by Mary Scott (2006) referencing ancient Hindu texts. In *The Kundalini Concept*, she distinguishes *Kundalini-Shakti* or *Kundalini-Prakriti* as the specialized energy located at the base of the spine, and *Mahakundalini* (Great Kundalini) or *Kundalini-Shabdabrahman* as the cosmic force.

Kundalini rising is the theoretical construct often used to describe the forceful sensations that usually start at the base of the spine, which then progress rapidly with a powerful surge upwards through the body to the crown of the head. The full Kundalini awakening experience is said to lead to higher and more desirable states of awareness, such as mystical consciousness, and even the manifestation of paranormal phenomena.

Stripped of its esoteric connotations and symbolism, Kundalini is viewed by some as simply the life force energy that emanates from all living things. McCartney (2001) says:

Every human being has Kundalini energy within. It is an essential and vital current that animates the potential of evolutionary change . . . and because Kundalini is always present in your body, you may have already felt its power (p. 57).

This is echoed by John White (1988), who mentions “Kundalini is at work all the time in everyone, and is present from birth in mystics and seers, but in most people there is only a ‘dripping’ rather than a ‘steaming’” (p. 79).

The Source of Kundalini Energy

The Sun as the Source of Light Energy

What is the origin of Kundalini energy? In order to trace back causation to find an origin, we would first need to ask where all energy comes from. Textbook science says we receive energy from the sun indirectly by eating plants, or eating animals that eat plants. However, evidence has started to emerge that we may be able to receive energy from the sun by directly taking in the sun’s electromagnetic waves. In *Eat the Sun* (2011), a documentary about the practice of sun gazing, director Peter Sorcher portrays individuals who fasted for long periods of time and may have been nourished only by direct sunlight.

In addition, recent researches into the pineal gland may hold the key as to how we can absorb energy directly from the sun. They seem to point to the possibility that the pineal gland directly senses light energy and absorbs photons. The pineal gland is a pea-sized gland that produces melatonin, which is a neurotransmitter that is responsible for making us relaxed and putting us to sleep by enabling us to sense light and darkness. The pineal gland is called the *third eye* in spiritual traditions, and is connected with spiritual and psychic abilities. Russian scientists studying embryology discovered that a two-month old human fetus develops a third eye with photoreceptors, lens and nerve cells that are similar to the retinas. Furthermore, an article in Russian online media *Pravda.ru* (Pravdivtsev, 2005) says there seems to be a link to the pineal gland from the retina. In his book *The Source Field Investigations*, David Wilcock (2011) cites research that says the cells of the pineal gland closely resemble the photoreceptor ganglion cells (nerve cells) of the retina. Wilcock also says many sub-mammals, such as fish, frogs and birds, already detect light with their pineal glands. He also quotes A. F. Weichmann as saying that “the presence of proteins in the pineal which are normally involved in phototransduction (light sensing) in the retina, raises the possibility that direct photic events may occur in the mammalian pineal gland” (p. 58). Wilcock interprets Weichmann as saying that the cells in the pineal gland are detecting photons and sending them to the brain through phototransduction.

The retina in the back part of our eye contains two types of specialized cells called photoreceptors that respond to light. These are called rods and cones. Rods and cones are known as classic photoreceptors that convert light into

signals that stimulate biological processes and enable sight. In a landmark discovery in 2007, scientist Farhan Zaidi et al. (2007) found a non-rod, non-cone photoreceptor in humans. These photoreceptors can synchronize circadian rhythms to the twenty-four-hour light/dark cycle as well as enable sight. This non-rod, non-cone photoreceptor is a special type of photosensitive ganglion cell that responds directly to light by increasing the rate at which it fires nerve impulses. Unlike other retinal ganglion cells, these photosensitive ganglion cells are intrinsically photosensitive, which means they are excited by light even in the absence of classic photoreceptors. From these discoveries, Zaidi et al concluded that there are two parallel and anatomically distinct photoreceptor pathways: One through the classic photoreceptor located in the outer retina of the eye, the other through a non-rod, non-cone photoreceptor that seems to be activated by light first.

It also appears that the pineal gland has other interesting but not well-known functions. In *Energy Medicine: A Scientific Basis*, James Oschman (2000) says:

The pineal gland is the primary magnetoreceptor. Between 20 and 30% of pineal cells are magnetically sensitive. Exposure of animals to magnetic fields of various intensities alters the secretion of melatonin, the electrical properties of pineal cells, and their microscopic structure (p. 102).

Hence, he believes pulsations of the geomagnetic field, caused by Schumann resonance, may be detected by the pineal gland.

Light and Sound in Our Cells

Russian embryologist Alexander Gurwitsch and German physicist Fritz-Albert Popp discovered that the cells of all living beings emit a weak glow in the form of ultraviolet light. Popp and Cohen (1997) calls these biophotons, and says that although they are ultra-weak, they are highly coherent, so they have a laser-like light and quality. They believe biophoton emission connects cell, tissues, and organs within the body and serves as the main communication network and regulator for all of life's processes. In her book *The Sage Age*, MaAnna Stephenson (2008) states "this was an astounding discovery. What Popp suggested was that light, in some manner, was responsible for life" (p. 53). Physicist David Bohm says "all matter is frozen light" (McCartney, 2005, p. 217).

Popp identifies DNA as the source of biophoton emissions and calls DNA the "master tuning fork in the body" (McTaggart, 2001, p. 44). He demonstrates that DNA gives off a large range of light frequencies that would cause a variety of frequencies in other molecules of the body. From this, he postulates that different functions of DNA are performed based on different frequencies, and that cells may use light to self-repair. He also found that living organisms exchange light emitted from each other, and concludes that wave resonance is

used to communicate between living things. Also, the biophotons create a biophoton field that is described as:

A holographic field of standing waves which is able, through a broad spectrum of frequencies and polarizations and in close interplay with all material structures, to transmit signals with the speed of light to any place in the organism and to activate or to inhibit biochemical processes, to organize matter, and much more (Bischof, 2005, p. 3).

The biophoton field may well be the field that B. Rubik (1994) calls *the Human Biofield*.

How does DNA store light? Wilcock discusses findings by Russian scientist Peter Gariaev that DNA absorbs all light in its vicinity by apparently creating a vortex that attracts the light. Even more interesting, even after the DNA molecule is removed, there seems to be a force that holds the spiraling light in the same place for up to thirty days. This phenomenon is known as “The DNA Phantom Effect” (Wilcock, 2011, p. 161). Wilcock believes that the DNA molecule creates a duplicate energy field of itself within the universal energy source, which entrains the light even in the absence of the DNA. In Wilcock view, The DNA Phantom Effect means a perfect hologram of our physical body can be created. He calls this “one of the most significant scientific discoveries in modern history” (p. 162). Wilcock also reports of a phenomenon called *delayed luminescence*. When light is shone on living cells, they would “first absorb it, and then release an intense burst of new light after a brief period of time” (p. 171). Wilcock believes that the DNA has a light energy store with a given capacity; if there is too much light, it would send it back out. He posits that this is for a specific purpose--to transmit information that heals and establishes order in the body.

Even more interesting, Rein and McCraty (2001) states that coherent brain wave patterns such as those produced by intention can change the structure of DNA. Emotions such as anger, and fear, can contract or compress DNA. On the other hand, emotions such as joy, gratitude, and love can unwind or decompress DNA. Rein also found that people with coherent heart energy can wind or unwind the DNA at will, while those with incoherent heart energy cannot do so. Furthermore, it seems as if the change is effected by first energetically changing the DNA phantom, which then changes the physical DNA molecule itself.

In addition, Gariaev’s experiments show that acoustic waves radiated by DNA can also create The DNA Phantom Effect. Dale (2009) refers Leonard Horowitz’s research that demonstrates DNA actually emits and receives both photons (the energy from light) and phonons (the energy from sound). Other researchers say sound stimulates the DNA to create information signals that spread through the body, and that the primary function of DNA is “not to synthesize proteins, but to perform bio-acoustic and bio-electrical signaling”

(Dale, 2010, p. 143). Research conducted by Richard Miller shows that superposed coherent waves in the cells “interact and form patterns first through sound, and secondly through light” (Dale, 2010, p. 143).

Gariaev’s research also shows that DNA can be activated by sound, as well as can transmit sound. In an article entitled “The DNA-wave Biocomputer,” Gariaev and his associates postulate that the DNA-wave functions as a *biocomputer*. They conclude that DNA can convert laser light into radio waves by producing solitons, which are ultra stable waves, to form diffraction patterns first in the acoustic domain and then in the electromagnetic domain to create a quantum hologram, which enables the translation between acoustical and optical holograms. Gariaev also shows that sound in the form of language frequencies such as words can repair chromosomes damaged by X-rays. He concludes that the “DNA can be activated with linguistic expressions, such as mantras, affirmations, or other meaningful sounds, like antennae. In turn, this activation modifies the human bioenergy field that transmits radio and light waves to bodily structures” (Dale, 2010, p. 143).

The Universal Energy Source

Many scientists believe the vacuum of the universe, including the vacuum within our cells, is not empty at all. Quantum scientists also hold that there is a pervasive sea of quantum energy in the universe. Nobel Prize winner and father of quantum theory Max Planck, in a 1944 speech given in Florence, Italy, stated:

All matter originates and exists only by virtue of a force which brings the particle of an atom to vibration and holds this most minute solar system of the atom together. We must assume behind this force the existence of a conscious and intelligent mind. This mind is the matrix of all matter.

This universal energy provides a scientific basis and validation of the belief in many spiritual traditions that we are connected to each other and to a universal consciousness. It is likely this energy that has been known for thousands of years in many ancient spiritual traditions. In an article entitled: “Senses, Filters, and Sources of Reality,” Robert Jahn and Brenda Dunne (2004) postulate the existence of a source of reality that they call *source* but which has been given different labels in different cultures. They identify these labels as: “*tao, qi, prana, void, akashic record, unus mundi, unknowable substratum, terra incognita, archetypal field, hidden order, aboriginal sensible muchness, implicate order, zero-point vacuum, ontic (or ontological) level, undivided timeless primordial reality*” (p. 4). Contemporary theorists and researchers used other names to describe the universal energy source. These include *The Field* by Lynn McTaggart, *The Source Field* by David Wilcock, and *universal consciousness* by quantum physicist Amit Goswami, *quantum plenum* by Mark Comings. This is

also likely to be the *collective unconscious* described by Carl Jung and the *morphogenetic field* of Rupert Sheldrake. It may even be the *unified field* that Albert Einstein had long postulated but had not been able to prove. Many others call it *the zero point field*. For the purpose of this paper, I will use the term *the universal energy source* to denote this energy.

In her book *The Field*, Lynne McTaggart (2003) says the universal energy source connects all matter in the universe by waves. Citing research by physicist Hal Puthoff, McTaggart describes the universal energy source is a “repository of all fields and all ground energy states and all virtual particles--a field of fields” (p. 25). She also believes this field is the basis of the interconnectedness of all things. “If all matter in the universe was interacting with the zero point field, it meant, quite simply, that all matter was interconnected and potentially entangled throughout the cosmos through quantum waves” (McTaggart, 2007, p.13). It is believed that the universal energy source is in a state of perfect balance so that it appears as a vacuum, since all the energies cancel each other out, and that any imbalance will create a disturbance that will eventually manifest as matter. Hence, even tiny fluctuations of energy can disturb the field. Furthermore, perhaps it is the universal energy source that keeps the structure and the very existence of the atom intact. Research scientist Daniel Dzimano (2003) sheds light into how this process may occur. He cites Puthoff as saying that if an electron is orbiting too far out from the nucleus, it radiates more energy than it receives from the universal energy source and spirals inwards to the position of stability. However, if the electron is orbiting too far in, it receives more energy from the universal energy source than it is radiating, and so it moves outwards to a stable position. Dzimano believes that the stability of matter itself is mediated by the universal energy source.

The universal energy source is believed to have virtually unlimited energy. Michael Talbot (1992), in *The Holographic Universe*, quotes David Bohm that “every cubic centimeter of empty space contains more energy than the total energy of all the matter in the known universe” (p. 51). Nobel Prize physicist Richard Feynman, in his attempt to give some idea of the magnitude of the energy within the universal energy source mentions, “the energy in a single cubic meter of space is enough to boil all the oceans of the world” (McTaggart, 2001, p. 24).

What exactly is this universal energy? There is some evidence that ultraviolet light at a specific frequency may be an energy carrier of the universal energy source. Wilcock (2011) reports of experiments by Gurwitsch which demonstrate that ultraviolet light may be a signature of the universal energy source, but not the actual source itself, “much like the ripple in the surface of a lake, from a stone you just dropped in, is not the stone itself” (p. 159). McTaggart (2001) reports of an experiment where DNA can absorb and scramble ultraviolet light and send it back out at a different frequency. Popp found that cells can be

destroyed with ultraviolet light, but if they are then given a very weak pulse of the same wavelength, especially at 380 nanometers, the cells can almost completely recover in a process known as *photo repair*. Hence, Popp postulates that energy from the universal energy source is strongest and most healing at the 380-nanometer wavelength. Rollin McCraty (2003) from the Institute of HeartMath suggests that information is enfolded outside the space/time world in the energy waveforms of the universal energy source.

The Origin of Kundalini Energy

Kundalini as the Combined Light from Individual and Universal Consciousness

As discussed above, many theorists and researchers believe there is an input of energy or an energy exchange with the universal energy source at the quantum level. McTaggart (2001) postulates that our electrons may be constantly “refueling by tapping into these fluctuations of empty space” (p. 25). In *Toward a Deeper Meditation*, Edgar Cayce and John Van Auken (1992) mentions that the “virtual photon cloud is the electric field of energy and light that the mystics describe and correlate to their chakras and Kundalini energy” (p. 113).

I hypothesize that Kundalini energy originates from the combination of light energy from universal energy source and our biophotons at the quantum level. This happens when virtual photons at the same frequency manifest from the universal energy source and interact with the electrons in our body. Philip Ball, in a 2003 article in *Nature*, says that Heisenberg’s Uncertainty Principle holds that subatomic particles or photons can appear spontaneously in empty space, provided that they disappear promptly again. David Shiga, in a 2010 article published in *New Scientist*, states that physicists predicted in the 1930s “a very strong electric field would transform virtual particles into real ones that we can observe. The field pushes them in opposite directions because they have opposite electric charges, separating them so that they cannot destroy one another” (Shiga, 2010). Perhaps our biofield, which is energized by vibratory thoughts and sound, induces virtual photons to stay in the physical world permanently and interact with the electrons in our cells.

The energy input from virtual photons causes our electrons to become excited, resulting in the release of a large number of biophotons from our cells. One of the bases for this postulation is Popp’s assertion that unstable atoms in our body cause the release of light energy in the form of photons. He maintains that biophotons are constantly being emitted from our cells, but says that energy from an external energy source causes us to emit more biophotons in order to achieve an equilibrium energy state.

What is the mechanism by which biophotons are emitted? The electrons in our atoms exist in orbitals representing discrete energy states. Electrons always

first seek the nearest electron orbital, representing the lowest energy state, which is called the ground state. At the ground state, the spins of both the electron and the proton are in opposite directions. When there is energy input, in this case virtual photons at a specific frequency, electrons will absorb the virtual photon and jump up to the next orbital and enter into an excited or unstable state. When an electron *de-excites* and drops back down to lower energy states, it meets another electron in the same energy state in another atom, and another photon of the same frequency is released.

The vibration of virtual photons and biophotons at the same resonant frequency produces an intense, coherent, laser-like light that is Kundalini. Since both the triggering virtual photons and emitted biophotons are in phase, has the same polarization, and travel in the same direction, a quantum leap in light energy is produced. As a matter of fact, this is the amplification process that produces laser light. Stephenson (2008) says “a laser produces light waves that are all in phase with one another, which radically amplifies the signal, making it highly coherent. Some of this coherent light beam is fed back into the system making it even more coherent and thus more powerful” (p. 227). Oschman (2000) reports that as early as the late 1960s, physicist Herbert Fröhlich predicted that the body’s living matrix would produce laser-like oscillations. Stephenson (2008) describes an experiment in which Fröhlich applied energy to excite molecules, causing them to emit light in the form of photons. When he increased the energy input, the molecules began to vibrate in unison and eventually became so coherent that “they transmitted light as one unified antenna” (p. 81).

I believe this coherent laser-like light energy is stored in our DNA from birth, and may be considered the potential form of Kundalini energy prior to activation. However, this does not necessarily mean that Kundalini energy remains constant throughout our lives. McTaggart’s (2001) postulation that our electrons may be constantly “refueling by tapping into these fluctuations of empty space” (p. 25) may also hold true for Kundalini energy—that it is replenished through constant interaction with virtual photons from the universal energy source.

Earlier, we discussed the delayed luminescence phenomenon, where the cells first absorb light, and then release it as an intense burst of new light, and how this light is believed to contain information for healing and balancing the body. Can this be the process by which Kundalini energy is stored and released from our DNA? Interestingly, the sensing of light is often reported during spiritual experiences, including Kundalini awakening. In her book *Energies of Transformation*, Bonnie Greenwell (1988) says “experiences of light are commonly reported by mystics during extremely heightened states of consciousness, but also occur in lesser degree to meditators, and spontaneously to those in Kundalini processes” (p. 57). It has always fascinated me as to why the symbol of Kundalini is often presented as two coiled serpents.

Perhaps this symbol refers to light stored in the double helix of the DNA molecule, before it is released as a burst of Kundalini energy to heal and elevate our entire system in order that we can reach our highest potential?

I call Kundalini energy *the combined light from individual and universal consciousness* as it arises from the integration of our individual energy with the universal energy. The process integrates universal energy that spans time and space, which may be why Kundalini awakening often generate immense force through the body as well as produce a nonlocal, unitive experience.

Furthermore, Kundalini may have long-term, transformational effects. As a coherent, laser-like light, it may be strong and focused enough to change the very structure of our DNA, causing it to unwind and replicate, effecting permanent changes to our cells and our collective evolutionary path. I surmise this is the reason why Kundalini energy seems to lie dormant in us prior to activation, that is, when the photons are coiled in the double helix of our DNA; why it needs to go through an integration process after activation; and why it seems to be an energy that leads to permanent changes in our psychophysiological states.

It is also sometimes reported that Kundalini energy is individualized. Popp's research shows that DNA has the capability of absorbing ultraviolet light and sending it back out at a different frequency. Perhaps each of us, within our DNA, can scramble the light and send it back out at a slightly different frequency based on our genetic code?

I would also like to mention an alternative hypothesis of Kundalini energy that is proposed by dark energy and plasma researcher Jay Alfred. In an article entitled "Subtle Bodies and Dark Matter," he makes a bold claim that "the dark matter and energy of physicists is the subtle matter and energy of metaphysicists" (Alfred, 2007). He claims that *qi* or *prana* comes from the sun and Kundalini originates from the core of the earth, and that they are all dark energies; and eventually these energies will be explainable by science under dark matter and energy theories. From my preliminary research, there do not seem to be other researchers or sources that lend direct support to his hypothesis, so I will not attempt to discuss his theory in this paper. Nevertheless, I believe Alfred's postulation is extremely interesting and may become a credible theory with further scientific validation.

Kundalini and Other Forms of Energy

Kundalini may be only one of many universal energies we can generate, resonate with, and emit through our bodies. In fact, our DNA may contain instructions for collecting, using, and emitting different forms of energies. The genes in our DNA contain instructions for making all the different cells in our body, so it seems reasonable to consider that our DNA also contains

instructions for energies. If we assume other energies are also universal in nature and extend beyond time and space, it is likely that they all involve an energy exchange with the universal energy source. However, I postulate that there are three key differences between Kundalini and other energies: Frequency, form of interaction, and whether the energy is temporarily or permanently integrated in us.

The first point of differentiation is frequency. Frequency is defined as the number of complete oscillations per second of energy (as sound or electromagnetic radiation) in the form of waves. As Kundalini is hypothesized as a photon exchange, this postulation that Kundalini is light energy vibrating at a specific frequency is supported by the quantum theory that only photons with the same frequency can interact with each other. In 2011 article published in *New Scientist* entitled: "They Do It with Mirrors," under a principle called stimulated emission, only photons of a given frequency can trigger the emission of photons of the same frequency.

Other researchers have also found that frequency plays an extremely significant role in the biosystem all the way down to the DNA level. In his book *The Biology of Belief*, Bruce Lipton (2005) mentions that cell receptors read vibrational energy fields such as light, sound and radio frequencies, and if the receptor is attuned to the particular frequency it can alter the proteins and change the shape of the receptor. This is one of the ways our cells are impacted by the universe.

Specific frequencies and patterns of electromagnetic radiation regulate DNA, RNA and protein syntheses, alter protein shape and function, and control gene regulation, cell division, cell differentiation, morphogenesis (the process by which cells assemble into organs and tissues), hormone secretion, nerve growth and function (p. 80).

Other researchers also believe frequency is of prime importance in biological processes. Gariaev (2000) says "semantic resonances in the biosystems' space are realized not at the wavelength level, but at the level of frequencies and angles of twist of the polarization modes" (p.4).

Also, from her years of direct experience as an energy healer and educator, Francesca McCartney observes that different energies carry different color frequencies. She says Kundalini energy always carries the color of opalescent sheen, an observation McCartney uses to decode the various types of energy frequencies that are vibrating in a person's field. Since color comes in frequency bands, perhaps color is our perceptual shortcut to discern specific frequencies of electromagnetic energy.

The second point of difference between Kundalini and other universal energies is the form of interaction. In an article entitled "Bioscalar Energy: The Healing Power," Valerie Hunt (2000) describes scalar energy, which she calls *bioscalar*

energy, as being created when two electromagnetic waves at the same frequency come together from two different angles so that they cancel each other out, leaving a standing wave. She claims that thought and intent can create and direct scalar energy for healing purposes, and calls scalar energy a “force by expansion” (Hunt, 2000) as intent can expand it throughout the body. She also cites Tom Bearden that scalar energy is a repository for information and posits that intent can make major changes in tissue by creating and informing the scalar energy at the microscopic level--the nucleus of the atom.

I posit that Kundalini energy arises from a photon exchange at the quantum level whereas other energies arise from the interaction between our electromagnetic fields and scalar waves from the universal energy source, where information is enfolded into the scalar waves and distributed to our body's many electromagnetic fields. In her book *The Biology of Kundalini*, Jana Dixon (2008) states that scalar waves transmit information, not energy, and may be the point of fundamental intersection where matter and consciousness influence each other. Oschman (2000) has an interesting perspective about scalar waves. He says when the body comes into anatomical and energetic balance with the field of gravity, the biomagnetic fields may partly cancel each other out, creating scalar and/or vector potentials. He speculates that “an individual capable of generating significant scalar waves would be relatively protected from negative effects of environmental energies” (p. 208).

Interestingly, Hunt says scalar energy cannot be stored indefinitely and must be re-created every time, which may infer a third point of differentiation between Kundalini and other universal energies--that other energies are temporarily generated and emitted whereas Kundalini is permanently integrated within us.

The Cause of Kundalini Awakening

To trace the cause of Kundalini awakening, it is useful to understand what activities or events typically occur prior to awakening. A number of pre-awakening activities are listed in the book *Kundalini Rising* and the book *Energies of Transformation*, as well as in an extensive questionnaire developed by Kundalini Research Network. These may be summarized into the following types: Brain activities (meditation, prayer); sound (chanting, music); initiation by a spiritual person (shaktipat diksha); and specific body posture and movement (yoga, tai chi).

Although the diversity of pre-awakening activities may indicate that there is more than one mechanism that triggers Kundalini awakening, there is an intrinsic commonality among the activities—coherent vibration. Scientists and spiritual thinkers alike believe vibration is a major component of life. Dale (2009) says that “everything in the world vibrates, and everything that vibrates imparts or impacts information (the definition of energy)” (p. 13). Lipton

(2005) mentions “we are immersed in living fields of vibrational information” (p. 80). Cayce and Van Auken (1992) say raising one’s physical and mental vibrations causes the stimulation of electrons and movement of charged particles, resulting in “energy output, field generation, luminous radiation heating effects, and other manifestations so typical of electrical and electromagnetic activity” (p. 113). They claim that mystics’ description of their spiritual experiences closely resembles heightened electrical and magnetic activities.

Dixon (2008) observes that Kundalini “doesn’t really start anywhere, but starts everywhere” (p. 21). I believe that Kundalini *starts everywhere* as it is initiated at the quantum level.

Coherent Heart Vibrations and Resonant Entrainment as the Primary Cause

My hypothesis is coherent heart vibration that creates resonant entrainment in the heart, the brain, and the breath is the primary cause of Kundalini awakening. And heart-based activities such as meditation, chanting, the generation of love and positive emotions can produce these coherent heart rhythms.

How does this process occur? Coherent heart rhythms oscillating at a given resonant frequency activate the electromagnetic field of the heart, which modulates brain activities and creates entrainment of brain waves and respiration. McCraty et al (2009) explains that heart rhythm coherence is associated with “increased order, efficiency, and harmony in the functioning of the body’s systems” (p.23). Coherence describes the ordered distribution of energy within a waveform. The more stable the frequency and shape of the waveform, the higher the coherence. Resonant frequency is the maximum-amplitude frequency that an object vibrates at that is natural to it and most easily sustained by it. At resonant frequency, even small forces can produce large-amplitude vibrations because vibrational energy is stored. Resonant entrainment is when two or more objects that vibrate at nearly the same frequency become coupled so that they all vibrate at the frequency of the dominant rhythm.

The premise that coherent heart vibrations that create resonant entrainment in the heart, brain, and breath is the primary cause of awakening is based on several sources, many of which are studies conducted by HeartMath that highlight the important role of the heart in orchestrating our entire system. McCraty (2003) states “the heart generates the largest electromagnetic field in the body. The electrical field is about 60 times greater in amplitude than brain waves, and the heart’s magnetic field is around 5000 times stronger than that produced by the brain” (p.1). He also says the heart “is the most powerful generator of rhythmic information patterns in the body, acts effectively as the

global conductor in the body's symphony to bind and synchronize the entire system" (McCraty et al, 2009, p. 15).

There is apparently a strong correlation between heart rhythm and emotional state. McCraty (2003) says particular emotional states are correlated with measurable changes in heart rate. He explains that natural fluctuations in the heart rate or what he calls "heart rate variability" (2009, p. 20) is a measure of the naturally occurring beat-to-beat changes in heart rate. The feelings of love and appreciation lead to a more regular variation in heart rate, which is referred to as coherence. This is further explained by Oschman (2000), who says coherence reflects "a balance and coherence between the heart rate and the rhythms of the two branches of the automatic nervous system--the sympathetic and parasympathetic--that regulate heart rate" (p. 238). Furthermore, he says the absence of variation signifies:

A calm, peaceful, harmonious, and highly intuitive feeling state, in which one becomes aware of one's electrical body and of the minute currents flowing throughout. This state is associated with a coupling, or entrainment, or phase-locking of a variety of electrical and mechanical rhythms, including the heart, respiration autonomies, and the baroreceptor feedback loop to the brain (p. 239).

The heart appears to have direct and immediate effect on brain activities. McCraty says the heart is in a constant two-way communication with the brain, but in fact it sends many more signals to the brain than vice versa. There are approximately 40,000 sensory neurites in the human heart involved in relaying information to the brain, and the input from the heart to the brain directly affects the activity of frontocortical areas and the thalamus, driving our perceptions, thought processes, and emotional experiences. It appears that brain rhythms, especially alpha, beta, as well as lower frequency brain rhythms, naturally synchronize to the heart's rhythm. Therefore, a change in heart vibrations can directly affect brain activities and our entire physiology. In addition, the heart communicates information to the brain and throughout the body via electromagnetic field interactions, and electromagnetic waves generated by the heart are immediately registered in the brain waves.

In addition, research by HeartMath highlights how certain emotions create coherent heart rhythms that entrain the brain and the breath. McCraty (2003) found that "positive emotions are associated with a higher degree of coherence within the heart's rhythmic activity (autocoherence) as well as increased coherence between different oscillatory systems (cross coherence/entrainment)" (p. 4). In an article entitled: "Brainmapping the Effects of Deeksha," researcher Eric Hoffman (2006) found spiritual beings have a much stronger neurological communication between the brain and the heart and decreased metabolism coupled with an increase in cell membrane voltage.

How does the heart create these system-wide effects? According to McCraty, the heart generates a pressure wave with each heartbeat, creating what is known as the pulse. Pressure wave patterns vary with the rhythm of the heart. Furthermore, information is encoded in the inter-beat intervals of the heartbeat that orchestrate body-wide effects. McCraty explains that the heart generates continuous electromagnetic waves that give rise to fields within fields, which interact with other structures and encode information within the interference patterns of the waves.

Even more interesting, McCraty further believes that the heart's energy field is coupled to a field of information that is not bound by the limits of time and space. His studies show that both the heart and brain appear to receive and respond to information about a future event, and even further, the heart appears to receive intuitive information before the brain. He believes that the heart is directly coupled to energetic fields of information including that of the universal energy source. McCraty also says information about a person's emotional state is communicated throughout the body and into the external environment via the heart's electromagnetic field. Positive emotions, such as love or appreciation, are associated with a sine wave pattern, denoting coherence in the heart's rhythms. In turn, these changes in the heart's rhythms create corresponding changes in the frequency of the electromagnetic field radiated by the heart.

McCraty et al (2009) and his team found that "sustained, self-induced positive emotions generate a shift to a state of system-wide coherence in bodily processes, in which the coherent pattern of the heart's rhythm plays a key role in facilitating higher cognitive functions" (p. 15). A study of long-term Buddhist practitioners shows that while they meditated in a state of unconditional loving-kindness and compassion, increases in gamma band oscillation were observed. In addition, different emotions are associated with different degrees of coherence in the activity of the body. Positive emotions such as appreciation, care, and love drive the systems of the body toward increased coherence.

Furthermore, McCraty et al (2009) found that coherence can be sustained for an extended period if the individual has the intention to maintain a *heart-focused* positive emotional state, because "this appears to excite the system at its resonant frequency, and coherence emerges naturally, making it easy to sustain for long periods" (p. 26).

McCraty's research also shows that the heart manufactures and secretes oxytocin, which is often referred to as the *love hormone*. Recent research indicates that this hormone is also involved in cognition, tolerance, trust, sexual and maternal behaviors, the learning of social cues, and bonding.

As discussed before, Rein and McCraty (2001) found that coherent heart energy generated during the loving state can alter DNA. Wilcock believes Rein's

experiment shows that *love* is the key quality of the universal energy that can generate coherence in our brain waves. Furthermore, he claims that this gives us a “scientific definition of love...that love can now be seen as a basic principle of universal energy. The more coherence, the more structure, the more harmony we have, the more love there is” (Wilcock, 2011, p. 173).

Meditation and Prayer

An activity that is frequently reported to trigger Kundalini awakening is meditation. I believe that meditation is intrinsically a heart-based activity even though it can directly influence physiology in the brain and the entire body. And it appears that focused thought, or intent, can direct and amplify the effects. Bentov (1988) says that prolonged practice of meditation causes many physiological changes in the body including a change in the mode of functioning of the nervous system. He also draws a link between meditative states and resonance. He says one of the meditative techniques is to slow down breathing so as not to disturb the natural resonance of the heart-aorta system, which then entrains the entire body to resonate at the natural frequency of about 7 cycles per second. He also says meditation causes “elevation of levels of consciousness” (p. 43) which for different people will be at different rates. Bentov also believes that meditation produces coherent waves in the body, and that the body’s micromotion (small body motions accompany the motion of blood through the circulatory system) is similar to the resonant frequency of the planet’s electrostatic field. Therefore, a person in a meditative state will produce waves that propagate through the planet’s electrostatic field and entrain others who have similar vibrating frequencies. Based on this, Bentov postulates that a group of “meditating bodies” will emit harmonic sounds of approximately 7 Hz through the electrostatic field of the planet, and that “the more bodies are locked in, the stronger the signal becomes” (p. 44).

There is also evidence that meditation has significant effects on brain physiology; these effects include increased blood flow in the prefrontal cortex, interior parietal lobes, and inferior frontal lobes (Newberg et al, 2003). In addition, Dixon (2008) believes meditation increases blood flow to parts of the brain that activate the sympathetic nervous system.

Another theory says meditation causes changes in brain physiology because it integrates the right and the left brains. Sannella (1987) reports of a study by Hiroshi Motoyama showing that in ordinary consciousness, the micromotion on the left brain is 50% greater than the right. However, when subjects go into deep meditation, the micromotion in the right brain and the left brain becomes nearly equal. Furthermore, when the brains are in perfect balance, the subjects feel “profound peace and tranquility” (p. 50). Other researches seem to support this. An electroencephalography (EEG) brain mapping study was conducted in 2006 by a research team that includes Erik Hoffmann, Harald Kjellin, and Inger Spindler. They found that the two brain hemispheres of

meditators function more symmetrically after meditation. This balancing of the left and the right brain was most pronounced in the posterior (occipital-parietal) areas.

Neuroscientist Andrew Newberg (2008) discusses various developments in what he calls *the yogic brain* in the book *Kundalini Rising*. He says focusing on a mantra or an image of a sacred object activates the frontal lobes, and once the frontal lobes are activated, they interact with other brain structures such as the thalamus, which then affects the parietal lobe and reduces the sensory information that it takes in, which he says is responsible for creating “a sense of our self, and orients that self in the world...Hence, one experiences the losing of the sense of self and a sense of space and time that are commonly reported during spiritual practices” (Khalsa et al, 2009, p. 169). Newberg says brain-imaging studies of practices such as meditation and prayer have shown a decreased activity in the parietal lobes. He also says the hypothalamus plays a key role in spiritual experiences as it controls the automatic nervous system that regulates the sympathetic and parasympathetic functions in our body. In particular, he believes the autonomous nervous system directly causes arousals and intense feelings throughout our body during spiritual awakenings as it is connected to virtually every organ in our body. He also found that meditating Tibetan Buddhists seem to have their neocortical areas functionally disconnected from the rest of the brain, while both the limbic hippocampus and amygdala remain active.

There is also some evidence that meditation causes entrainment of the breath, heartbeat, and brain waves. Stephenson (2008) says studies on meditating monks shows that when their breath forms a steady rhythm, the heartbeat comes into synch, then the brain waves also comes into synch, so that eventually all three are entrained with each other.

Shaktipat Diksha

The heart may also play a role in the Kundalini awakening that is said to be initiated by a spiritual person--a practice called *shaktipat diksha*. Shaktipat is a Sanskrit word that means descent of grace, and diksha means initiation. Shaktipat diksha infers that the presence of a spiritual person initiates the transmission of spiritual energy, which is said to awaken Kundalini in the receiver. The transmission of energy may be made through a sacred word or mantra, or by a look, thought or touch. Dixon (2008) calls shaktipat “the contagion of spirit between individuals” (p.15) and posits that it is due to quantum wave functions that extend beyond time and space. She claims that in shaktipat, the opening of the heart is what initiates Kundalini awakening. Perhaps love is the enabling force behind shaktipat? In a paper called “Kundalini Yoga Through Shaktipat”, Yogi Amrit Desai (1990) says shaktipat involves “complete surrender and love for the guru, accompanied by a special technique of meditation on the guru. The link that binds guru and disciple in

divine love grows, creating an almost irresistible pull on the aspirant to be near his master. Shaktipat opens an inner door which enables him to experience a tremendous amount of love” (p. 71). Recent research at HeartMath may lend credence to this view. In his book *The Energetic Heart*, McCraty (2003) says the heart acts as “a synchronizing force within the body, a key carrier of emotional information, and an apparent mediator of a type of subtle electromagnetic communication between people” (p. 17).

Thoughts as Brain Waves

Meditation is sometimes more narrowly defined as a thought pattern that translates into brain waves. What is thought? In his book *stalking the Wild Pendulum*, Itzhak Bentov (1988) describes thought as “energy that causes the neurons in the brain to fire in a certain pattern” (p. 100). Greenwell (1988) says that certain states of consciousness promote waves of movement through the brain that sets off patterns of physiological and emotional responses. She reports that researchers have noticed unusual brain wave patterns when Kundalini is activated.

Rael Cahn (2006) says meditators show slower alpha and theta brain waves, corresponding to lower brain frequency (p. 191). Penny Peirce in her book *Frequency* holds that brain waves correlate to different awareness levels and that lower the brain frequency, the higher the awareness level. She says that slow brain waves, like those arising from meditation, correlate with heightened awareness, and also facilitate the production of neuropeptides and hormones (for example, endorphins, serotonin, acetylcholine, and vasopressin). Fast beta waves correlate with daily reality; alpha waves correlates with perception of subtle energy; theta waves correlate with the realization of one’s true self where the ego dies and soul awareness arises, and a feeling of unity; delta waves correlate with out-of-body experience, and a collective and universal feeling.

Oschman (2000) suggests that the healing energies emitted by healers involve conditioning of the brain waves and other body rhythms with the slow electrical and magnetic rhythms of the earth’s atmosphere. This is echoed by Richard Alan Miller and Iona Miller in a paper entitled “Schumann’s Resonances and Human Psychobiology,” which describes the characteristics of the different brain waves. Fast beta waves (14 cycles per second and above) are said to be associated with the normal waking state of consciousness when attention is directed towards cognitive tasks and the outside world. Alpha waves (7-13 cycles per second) are associated with dreaming and light meditation. Theta waves (4-7 cycles per second) are associated with sleep and the deepest state of mediation where senses are withdrawn from the external world. Slow delta waves (0-4 cycles per second) are associated with the deepest meditation and dreamless sleep. Other studies indicate that low frequency fields, specifically at the frequency of the Schumann Resonance, can

synchronize brain waves and have predictable effects on behavior. In an article entitled: “Planetary Harmonics and Neurobiological Resonances in Light, Sound, and Brain Wave Frequencies,” Nick Anthony Fiorenza reports that the Schumann Resonance of 7.83 Hz frequency is often detected in the brain waves of psychics in their intuiting mode.

Another interesting finding is there is an increase of fast gamma wave activity (25-42 Hz) in the frontal lobes after meditation. This aligns with research by Professor Richard Davidson, which is reported in a 2004 *Wall Street Journal* article entitled: “Scans of Monks' Brains Show Meditation Alters Structure, Functioning” (Begley, 2004, p. B1). Davidson found that in spiritually evolved Zen monks, there is a dramatic increase in high-frequency brain activity called gamma waves during compassion meditation. Gamma waves are thought to reflect higher mental activity such as consciousness. Davidson postulates that high gamma levels, especially in the left prefrontal area of the brain, reflect *enlightenment*.

Other researchers say brain waves can lead to coherence in the entire body. Oschman (2000) says the brain’s magnetic wave can cause the entrainment of the body’s living crystalline matrix. The molecules in cell membranes, connective tissues, muscle, and DNA molecules orient themselves in the same direction, which leads to the entire system being more coherent.

Thoughts beyond the Brain

However, thoughts are likely to be much more than brain waves. Furthermore, recent research shows that brain waves are not confined to the brain. In the movie *Living Matrix*, McTaggart says: “a thought is a physical energy.” As early as the late 1800s, Edwin Babbitt (1967) posited that around the brain there are “magnetic curves circulating in almost infinite numbers in a vast variety of directions” (p. 217).

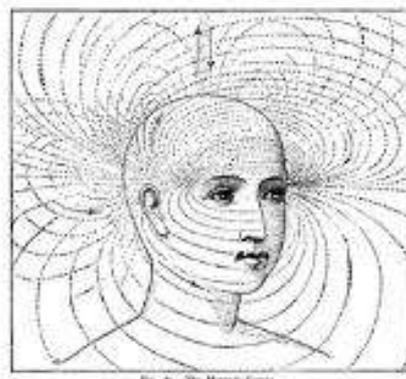


Fig. 187: The Psycho-Magnetic Curves.

From the *Principles of Light and Colour* (Babbitt, 1967, p. 219)

Recent research seems to confirm Babbitt's belief. In an article entitled: "Magnetic Energy of the Brain," Michael Bukay and George Buletza (2009) says "our brain generates an ever-changing electromagnetic aura that extends into the environment. Theoretically, these electromagnetic fields have no boundaries as they travel outward into an electromagnetic universe" (p. 138). Oschman (2000) also describes thought as not simply a brain wave, but as a pattern of magnetic energy. And Bentov (1988) says "when we think, our brains produce rhythmic electric currents. With their magnetic components, they spread out into space at the velocity of light...They all mingle to form enormous interference patterns, spreading out and away from the planet" (p. 32). This is echoed by Oschman, who says that the fields of all organs spread throughout the body and into the space around it, so the brain field extends far beyond the brain.

Sound as Vibrational Energy

Sound is a vibrational energy that takes the form of waves. Dale (2009) says sound functions as a field and also vibrates, and since all matter vibrates, all matter makes sound. Bentov (1988) says rhythmic vibration affects the environment, be it air, water, solids, electromagnetic, or gravitational fields, and all these disturbances are called sound even though they may be sound that we cannot perceive. Furthermore, he says:

We could actually associate our whole reality with sounds of one kind or another because our reality is a vibratory reality, and there is nothing static in it. Starting with the nucleus of an atom, which vibrates at enormous rates, the electrons and molecules are all associated with characteristic vibratory rates. A most important aspect of matter is vibratory energy (p. 32).

Sound can affect us at many levels and even organize matter. Bentov (1988) demonstrates that sound can turn a disorganized suspension of particles into highly ordered crystals. As a matter of fact, he infers that the orderly pattern of atoms in matter is the *result* of the interaction of sound waves in matter. Furthermore, Bentov believes sound has another very important function—the ability to store information in the form of a *hologram*, which he calls a record of superposed sounds, which is an interaction that creates "a complex pattern that is called an interference pattern of waves" (p. 15). Stephenson (2008) says sounds "not only strike our ears, they also strike our bodies including the internal structures" (p. 208). She explains that the wave motion of sound directly impacts piezoelectric crystals, especially those found in the bones, teeth, and intestines, and that deep, low tones especially impacts the internal body cavity. Oschman (2000) also draws a link between sound and piezoelectricity. He says a very important aspect of sound is it produces phonons that spread through the living matrix, affecting every part of our body. Dixon (2008) even suggests that cerebrospinal fluid produced in the roof

of the lateral ventricle creates sound waves and may be the physical source of the sound heard in the *om* mantra. The relationship between sound and piezoelectricity is discussed more extensively in a later section on the propagation of Kundalini energy.

As a matter of fact, sound may be pre-programmed into our very being. Recent research provides evidence that sound and language are integrated into our genes. In *Potentiate Your DNA*, Sol Luckman discusses the discovery by J. Delrow that the four nucleotides of DNA have fractal structures closely related to human speech patterns, which means human language may have emerged from the structures of our DNA. This is further expanded by Gariaev through his research on *junk DNA*, the portion of the DNA genome for which no function has been identified but which accounts for over 90% of our overall genome. Gariaev found that the genetic code in junk DNA follows uniform grammar and usage rules that are virtually identical to those of human language, and hypothesized that genome has a capacity for recognizing semantically meaningful phrases.

Chanting

The chanting of mantras is often reported as a trigger of Kundalini awakening. Mantras date back to ancient times. Stephenson (2008) identifies some of the sacred sounds in ancient cultures: *Kung* for the Chinese, *om* for Hindus, *AMN* for the Egyptians, which became *amen* today.

Earlier, we identified meditation as a form of heart-based activity that can trigger Kundalini awakening. Chanting has deep emotional and healing impact because it is often conducted in meditation; but in addition, chanting also produces sound with resonant frequency that can synchronize the rhythms of brain waves, heartbeat, and breathing. This synchronization is through resonant entrainment, where a rhythmic vibration of a wave or an object changes the rhythmic vibration of another wave or object, causing them to vibrate at the same frequency. This is also the mechanism by which tuning forks work.

Even further, chanting may create harmonic resonance that results in even more powerful vibrations. Stephenson (2008) explains how harmonic tones are produced:

When one vibrant note is sustained in close, reflective surroundings...a standing wave is created. This intensifies the volume of the sound. The delayed echoes begin to interfere with the standing wave and a new sound is created, namely the second harmonic (p. 147).

Since mantras are typically repeated continuously, chanting would produce increasingly more harmonic tones. A series of harmonic tones lead to

harmonic resonance, which can produce very powerful vibrations. Another important aspect of resonant frequency is it produces standing waves in an enclosed system. Standing waves are created when “two identical waves with the same frequency, wavelength, and phase are travelling toward each other from opposite directions” (Stephenson, 2008, p. 219). As such, a standing wave is essentially a wave and its reflection where energy is transferred back and forth between its two parts. As we will discuss later, standing waves are an important component of the Kundalini awakening process since they are a key propagating carrier of Kundalini energy throughout our body.

Dixon (2008) says that high and low pitch tones of mantras resonating within the body can enhance cerebrospinal fluid flow, in that lower pitch tones resonate in the chest and abdomen areas, facilitating the flow of the fluid within the spinal column, whereas higher pitch tones resonate in the head, and therefore impact the fluid around the cranium.

Conclusion

The purpose of this research is to develop a theoretical model to explain the origin of Kundalini energy and the cause of awakening from a scientific viewpoint. Below is the summary the key postulations of this paper:

Kundalini energy is the combined light energy from the universal energy source in the form of virtual photons and our biophotons, and is stored in our DNA from birth. The integration of the two produces an intense, coherent, laser-like light energy that is Kundalini. Kundalini is stored and activated as light energy in the form of photons, but propagates through our body as sound energy once activated. The conversion from light into acoustic waves can either be through the DNA quantum hologram translating between acoustical and optical holograms, or through piezoelectric connective tissues within our living matrix. As the acoustic waves are carried through our body, piezoelectric crystals in our connective tissues, skeleton, brain, and pineal gland facilitate entrainment of heart rhythms, brain waves, respiration, facilitating awakening. Piezoelectricity also carries phonons and amplifies acoustic waves throughout our body. They are carried in solitons, which through resonant frequency, propagate into a series of increasingly powerful standing waves that reach all levels of our body through the living matrix. As the standing waves move through our nervous and endocrine systems, a series of psychophysiological processes are activated. Hence, Kundalini awakening process is a complex, multi-level, nested process that is initiated at the quantum level and propagates to the psychophysiological level.

Also, as Kundalini is a coherent, laser-like light, it is strong and focused enough to change the very structure of our DNA, which effectively changes the course of our individual and collective evolution. The difference between Kundalini and other universal energies that we can generate, resonate and emit through our bodies is Kundalini energy vibrates at a specific frequency and

involves a photon exchange with the universal energy source at the quantum level, and its integration creates permanent changes to our DNA and physiology, whereas other universal energies involve scalar waves from the universal energy source interacting with our electromagnetic fields.

The primary cause of Kundalini awakening is hypothesized to be coherent heart vibrations oscillating at a resonant frequency that create resonant entrainment between the heart, the brain, and the breath. These coherent heart rhythms are triggered by heart-based activities such as meditation, chanting, the generation of love and other positive emotions. Furthermore, focused thought, or intent, can direct and amplify the effects.

These postulations have not been proven within the realm of mainstream science, and admittedly there are many gaps and some of the hypotheses are at best speculations, although a sincere attempt was made to leverage the spirit and intent of scientific investigation when developing these ideas. It may also seem like more questions were raised than answers provided. The only thing I can really say for sure is there is a pressing need for further research, especially one that brings together cross-disciplinary experts who can explore the Kundalini phenomenon from the perspectives of both science and metaphysics. Being a scientific exploration, this research attempts to discover and understand Kundalini in energetic and physiological rather than in metaphysical terms. However, I do believe Kundalini is a much greater phenomenon than what science can define and explain. In its very essence, Kundalini is likely to be much more than energy and experience.

Christopher Hills (1990) has a unique insight about Kundalini. In his view, Kundalini is not energy at all, but a basic component of life that we only perceive as energy when it moves. He even calls Kundalini a *byproduct of consciousness*, and compares it to light prior to being absorbed or released as energy. He explains his view:

Only when it (Kundalini) moves through the system can it be described as Kundalini because only then do we become conscious of its existence as ambrosia which melts and burns. To describe Kundalini in chemical or energetic terms alone is to avoid the real cause and look only at the effects. Without the light of consciousness moving through our receptors we would not see, smell, taste, hear, or touch anything. Yes we do not see Kundalini described as ordinary consciousness but always as something special. Kundalini is a basic component of life and it is only when it moves from one place to another that we sense it or feel it as 'energy.' To call it 'Kundalini energy' is therefore a misnomer... Kundalini is actually made of consciousness and the actual sensation is merely a message of our consciousness passing through the psychic veil or skin which acts as a membrane between one world of experience and another (pp. 110-112).

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