

Heart Intelligence and DNA Programming

A Pilot Research Report by Daniel Winter at the facilities of the
Institute of HeartMath, Boulder Creek, California August 1992

ABOUT THE AUTHOR

Daniel Winter received his degree in psycho-physiology (summa cum laude) from the University of Detroit. He has multi-disciplinary training in electrical engineering, psychology, psycho-physiology, and bio-physics. Dan has worked with MIT in x-ray astronomy projects. Dan is best known for his world-famous work with Dr. Albert Ax in which they were able to electrically measure and discriminate between the emotions of fear and anger.

INTRODUCTION

It is well known that a person's emotional state has a powerful effect on their health. There is an abundance of documentation linking negative emotion to hormonal secretions that increase the aging process, add to the stress placed on the immune system and ultimately manifest in disease. Duke University researchers recently discovered that teenagers who have tendencies towards anger and hostility have a ten times greater chance of dying from cardiac arrest as adults. The University of London School of Medicine recently released a thirty-year study which showed that negative reactions to stress are more destructive to health than is cigarette smoking.

While the impact of negative emotions on health has been well documented, the impact of positive emotions on health has received little attention. One such study carried out at Harvard University showed that individuals who experience "care" had higher levels of the antibody salivary IgA which is known to enhance the immune response.

This article summarizes phase one of a joint research project I have undertaken with the Institute of HeartMath. The purpose of this project is to demonstrate the electrical and sonic links between cardiac electricities, mental processes, emotion, brain electricities and DNA programming. We will also demonstrate that the frequency content of the QRS complex can be consciously affected.

This phase of the research focused primarily on the cardiac electricities, as the correlation between EEG (brain waves) coherence and health benefits and the sonic resonance between the heart and the brain has already been confirmed. It is our intention to show that the heart electricities contain an encoded intelligence which is ultimately responsible for higher brain functions. We believe that the heart acts as a transformer allowing two-way communication between scale or dimensions of organizational intelligence and is the doorway to true intuition and DNA programming. The spectrum analysis graphs shown in this paper indicate that it is possible to consciously affect the frequency content of your own heart. It is also apparent that when love is being felt, the ratio between the power spectra peaks of the EKGs is the same ratio as the structure of the DNA.

We hope this research will inspire others to investigate the heart and its electricities from a new perspective, as this work especially shows that there is more to learn about both the physical heart and its electrical system. It is clear to us that the heart is a far more complex organ and controls more bodily functions than is currently understood. Some of the conclusions in this article may stretch the imagination. All I ask is that before you take a stand on what you know, consider taking a neutral position and let time prove these findings right or wrong, or better yet, join in the research effort to verify the findings at a deeper level.

WHAT IS COHERENCE?

The term *coherence* can be used in several contexts. It is often used to define two or more wave forms that are phase-locked together so their energy is constructive. It can also be used to describe a single wave form, describing an ordered or constructive distribution of power content. Ordinary light from incandescent light bulbs is known as incoherent light. Incoherent light moves randomly, with light waves traveling chaotically in all directions. One might think of average human thought as random and incoherent. Conversely, laser or star light is coherent and is highly focused, with all light waves traveling in step, similar to soldiers marching in step. If the energy produced by an incandescent bulb were to be made coherent, the resulting focused laser-like beam could burn a hole through a steel plate.

One can extend the above analogy to the production of coherent thought or cardiac electricity as shown by increased brain wave and heart electricity coherence. There is evidence that increased brain wave coherence is associated with psychic events such as psychokinesis and remote viewing. The key principle is that coherent consciousness or focus is the key to communication between dimensions or across scales and can go beyond ordinary waking consciousness. Coherent consciousness is also the primary component in self-stress reduction and its attendant benefits on immune system health. Going from incoherent random mental and emotional energy expenditures to coherent energy is as powerful a transition as the difference between incandescent light and the brilliant energy of a laser beam. The heart electricities have been shown to become coherent when an individual is highly focused on loving or appreciating someone or something.

Heart electricity is the dominant force in the human system and will cause the brain and its sub-centers to phase-lock with it when it is radiating coherent energy patterns. The heart is

the doorway to higher dimensional communication and understanding. Loving causes the coherence and ratio necessary to send energy up or down the harmonic series from the higher organizational dimensions to the DNA. It appears that through conscious, focused loving and caring it is possible to reprogram and empower the DNA to program the individual cells to work in harmony with the whole system.

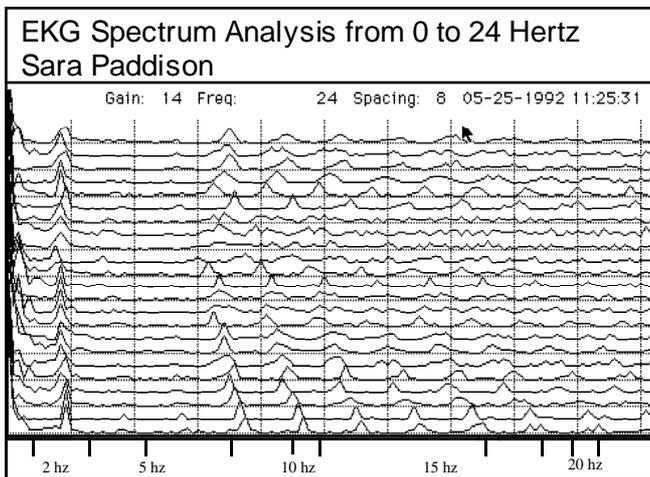
BACKGROUND

My first attempt at confirming the harmonic connection between the heart electricities and the ratios necessary to communicate with and empower the DNA began several years ago in the sleep research lab at Millard Fillmore Hospital. With the aid of Dr. Bruce Middendorf, we were able to obtain several interesting plots produced by a young yogi who said he was "sending love to the people in China." We did get some amazing harmonic series in the spectral content of the frequency signature of his EKG. I was convinced that something surprisingly musical and ordered was happening to the electrical resonance of the heart at peak emotional moments, but we had only several hours of data from one subject and this orderly resonance cascade had shown up only a few times that afternoon.

After several years, Rollin McCraty and associates at the Institute of HeartMath happened upon my manuscript, "Alphabet of the Heart." In May, 1992, I visited for a week of data-taking and analysis. We took many hours of digitally sampled EKG data from a dozen of their staff at random times, day and night. They would relax and listen to the music "Heart Zones" which they have designed to reduce stress. This music is specifically designed to facilitate the activation or contact with one's own heart frequencies. It seems to aid in the attunement of the brain to the center frequency of the heart electricities which balances the mental and emotional aspects of one's nature. We also ran tests without the music and this showed that once

one had trained oneself in this process, the music was not necessary to achieve attunement to the heart frequency. I have no doubt that the music does facilitate this process. This research was conducted in their new 32-channel sound studio which is electronically networked to their research facility. (Doc Lew Childre's next project with the Institute is the development of tonal patterns that appear to harmonically link with the DNA to enhance T-cell strength in people with AIDS and other immune disorders.)

At times, the evidence of coherence in the results was so incredible that visiting physicist Nick Herbert needed to see the hardware inputs to confirm that the equipment wasn't going haywire. In our research, each plot on the spectral landscape represents the averaging of the harmonic content or spectrum analysis of approximately 5.5 seconds of EKG, which represents several cardiac cycles. The harmonic resonances (shown in the graphs which follow) would not be possible with this length of averaging time if they were not stable and phase-



The gap in harmonic resonance of the EKG between roughly 3 and 7 Hz occurred more often during the day than at night. Interestingly, after seeing the gap, subjects were to some extent able to correct this intentionally.

locked. We would sample during another series of heartbeats, and plot that power spectra to create a landscape over time of the frequency

signature. When long valleys appeared in the landscape, we suspected the heart was up to something orderly. Most of the amplitude in the harmonic ordering was in the 0 to 40 hertz band width. (From other studies, we know it extends into several hundred Hz, but the EKG machine we used only had a band width of 45 Hz.) I have concluded that the harmonic ordering visible in the EKG power spectra is resonance coherence. This conclusion is due to the long length of the averaging time of the data.

THE INSTITUTE OF HEARTMATH

The staff at the Institute of HeartMath, which was founded by Doc Lew Childre, has many years' experience in helping people access the self-regenerating energy of heart attunement. They provide seminars, produce music, and publish books that give specific steps to help people manage and focus their own mental and emotional energies through heart intelligence for more efficient living. In my experience, they have an amazing capacity to transform any environment with the field of feeling they radiate from the heart. This is particularly true of situations where stress is transformed by the simple decision to appreciate from the heart at a moment when anger or resentment would otherwise have depleted one's energy and health.

They are a close-knit organization where the feeling of family is strong. Many of them have worked together for 20 years, and coherent emotion has fed their cells and the earth around them. They often speak of the way negative emotions produce destructive hormones in the body and how the ability to orchestrate the geometry of one's own emotions may be the most empowered lesson for self and planetary transformation we can learn. I was intrigued by the level of self-management, harmony, and creativity they all seem to embody.

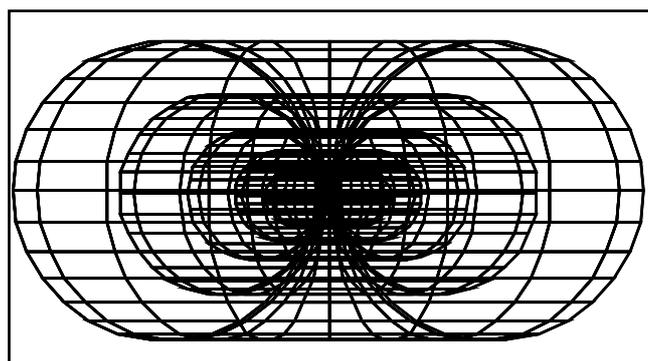
From the coherence I found in the EKG readings of the dozen people I tested, I was curious about the process they went through in their development. I learned in interviews with several of them that their system of HeartMath can teach anyone how to access their own heart intelligence. They all went through a gradual transformational process in which their physical, mental and emotional structures changed and became more efficient. They said it takes practice but the changes are real and happen faster than one might think if you sincerely try to attune to the heart and follow its direction. They described it as making moment-to-moment choices from an objective perspective that has more width of intelligence than normal mind-centered thinking.

Many cultures have discovered that the biological “reason to be” or “soul-purpose” radiates directly from the heart, yet medically we have failed to discover this. It is probably because we have had no mechanism to understand the process by which the information of cellular identity radiates directly into the body through the heart. Now, with some data in hand, it appears quite clear that the heart does indeed take on a musical or sonic pressure geometry very akin to what we might think of as a coherent energy source. This event is measurable on the spectrum analyzer replicatably when someone who knows “how to love” intentionally does just that.

From a psychological perspective, it is well known that one of the most important elements which permits a person to radiate intention, integrity and direction in their lives is the conscious knowledge of one’s “soul purpose” or “mission.” In a sense, no directions radiate to the DNA and immune system from the heart unless there is a conscious link-up to the core of one’s being.

THE ENERGY FIELD SURROUNDING THE HEART

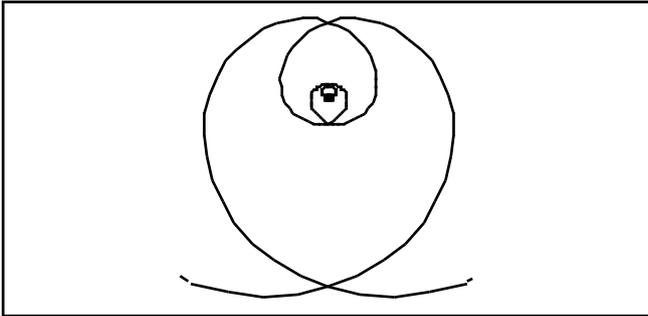
To further understand these ideas, it would be useful to examine the description of the shapes of the electrical field of the heart beat as published in the book *When Time Breaks Down*, by Arthur T. Winfree, Professor in the Department of Ecology and Evolutionary Biology and the Program in Applied Mathematics at the University of Arizona. In summary, the technical data shows that the shape of the electrical wave or field around the heart when it fires is essentially toroidal, or donut shaped. Furthermore, the way those donuts of voltage or electrical pressure form around the heart is a fractal (see page 5) or concentric nest of one donut inside the other. This can be viewed as worlds within worlds, each larger field containing all the inner fields within it. Although not yet



The toroidal, or donut-shaped, wave fields that surround the heart when it fires. These fields are *fractal* — fields within fields radiating out from the heart.

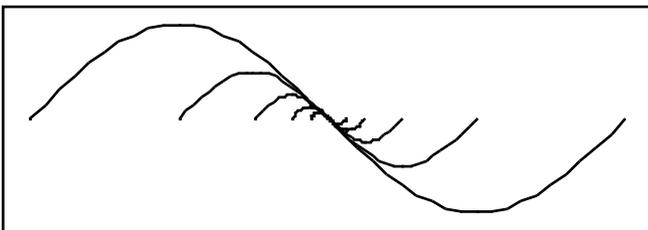
proven, it is probable that the relative size of these toroidal fields relates to the relative wave lengths contained in the EKG. Thus, the heart muscle’s ability to phase-lock into resonance around a central focus would correspond to its ability literally to ring out further up and down the harmonic series. In other words, the heart is essentially able to download a broader frequency band width of harmonic instructions when it fires in the condition of relaxed but centered or “phase-locked” resonance. Coherent emotion (love?) permits a greater content of these harmonic instructions, to be downloaded

or “demodulated” or “impedance coupled” from the long wave into the short. The shape which idealizes this “translation of vorticity” spinout, or unpacking from short wave to long, is the Golden Mean spiral. When this path, which permits the circle to talk to the line (matter to energy), goes two ways at once, it looks like the fractal image of the heart itself!

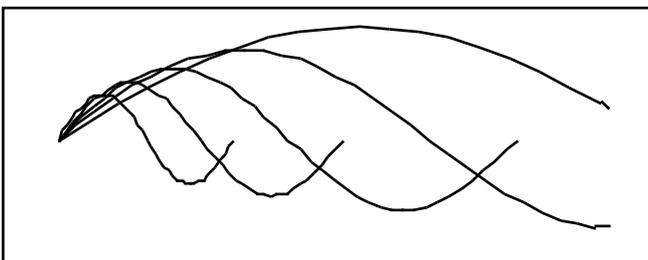


The Golden Mean spirals traveling in opposite directions create the image of the heart.

The principle of interference among waves is that order or constructive interference self-replicates, and disorder or destructive interference self-destructs.



A visual representation of Constructive waves, where the long and shorter waves are all in phase.



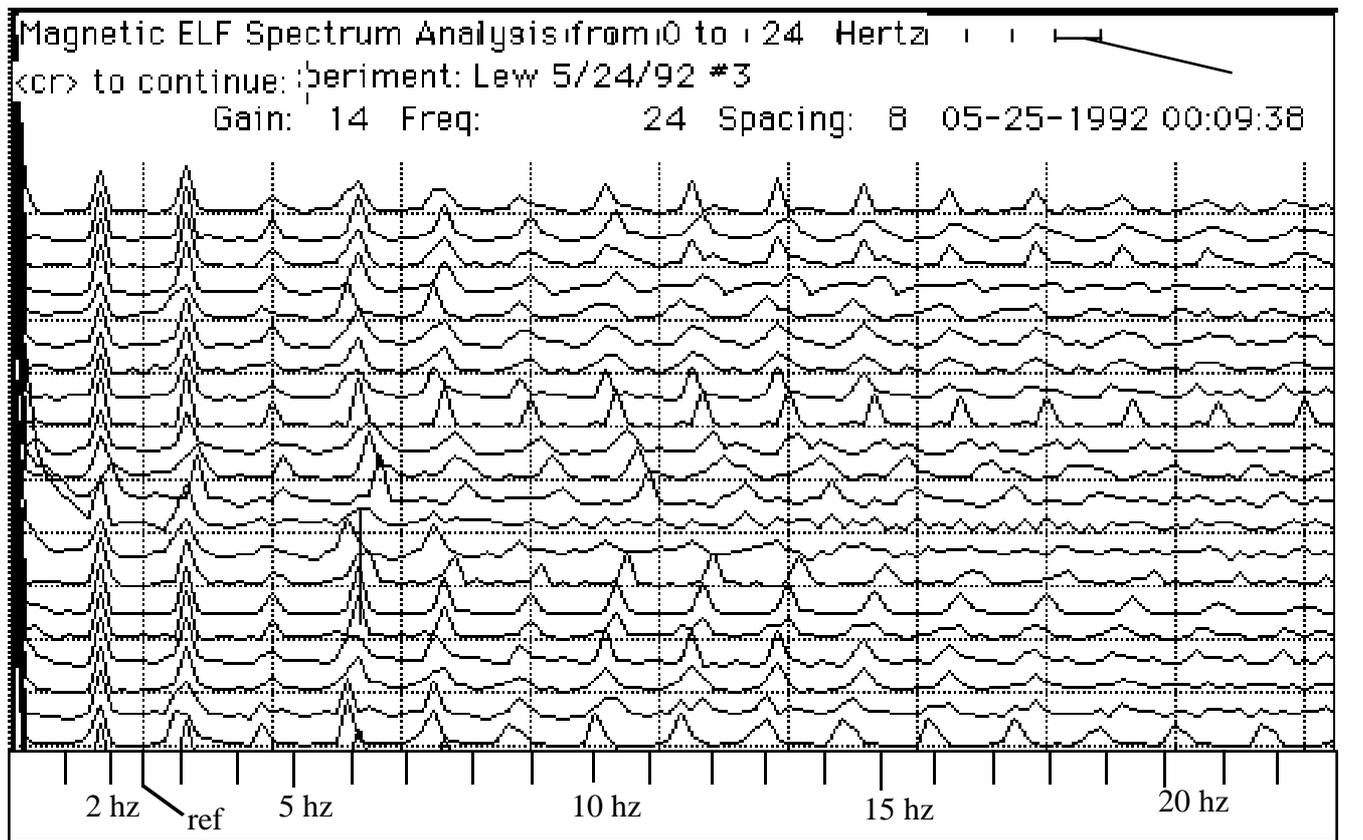
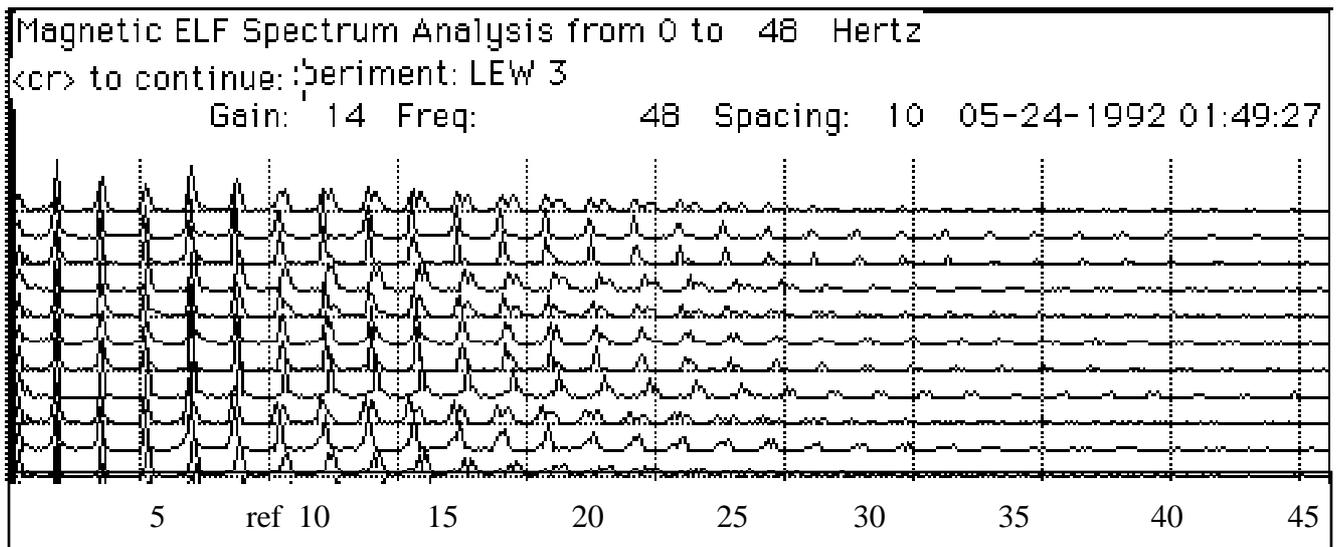
Destructive waves — here the long and short waves are out of phase, causing destructive interference. These waves will not travel down the harmonic series.

WHAT IS FRACTAL?

Fractal objects are objects that are composed of sub-units that resemble the larger scale shape. These sub-units are in turn composed of yet smaller sub-units that also look similar to the larger one and so on. This is analogous to looking in a mirror while holding a second mirror in your hand that is facing the first mirror. An infinite series of reflections can be seen, with each reflection getting smaller until the eye can no longer discriminate the images. If you change the distance between the two mirrors, the scale will change but the ratio remains constant. Mathematically speaking, fractals maintain the same ratio while changing scale. It is this geometry that allows electrical and light frequency harmonics to exchange energy across great distances of wave lengths. The ratio 1.618 “Golden Mean” is the most efficient ratio when energy is transferred between scales. When energy is phase-locked with this ratio, it cascades between frequencies without losing momentum or memory of itself. In examining the spectrum analysis of the EKG when love is being sent to someone, the ratio between the frequency peaks is 1.618. The fractal design of the heart uses this principle to send energy cascading down the harmonic series to the DNA. The geometry of these wave nests looks exactly like DNA as viewed from the top.

From the viewpoint of information science, we can understand the principles of this umbilical connection to “singularity”, from the mechanism which makes a hologram at every point, information complete. In terms of optical coherence, taking a bite out of a hologram requires swallowing the whole thing. What this means is that each little light node or bubble in

the hologram *must* be in complete phase or wave spacing discipline with respect to the whole. In this way each node or vortex point contains complete information. Each one is a perfect infinite harmonic series, phase-locked in a “multiply-connected topology” with the whole picture. The result is that anywhere in the hologram where there is a bright node or



focus, there is by definition, a wave in “sync” with the entire image. Remember, *matter is just a hologram with a weight problem.*

Consider consciousness as the attractive drawstring which radiates like a cascade through the embedded frequencies: “a fractal attractor.” Then by the above metaphor, the very existence of focus is evidence of pure intention. That is, a light vortex or foci cannot stand as wave, unless its inertia is coupled with the all. By achieving focus, we already have achieved pure intention, which is the only real limit to interaction with density. Purity is what limits the amperage or current flow through our mental and emotional waveguide. Focus permits only coherence. This is why prisms create rainbows. Light bends around the focus point to permit only the spin tilt angles of the photon which are sharable (tetrahedras maximum of seven spins) to pass.

Another way of looking at this is that intelligence or self-awareness is the part of ourselves that can enter into singularity, or the point of balance, between dimensions of awareness and survive to enter into a higher or lower dimension of awareness. It is the aspect of us that keeps drawing us back to balance. It is what keeps us on track, until we can wake up enough to enter into the next level of evolution or awareness of ourself and how our energy system works. Once we awaken to the next level we then start to work on reaching the next more efficient level of awareness. It becomes easier as we evolve through the fractal series of dimensions of awareness.

HEART GEOMETRY

If we look in the body where the greatest amount of electrical focus can stand as a wave, we arrive at the heart. This is because the geometry of the heart muscle contains all the symmetry or mirror sharing between spins. Specifically, the seven discreet layers of heart muscle are arranged in exactly the spin angles

of the seven arrows of spin of the tetrahedra (the seven arrows of the heart.) Spin is always the activator of symmetry, or persuasion to share. Unfolding spin into usable wave lengths is what the Golden Mean fractal heart shape is all about. The transformer for maximum entry of spin or energy into the body is the heart. There is a weathervane-like spiral strip off the donut torus shape at the center of the heart. Since all the spins about the heart focus here, this “element” or essential ingredient to symmetry would know immediately the heart axis or phase as compared to the donut-shaped pressure waves surrounding it. This densest center of the heart would then affect the sound of the heart projected onto the wall of the pericardium, the cave surrounding the heart. This part of the heart affects the phase of the sonic energy that vibrates both the pericardium and thymus.

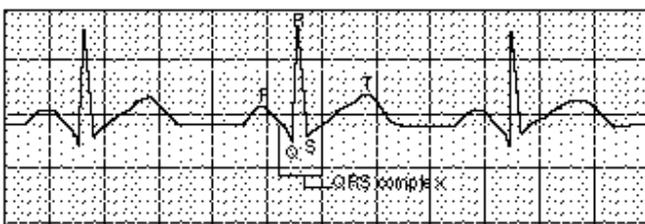


The umbrella-like screen for this projector is the thymus located around the heart, the site where immune instructions are translated. The thymus uses these sonic shadows on the wall of the cave to know which wave length ingredients to crochet into cellular identity. This is because only phase or wave-sharing coherence makes cell membranes possible. Membranes are libraries on which turns of fold or shapes of touch can be shared. The point here is to understand that concentricity of focus — literally the convergence of electrical and sonic pressure — is exemplified by the muscular and toroidal

electrical structure of the heart itself. If the orderliness or coherence of electrical energy grows, then radiance to the immune system of the body expands. Hologram theory tells us that wherever the patternesses for building bodies come from, they must be information-dense or packed. Informationally, we might think of this as survival-critical information, umbilicus to the soul. Getting this wiring connected without shorts or interference is key to health and mental and emotional stability. High frequency ordering, or information density, is what the living cell does. For example, food's long-wave energy is transformed to short-wave energy that is usable by the cells through the steps in cellular metabolism. This information-rich ultraviolet blue short wave light drives our cellular metabolism. High quality ultraviolet light choreographs cell replication. This "blue light" is the cell's life energy source, which flashes measurably at moment of DNA braid cell division.

QRS FREQUENCY CONTENT

There is much support for theoretical arguments that the healthy heart beat is a temporal fractal and that the heart's anatomy is fractal-like. Spectral analysis of the EKG's QRS complexes reveals a broad band frequency spectrum with most of the frequency content or power below 30 Hz, yet extending several hundred Hz. Ary Goldberger of Harvard Medical School has confirmed that changes in the geometry of the heart's branching conduction system can alter the frequency content of the QRS complex, independent of any changes in myocardial conduction.



EKG waveform showing the QRS complex

The research at IHM (Institute of HeartMath) has shown a direct correlation between the frequency signature of cardiac electricity and positive mental and emotional states. Through our observations it appears that the rhythm, amplitude and frequency modulation of the heart electricities all contain information or intelligence that are linked to our mental and emotional aspects as well as to the physical cellular systems, such as DNA and the immune system. Power spectrum analysis of the EKG reveals that feelings of sincere love or appreciation generate remarkably different frequency contents in the EKG than those produced when stress is experienced. Even more remarkable was Doc Lew Childre's ability to consciously direct and control the frequency content of his EKG by switching his focus from care to love or appreciation, etc. The power spectra shows peaks or frequency contents which are spaced by a repeating ratio. This ratio of spacing changes as the subject changes their focus. The geometry of these ratios appear to be harmonically linked to the immune system and DNA structure. We are tempted to postulate that coherent emotion, and even perhaps love, is teachable and accessible with feedback tools. We further postulate that onsetting coherence in heart resonance will eventually be proven to be a direct conduit to immune health.

ENCODED HEART INTELLIGENCE

There is mounting evidence indicating that the heart is the master oscillator or controller of the human system. Current theory suggests that the brain controls all the body's functions and is the seat of emotion and intelligence. I am not suggesting that the brain does not play a key role in these functions. However, I am suggesting that it is only part of the puzzle. We postulate that the heart electricities play a far more important role in brain function than previously believed.

It is well known that the cardiac electricities are the dominant electrical force in the human system, although the source of the heartbeat is

still a mystery. Another piece of this puzzle is starting to emerge—the discovery of the fractal structure of the physical heart and chaos theory of the heart rate. Before these discoveries, the classical notion of *homeostasis* relating health to constancy was that perturbations are likely to cause a loss of regularity in the heart rate. The chaos hypothesis predicts just the opposite, namely that a variety of disease states which alter autonomic function may lead to a loss of physiologic complexity and therefore to greater, not less, regularity. When the heartbeat becomes regular and loses its complexity, there is a high risk of sudden death through heart failure. Aging has also been associated with this loss of physiologic complexity along with a number of other diseases. The term “complexity” is used here to include the fractal type of variability found in the heart’s structure. The nonlinear complexities of cardiac electricities cannot be quantified by the use of traditional statistics such as variance. The advancement in chaos theory and computer power has made these new discoveries possible, but it’s still only one step closer to understanding the dynamics of heart electricities.

We postulate that the ordered randomness found in the cardiac electricities and nervous system, which have been termed *chaos*, contains encoded intelligence and is only chaotic from the perspective of not understanding the intelligence that it contains. This is analogous to a TV signal in which both FM and AM modulations are used to transmit intelligence or information. If the receiver of the signals does not understand the complete technology or the language of the information being transmitted it would appear as randomness with some sort of organization, yet chaotic.

The existence of an electrical body or organizing field of intelligence that forms around all living organisms is well established and has been measured. This field contains the system’s intelligence which organizes the structure of

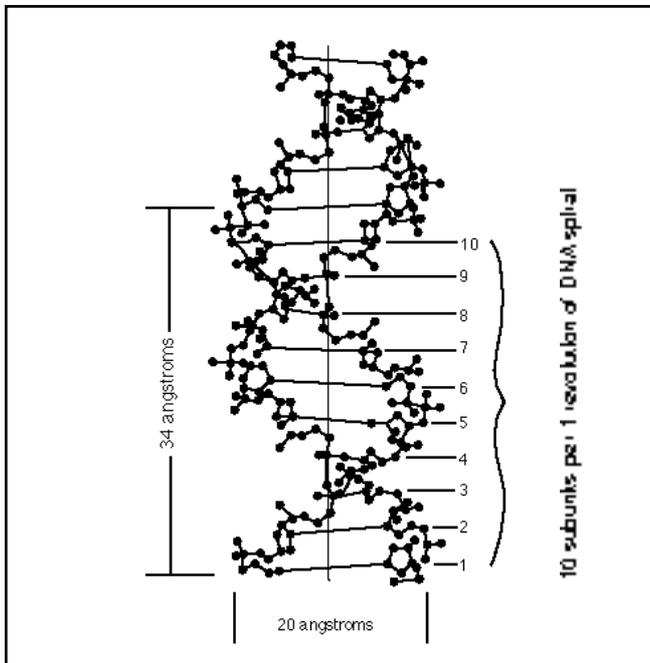
the body down to the atomic level. It is the fractal structure of the physical heart which receives and transforms this electrical energy and the information encoded within it. The brain acts as a demodulator of this information and then communicates with the cellular systems of the body. The flow of information is duplex, traveling both up and down the harmonic series of scale. Each heartbeat is like a phrase or part of a song that sends organizing instructions throughout your system. We just don’t have the intellectual understanding of this language yet. A series of these beats or packets of information make up what could be called a song or “event,” such as climbing a hill. When you climb a hill the body expends more energy and a whole series of complex events must take place: the heart beats faster and harder, supplying more energy and information throughout your system. We are suggesting that it is the next level of organizing intelligence that runs this show and that it is through the heart that all this information flows to make up the events of life.

We can map the brain neuron by neuron and perhaps eventually understand the wiring structure, but what then? The brain is just the machinery of the mind, which is far more complex than the brain itself. Where does the mind receive its instructions? We are suggesting the source is the heart electricities and by learning to listen to its intelligence, it will facilitate our understanding of how the mind and brain function.

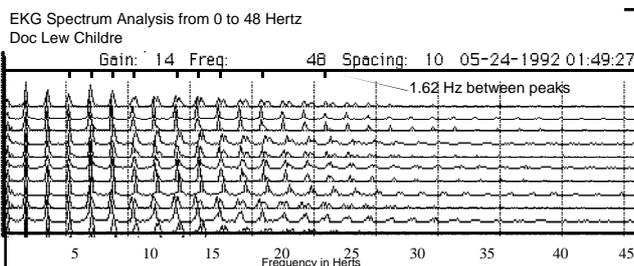
THE GOLDEN MEAN

From the many hours of coherent EKG data sampled, it appears that the center frequency ratio of the cardiac electricity is the Golden Mean ratio of 1.618 with modulations between 2 Hz and 1.42 (which are also geometrically and harmonically important but beyond the scope of this article). The main point is that 1.618 is also the ratio of the DNA structure and is the only ratio that allows complete

information or geometry to cascade down the harmonic series without loss of power or geometry.



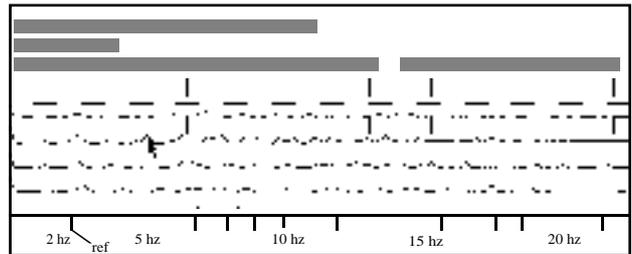
One 360 degree turn of DNA measures 34 angstroms in the direction of the axis. The width of the molecule is 20 angstroms, to the nearest angstrom. These lengths, 34:20, are in the ratio of the golden mean, within the limits of the accuracy of the measurements. Each DNA strand contains periodically recurring phosphate and sugar subunits. There are 10 such phosphate-sugar groups in each full 360 degree revolution of the DNA spiral. Thus the amount of rotation of each of these subunits around the DNA cylinder is 360 degrees divided by 10, or 36 degrees. This is exactly half the pentagon rotation, showing a close relation of the DNA sub-unit to the golden mean.



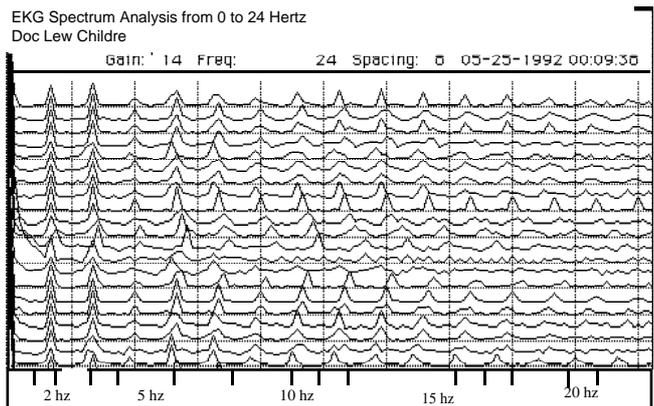
This power spectrum graph shows Golden Mean ratio spacing between the power peaks in the frequency content of the EKG, extending up past 45 Hz. Results of this kind would be highly improbable unless there is conscious intention and focus.

The mind/brain can literally learn to tune to the heart frequency; it just needs to know the right "access codes." When it learns to stay tuned to the heart center frequency, then bal-

anced energies can flow up and down the harmonic series and the human system takes on a new level of operating efficiency. This can add energy and clarity to what ever one engages in and feels good to the mental, emotional and physical aspects of our nature. It is the lack of this communication between the mind and the heart that leads to stress and lack of efficiency.



The above graph is a typical spectrum without conscious focus on love or appreciation. Below is another example of coherence when love was being experienced.



THE HEART'S BALANCING FUNCTION

The heart is a *balance* organ whose function is to balance and regulate the physical, mental and emotional natures. (The importance of balance is not yet fully understood, but I believe it will be discovered to be the key to energy efficiency in many areas in the near future.) The lower the frequency of a wave, the more power or force the wave contains. Another way of saying this is that the closer to balance or singularity a wave is the more power it has. Most of the power contained in the heart beat is in the low frequency range below what is audible. Heart energy originates from balance or zero and radiates from there; then it rests or returns to zero, regenerates and fires again, sending en-

ergy throughout your system. It is when the heart no longer returns to its balance point of regeneration that ventricular fibrillation occurs.

It is widely believed that there is no such thing as a free energy machine, yet there are individuals who have the ability to live and fully function with very little or no food intake for extended periods of time. Once instrumentation is developed which is capable of measuring the energy output of living beings, I believe it will be easy to show that the amount of energy output from most people will far exceed the caloric input they consume. Where does this additional energy come from? My conclusion is that it originates from the same place as the heartbeat — a less dense octave in the harmonic series. Geometrically, we know the ratio which allows energy and information to change scale or dimension without loss of power. This is the same ratio as the one the heart is operating on when sincere love or appreciation is experienced. The fractal structure of the heart is designed to transform this electrical energy from one dimension into another, and from the point of view of the physical dimension, this energy is free as long as balance can be maintained. A deeper look at heart geometry could be the key to understanding and developing a new source of planetary energy.

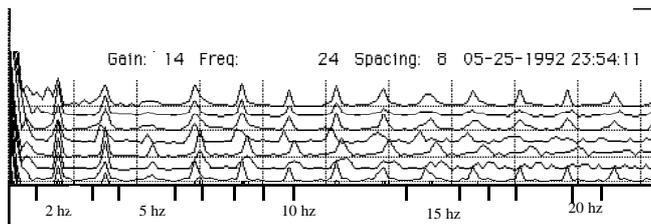
WAVE RELATIONSHIPS IN HEART ELECTRICITY

Consider the relationship between the electrical pulse of the heart, called EKG, and what it pushes as a stricture wave of pressure into the bloodstream. The relationship in muscle between the electrical wave and the sound wave, or phonon, is called piezo-electricity. This refers to the principle of coupling between mechanical or stricture pressure versus electrical pressure called voltage. The mechanics of the piezo-electric connection in crystal or muscle (as liquid crystal) occurs because of a helical stairway shape in the molecules. If you wring out a braided rope, like you would a wet towel,

the long wave pull end to end is “coupled” mechanically to the short wave move inward tightening the braid. It's like you had a slinky between your right and left hands. When you pull the slinky apart, the sides of the slinky move inward or closer together, mechanically coupling the long wave of your hand motion to the short wave of the slinky's braid. This is an important clue to the information relationship of the long wave to the short. A coherent, orderly braiding is required to couple them. The short or electrical wave is more information dense; the long or sound wave is more information unpacked or accessible. This is the heart of the matter, the principle of ALL connections across scale or dimension. Emotion allows attention or feeling in the long wave of sound pressure to reach into the short wave life of cells.

This helps us to understand why helical braiding is nature's choice for the structure of piezo-electric quartz, and for DNA. These structures are the wave braids which permit information to reach between worlds of scale by ratio.

As mentioned earlier, the heart muscle is shaped like seven layers of nested donut or torus-shaped muscle. This is the shape of all natural wave fields. So, essentially the “geometry of pressure” or “shape of the hug,” which the muscle folds around the vortex of blood in the heart, is also the shape of the electrical wave which triggers that muscle. In other words, by looking at the wave shape of heart electricity (by spectral analysis or frequency signature) we are in actuality looking at the shape of the pressure wave being squeezed into the bloodstream. It may not be too romantic to think of this as “the whispers of the heart” reaching out into the far corners of the body.



By looking at the shape of the heart electricity we are actually looking at the shape of the mechanical pressure wave being sent to the far corners of the body by the heart.

The heart is not a simple pump. Ralph Marinelli in Royal Oak, Michigan, has documented that the heart moves blood by generating tornado-like vortex momenta. The coherence of these orderly little tornadoes in the blood is what then travels throughout the body. They remember the instructions of the heart from the shape of the pressure waves in the EKG-triggered heart muscle, which pushed them into their aorta world. So when we find an orderly harmonic series in the EKG, we may be finding the whispers of the electrical "soul," reaching out musically to touch each cell around the body.

HEART/BRAIN SONIC RESONANCE

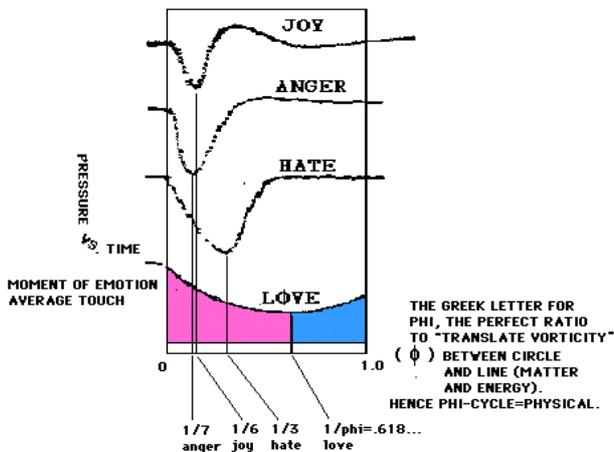
Another puzzle piece supporting this is the sonic resonance the brain has with the heartbeat. Bentov showed that the sounds coming from the heart phase-locked or arranged the sound ordering in the liquid ventricles of the brain. He later came to believe it was this sonic ordering which set up the conditions necessary for superconductive ecstasy in the brain. Bentov built a sensitive capacitive accelerometer to measure the sonic thrust of the heartbeat which causes a ringing sound in the brain which can be heard. This ringing sound is often heard by meditators and many non-meditators when they still the processing of the mind. Bentov started his research in this area by having many meditators tune an oscillator to the same frequency they heard in their ears. He then determined that this frequency was a direct harmonic of the heart sonic. Bentov showed that the heart controlled the brain reso-

nance, and when phase-locked, a standing wave is set up that can be physically heard. Orderly sound collimates the fluids contained in the ventricles of the brain toward conductive crystal, and gently massages the gland centers to their secretion of psychoactive hormones. The heart sounds set the beat to start the sonic superconduction in the brain ventricles whose psychoactive chemicals are largely responsible for our perceptions of reality and our mental and emotional reactions to stimuli from both internal and external sources.

It also appears that low frequency coherent sonics program the immune system by projecting on the thymus gland as if onto the walls of the cave. The thymus is the radiative source of most of immune system chemistry. It is like a sound dish umbrella around the heart that vibrates in resonance with the sonics of the heartbeat. When the thymus shrinks, apparently so does its ability to receive instructions from the heart sonics.

THE WAVE SHAPE OF EMOTION

Medical research has proven that the emotional state of mind programs the cell's health more than perhaps any other factor (or it can be said that negative emotions distort the accurate flow of information). Dr. Manfred Clynes, author of *Sentics*, is well known for his work in mapping the wave shape of emotions and the invention of a pressure transducer and related equipment to measure the wave shape of emotion. His work has been tested in many different cultures around the world.



The chart above shows the wave shape of the basic emotions. Notice that the Golden Mean ratio 1.618 appears again in the emotion (frequency) of love. It is interesting to note that the ratio $1/3$ is the ratio of hate and in a wave form this ratio creates destructive interference among waves. This can be likened to the mechanical waves traveling down a cowboy's whip. If the wave shape is correctly programmed in the long wave at the handle of the whip, then the whip cracks at the short end. If an interfering wave motion is programmed into the whip it will not snap. Positive emotions are constructive or coherent waves and cause the long wave to transform or "crack" into the short waves imparting its energy to the smaller scale ratio such as the DNA. I think of this as Energy Motion, or E-Motion.

BRAIN WAVE COHERENCE

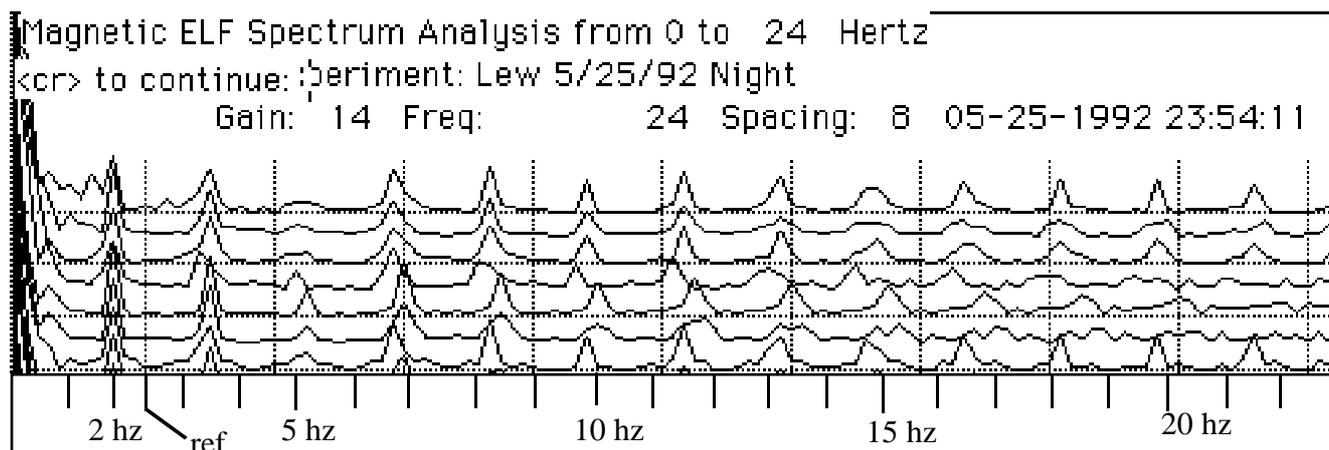
There is another clue to the emotive feeling state creating geometry in the electromagnetic field of the body. This clue is in the extensive body of literature correlating ordering in brain waves, or EEG, to psychological states. Power spectra analyses (frequency signature) of EEG (brain waves) has shown that under certain unstressful and consciously focused conditions coherence exists within the power spectrums of the brain waves. MIT physicist Larry Domash has published elaborate data which illustrate that cross-hemispheric EEG

ordering or coherence, correlates to the health benefits of intentional relaxation. It also seems that onsetting coherence ordering in brain electrical resonances correlates to shared information in a group or telepathy between several people. This was also documented in the "Mind Mirror," EEG spectra research of Cade et al, in "Awakened Brain." The spectral range of significant EEG resonance coherence found in these studies are the same resonances we found significant in the EKG power spectra.

SUMMARY

Current research at the Institute shows a possible link between coherent cardiac electricities and DNA programming. The output of the EKG machine is fed into a spectrum analyzer which shows the frequency content of the heart beat. When people who are skilled in mental and emotional self-management focus on loving or appreciating, the frequency content of their EKG (heart electricity) changes in a significant way. The distribution of the power content of the heart electricity is normally scattered and cancels out. This is called incoherent. However, when love and other positive feelings are being experienced the distribution dramatically changes to a coherent and ordered pattern. This, by itself, is amazing, but even more amazing is the fact that the mathematical ratio between the power peaks is the same ratio as the Golden Mean ratio. This ratio is the one that allows electrical power to change scales or harmonic octaves without losing any of its power or information carried in its modulation. The DNA of every cell in our bodies is built upon this same ratio. There are many other examples of this ratio in cellular structures, but this discovery is especially important because it shows a direct link between the heart electricities and the DNA. In other words, the electricity of the heart programs the DNA much like a radio wave is sent through the air to your radio. The DNA is like a radio receiver and the heart is like the transmitter.

EKG Spectrum Analysis from 0 to 24 Hertz



There is also new evidence appearing in the spectrum analysis showing that the heart electricities contain a highly ordered or encoded intelligence that is ultimately responsible for the instructions sent to the DNA. These waves from the heart are affected by people's emotions and thoughts, so when people are processing negative emotions such as fear, anger, anxiety, etc., the electricities are affected in a way that blocks the proper flow of information from reaching the DNA. If these types of negative patterns are experienced repeatedly over time it eventually manifests in disease. The symptoms of this are already well documented. Doctors and researchers have known for many years that negative emotions and thoughts are the main cause of aging and many diseases. These negative patterns have also been linked directly to heart disease. New research also indicates that conscious generation of "heart frequencies" such as love, care, and appreciation has a positive, beneficial effect on immune system health and brain function, and can reverse the effect of negative stress patterns in the mental and emotional nature.

REFERENCES

1. Winfree, Arthur T., *When Time Breaks Down: The Three Dimensional Dynamics of Electrochemical Waves and Cardiac Arrhythmias*, Princeton University Press.
2. Edwards, Lawrence, *The Field of Form: Research Concerning the Outer World of Living Forms, and the Inner World of the Geometrical Imagination*, Floris Books.
3. Szent-Gyorgyi, Albert, *BioElectronics, and Electronic Biology and Cancer*
4. Jenny, Han, *Cymatics*, Basilus Press, Basel, Switzerland
5. Ghyka, *The Geometry of Art and Life*, Dover Press
6. Cook, *The Curves of Life*, Dover Press
7. Taubes, Gary, *An Electrifying Possibility*, Discover Magazine, April 1986
8. Gyorgy Doczi, *The Power of Limits*, Shambhala Press
9. Clynes, Manfred, *Sentics and Music, Mind & Brain*.
10. Bentov, Ben, *Stalking the Wild Pendulum*, Dutton Publishers.
11. Orme-Johnson, Wallace, Dillbe and Ball, (September 1981) *Improvement of the Brain through the Manipulation of the Unified Field as Indicated by Changes in EEG Coherence and its Cognitive Correlates: A Proposed Model of Higher States of Consciousness*, Paper presented at the American Psychological Society, Los Angeles, CA.
12. Childre, Doc Lew, *Self Empowerment: The Heart Approach to Stress Management; Common Sense Strategies*, Planetary Publications, PO Box 66, Boulder Creek, CA, 95006, 408-338-2161.
13. Childre, Doc Lew, *Heart Zones*, music designed

for stress release and prevention, Planetary Productions, PO Box 66, Boulder Creek, CA, 95006, 408-338-2161.

14. McClelland, D.C. (1985, March), *Motivation and Immune Function in Health and Disease*. Paper presented at the meeting of the Society of Behavioral Medicine, New Orleans, LA.

15. Goldberger, Ary L., *Fractal Mechanisms in the Electrophysiology of the Heart*, Cardiovascular Division, Beth Israel Hospital, Harvard Medical School.

16. Goldberger, Ary L., Ringey, and West, *Chaos and Fractals in Human Physiology: Chaos in Bodily Functioning Signals Health. Periodic behavior can foreshadow disease*, Scientific American, February 1990.

17. Rosinsky, Ned, M.D., *The Geometry of Life*, Sept. - Oct. 1984, Fusion.

18. Eysenck, Hans, *Personality, Stress and Cancer: Prediction and Prophylaxis*, Institute of Psychiatry, University of London, Denmark Hill, United Kingdom

19. Fukudo, S; Lane, JD; Anderson, Nb; Kuhn, Cm; Schanberg, SM; McCown, N; Muranaka, M; Suzuki, J; Williams, RB, Jr; *Accentuated vagal antagonism of Beta-adrenergic effects on Ventricular Repolarization. Evidence of weaker Antagonism in hostile type A men.* Behavioral Medicine Research Center, Duke University Medical Center, Durham, NC

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