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A biophysics model of the organism and its pathology

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ABSTRACT
The aim of this work is to propose a biophysics model of the organism and its pathology that can be used by conventional and cam medical experts alike. The methodology used was in incorporating the ideas of non-linear and linear thermodynamics, self-organization phenomena, electromagnetic fields, complexity and chaos theory, microtubule level organization, biophysics and quantum physics or nanophysics. These ideas are based on experimental and theoretical mathematical evidence that will be cited. This model can provide a larger framework of reference for experts to view the organism and its pathology without condemning the previous model but expanding it to include the ideas or themes stated above. The results as cited in the experimental abstracts that will be cited confirm the validity of this model. In the future the hope is for this model to possibly lead to new mathermatical formulae that will help medical researchers, both in conventional and cam research, reach new levels of understanding of the organism and its pathology.

Keywords:
Non-linearity; Far from equilibrium; Self-organization phenomena; Chaos theory; Electromagnetic fields; Microtubules

INTRODUCTION

Unfortunately in our day and age conventional medical experts as well as some cam medical experts seem to be in quite a quandary over chronic disease. One of the main reasons for this is that the model that conventional medicine uses for the organism and its pathology is lacking in biophysics knowledge and lacks in explaining the biofeedback interactions, the synergy between major systems, and the increasing complexity of introducing medicines that are not in tune with the previous processes mentioned.

If we also want to understand how the organism evolves in its journey from birth to death another concept has to be introduced and that is that human beings are systems that are “far from equilibrium.” What this means is that our energy differs from that of the environment. If our energy were the same with that of the environment then we would be at equilibrium or dead. In this context there are two terms that one has to be familiar with, one is free energy and that is defined in the organism as the energy that has the ability to do work and entropy and that is defined as the degree of disorder in the system.

The laws of thermodynamics explain the mechanisms regulating the rates of metabolic reactions. Without these metabolic reactions occurring in the organism there would be no life as we know it.

As a result of these exchanges and metabolic reactions the variables describing the instantaneous state of the organism varies in time and attains values different from those characterizing the state of the environment. The organism is an open system communicating with its environment thru fluxes: chemical, thermal, electromagnetic energy, etc. which is different as a whole than the environment. Please note Diagram 1. In most cases a person starts with lowest amount of entropy and highest amount of free energy at birth and as he grows older entropy increases while free energy decreases. The Laws of Thermodynamics

can give us an idea of how to view the organism, its pathology, aging, death and the evolution of life.

In this biophysics model I will be using Prigogine and Nicholis' concepts of self-organization phenomena, Epicurus' idea of order coming from disorder that predates chaos theory, the concept of bifurcation, fractals, the concepts of entropy, free energy and microtubules. Organisms are open systems; they react with and to their environment in certain ways. They do so according to their genetic predisposition, (gene makeup, our inherited genes from our parents and ancestors, spatio-temporal patterns in the cytoplasm) acquired predisposition, (information gathered from the way we live our everyday life, our habits, etc.) learning precepts, (memory) psychological frame of mind and consciousness at a specific time, and age factor.

The organism, the cell or any living system, can be considered an open system obeying non-linear thermodynamics. Let me explain this further by making an analogy between the organism and a bicycle wheel. The outside tire can be considered the genetic predisposition or genome of this individual. The spokes within the tire that are attached to the center may be considered the acquired predisposition that we as humans acquire during our lifetime. The center of the wheel may be considered the individual or patient that comes to us with a specific problem during a specific time period within his/her life. Because of the organism's non-linearity, it is quite difficult for us to pinpoint the exact path that the pathology takes in order to come to the surface. For example in a linear system we have A affecting B and B affecting C, etc. in a non-linear system we have A affecting B, but we might also have Z [pathology/memory in the past] affecting A, which we as medical practitioners are not aware of. So we treat the pathology and believe that in making the pathology disappear for the moment that we have gotten rid of the problem. But we see that this is not the case, especially for chronic diseases and this is a very real and severe problem. What this model hopes to explain is why, in disease, when we give huge amounts of non-specific information to the organism we are making the organism more complex with nonsense information, increasing its entropy and making it more difficult for this patient to be treated with success in the future. And it will also explain to cam and conventional medical practitioners why when a correct remedy is given we have the organism reverting back to a previous healthy state with the appearance of therapeutic exacerbation occurring. When we give a medicine that we think is correct and will eliminate the pathological symptom, we will at times see that this is not the case. This is seen in conventional medicine time and time again, especially if the patient is bombarded with many drugs because of countless ailments. The model will explain why this happens and when.

This model puts forth the idea that a pathological symptom is not a negative thing for the organism. In fact it is quite a positive thing since a pathological symptom is viewed as a new steady state of homeostasis for the organism. This new steady state is a means of the organism's own immune/defense system to lower the entropy in the organism in order to avert worse things happening to the organism. In the organism a pathological symptom will appear from the weakest point of the organism and this is determined by certain historically significant memories in the acquired and genetic predisposition of the organism. This model also proposes to explain why it is impossible in just knowing the genome of the organism to predict what pathology the organism will develop in later years. The idea is that the organism has the ability according to its specific positive and negative stressors, experienced throughout its life, to activate [trigger] and deactivate [suppress] genes all throughout its life. This is why the organism becomes so complex and poses so many quandaries to the physician. And this is also the reason why too much information [in the amount and type of drugs] and dissimilar or nonsense information should be avoided at all cost in treating the patient. The model will also show how in therapy similar information or too much information [in quantity] can have the opposite results. In the organism the quantum level where these phenomena occur are the microtubules, no wonder, since it is in these microtubules that the

cytoplasmic water flows. And water has very special properties that will give us answers to many of our unanswered questions.

METHODS

The Model

In using biophysics and quantum physics to represent the system/organism that is far from equilibrium we can use a bifurcation diagram to represent how it can diverge into bifurcation of new branches or steady states. Please note Diagram 2.

This is a graph representing state variables of the system X and how this is affected by control parameters λ. For example when the organism has a common cold, we will say that the λ at this time is considered a small value and thus x remains at a steady state since the organism can very well damp external perturbations or internal fluctuations with small values of λ. This is called asymptotic stability and is represented by Diagram 3. Thus the organism's immune system can take care of this cold and the cold is gone in a few days. Now when the organism faces many stressors, the λ is no longer small in value and thus when this surpasses the critical threshold value of λ [which in this case is the immune system] λ no longer equals λc, then the system is forced into bifurcation. Now in the organism depending on genetic and acquired predisposition and the quality and quantity of the stressors each organism will react differently.

The organism's answer to these stressors, as a mechanism to lower the entropy of the system is to stabilize new pathology and go on to another homeostasis. A stress, in this case, is any **information** be it in the form of chemical [foods, drugs,] radiation, emotional [anger, rudeness, jealousy] physical [overworking], etc. that the organism is exposed to at a specific time. All these stressors in different quantities and qualities will affect different organisms in different ways. Different human beings will be affected differently because no two human beings are exactly alike.

Now what determines whether the organism/system is pushed into chaotic dynamics is dependent upon whether the stress factors are strong enough and recognizable by the organism to push the system from its steady state and overcome its CRITICAL THRESHOLD VALUE [λc].

This CRITICAL THRESHOLD VALUE is dependent on several factors, listed and numbered below; and these are the properties of the stressors and the information already contained in the patient, organism or system, the spatio-temporal patterns that have historical significance and are represented by genetic predisposition, acquired predisposition, immune system factors, psychological makeup, age, etc.

Thus the critical threshold value is dependent on:

1. Quantity of stressors (and this refers to:)
    a: one type of stressor
    b: more than one type of stressor
2. Quality of stressors. This has to do with the innate properties of the stressor and if they can exert an effect on the system in question, or whether there is no reaction, little reaction or whether the reaction is strong enough to push the system over its critical threshold value and into chaotic dynamics.
3. Affinity of stressor to system in steady state (this is due to whether the system has ever been exposed to this stress factor previously, in other words, its past history with this stressor - its memory of it.)

4. Timing when stressor is applied. Dependent upon other circumstances in the life of the organism, age factor, etc. we might have a larger or smaller reaction.

5. State of the system at the moment of stress effect.

a. genetic predisposition

b. acquired predisposition (memory of previous experiences with toxic substances, heat/cold, etc.)

CHAOTIC DYNAMICS

In a bifurcation diagram when several branches cross the critical threshold value axis, this leads to interaction between bifurcating entities generating secondary, tertiary or even higher bifurcating phenomena. This is called GLOBAL BIFURCATION. In a patient's case this is the point in his life cycle where many stressors/fluxes accumulate and the system/immune system can no longer maintain a homeostasis at steady state A. It is at this point that the system is thrown into chaotic dynamics. [note Diagram2.] At this point phase space is reduced in dimension but becomes more complex leading to the creation of new attractors such as the Rosseler strange attractor. In the state of chaotic dynamics we have the emergence in the organism/system of SELF-ORGANIZATION PHENOMENA. The self-organizing phenomena come forth from non-linear, far from equilibrium systems, such as our organisms, to create and sustain states of new spatio-temporal patterns [dissipative and non-dissipative structures, etc.] that display the existence of coherent correlations of macroscopic range, regulatory, self-sustaining, as well as other properties that could not occur under equilibrium conditions. Examples of self-organization phenomena are the formation of the Benard cell due to convection phenomena, the Belousov-Zhabotinski reaction, the stabilization of new information in dilutions undergoing potentization [i.e. homeopathic dilutions] and the stabilization of new spatio-temporal patterns and electromagnetic fields [leading to new pathology or healthy states of the organism] in the microtubules, the quantum "nano" level of the organism.

Let us talk of the Benard cell. Benard set up a simple experiment where a certain fluid (water) was limited by two horizontal plates. Left to itself the fluid would rapidly tend to a homogeneous or equilibrium state. There would be no temperature or density differences, no spatial inhomogeneities and therefore no notion of space or time. Now if somebody placed a finger on one of the plates, the temperature would be momentarily modified from room temperature (20°C) to body temperature (36.9°C.) This would be called a PERTURBATION or stressor. It is an incident that takes place on purpose or by chance in a system and modifies locally and generally weakly some of its properties. This perturbation dies out since the system keeps no track of it (since temperature will rapidly become uniform again and will equal its initial value.) We call the state that the system is now in ASYMPTOTICALLY STABLE since the perturbations acting on it fade out more or less quickly in time. Now by adding a certain energy flux, in the form of heat, to the system, to the lower plate 2, we can increase its complexity. Thus the temperature of the lower plate is higher than the temperature of the upper plate. Thus we have applied an EXTERNAL CONSTRAINT [or stressor] to the system which does not permit the system to reach equilibrium. Now if the amount of heat added and the temperature difference is small between the two plates thermal conduction will be taking place which is a simple enough operation. There will be a transport of heat from the lower to the upper plate and heat will be evacuated to the external environment from the upper plate. Temperature, density and pressure will no longer be at equilibrium and these will vary in linear fashion from warm regions (below) to cold regions

(above.) But the system will again at one point reach stability and be asymptotically stable. But now if the external constraint [heat stressor] becomes larger, [if we increase the heat, thus raising the temperature] thus removing the system more and more from equilibrium we observe that at a certain critical temperature, matter begins to form a bulk movement. Thus this bulk movement is no longer random and the fluid is structured in a series of small cells called Benard cells. [note picture 1] This happens because due to thermal expansion the layer becomes stratified, in other words the lower plate has lower density than the upper plate. This gives rise to a density gradient which opposes the force of gravity (potentially unstable.) Thus imagine a small volume of the fluid near the lower plate, this is weakly displaced upward by a perturbation. Being in a colder and more dense region it will experience an upward Archimedes force which will tend to amplify the ascending movement further. On the other hand if a small droplet close to the upper plate will be displaced downward it will penetrate an environment of lower density and the Archimedes force will tend to amplify the initial descent further.

Thus we see that the fluid can generate ascending and descending currents as soon as a critical threshold is reached. Complexity is shown in that the movement of the cells, the currents move in a certain direction [see Diagram 4] and the cells unfold along the horizontal axis adopting successively a right handed or left handed rotation.

At this point the system has gone from simple to complex behavior. There arises a notion of space, of order and coherence in the system. This is called SYMMETRY BREAKING and it changes our static geometrical view of space into one where space is shaped by the functions going on in the system.

When the temperature was below the critical threshold value the homogeneity of the fluid in the horizontal direction was rendering its different parts independent of one another. But past the critical threshold value CORRELATIONS start to exist. What this means is that each volume element is now watching the behavior of its neighbor and taking it into account so that it could play its role adequately and participate in the overall pattern. Correlations are statistically reproducible relations between distant parts of the system.

The Benard cell experiment is reproducible and one will always see the convection pattern appearing at the same threshold value. Matter is structured in cells that are alternatively right handed or left handed and once this direction of rotation is established it remains as such in each cell.

Chance and the form of particular perturbation prevailing at the time of the experiment will decide whether a given cell is right or left handed. In the organism which is far from equilibrium, we see that a system can adjust to its environment in a number of different ways. But among these many choices only one is chosen which confers to the system a HISTORICAL DIMENSION or HISTORICAL SIGNIFICANCE. This is a sort of memory of a past event which took place at a critical moment and which will affect its further evolution. Most of the times many doctors are not aware of this past event and neither is the patient, thus many times doctors will make the wrong decisions in this case that will prove extremely dangerous for the patient. In the organism this refers to genetic predisposition plus the acquired predisposition or information which is stabilized during our lifetime. That is why many times when we as medical doctors are facing a difficult case and something out of the ordinary happens to the patient we cannot explain it, it is because of the above mechanisms that this happens. We at that time must be clever enough to realize if this patient needs a

different drug or if the organism is in fact trying to regulate itself to a better homeostasis and leave the organism alone to go through its re-equilibration process.

For the organism the spatio-temporal patterns or self-organization phenomena stabilized in the chaotic dynamics phase are the building blocks of the new steady states, for negative stressors they lead to new pathological symptoms and for positive stressors they lead back though hysteresis to the previous health state with no pathology.

In order for a model to be viable it must explain not only what happens when we have negative stressors but also when we have positive stressors affecting the organism/system. As you can see in the bifurcation diagram [note Diagram2] we can have two possibilites occurring in a bifurcation. As an example let us say that under positive stressors the organism will go into steady state c and we will have Probability 2 occurring. Let us say that in this state, steady state c is different from steady state a; it is probably different in the populations of molecules that have left and right sided chirality [rotates light in a clockwise or anticlockwise direction], in the spatio-temporal patterns or dissipative structures that have been stabilized, in their electromagnetic fields and other properties that will be apparent to us over time. In chronic disease when we give dissimilar information to the organism/system and give it in such an amount that the organism/system is dwarfed by it, what we are accomplishing is that we are for a short time [and the time is dependent on past information in the organism and its present situation plus the amount, toxicity and affinity of the drug given to that specific organism] actually creating a new steady state, let us call it steady state d that does not represent a true annihilation of the pathology but rather the dwarfing of symptoms due to the properties of the drug. And at a later time for that organism when, again the λ value can no longer sustain the steady state d it will plunge the organism again into chaotic dynamics and will bring forth new pathological symptoms or will increase the severity of the previous pathological symptoms.

THERAPY

The therapy section will be divided into two parts. The first part will deal how therapy occurs in the model and the second part will deal with where therapy occurs. Please look at Diagram 2. Let us consider steady state b the new pathological state of the organism. Let us say for example that the pathology that has been stabilized in this organism is epilepsy. In the organism each steady state is represented by certain spatio-temporal patterns that deal with the water properties of the cytoplasmic water and these also display the property of electromagnetic fields which are represented by certain frequencies. This has been made clear in quite a number of abstracts.* Thus we may look at Diagram 5 to once again remember the law of waves or the superposition principle. In this diagram constructive interference is portrayed by W and Y and we see the doubling of the resultant wave, destructive interference is portrayed by X and Z and this is a physics law. Now what happens in the organism follows the laws of biophysics and quantum physics. We are aware that SQUIDS measure electromagnetic waves/frequencies of the organism and they are used in detecting differences between pathological and normal health states. But let us take this a bit further, what if we were to measure these frequencies and give back the same frequencies, would we annihilate the pathological symptoms. And the answer to this question is yes, we

would, as seen in the experiments done by Prof. Anninos and his colleagues on epileptic patients. Please note Diagram 6.

So we see that Prof. Anninos annihilated the steady state c of epileptic symptoms by giving back to his patients, via the SQUID the same electromagnetic fields/frequencies. There were no adverse side effects, except, in the beginning for a therapeutic exacerbation. And as medical doctors we have seen this in many patients, some drugs cause therapeutic exacerbation, not only in the symptoms at hand but may bring up other symptoms as well. Some doctors mistake these for adverse side reactions and may give other drugs to annihilate them, but see in the long run that in "suppressing" these symptoms the patient is actually made worse. Thus from what was said in the beginning, too much information [in the amount and type of drugs] and dissimilar or nonsense information should be avoided at all cost in treating the patient. Let us not forget that chemicals circulate in the body in minute amounts, in nano [10^{-9}] and pico [10^{-12}]

Thus at steady state c when similar information is given back to the organism we achieve a better therapeutic result, since we have destructive interference occurring. Please note Diagram 7. This in physics is also explained by a Hysteresis diagram. Please note Diagram 8. Note that when similar information i.e. a homeopathic remedy, that is an electromagnetic field with specific frequency is given to an organism, we have in fact positive stressors coming in to the organism. These probably differ from the molecular population and the electromagnetic field of the organism displaying a certain pathology in the following manner:

1. If steady state c' molecules display a left chirality, the remedy's molecules display a right chirality leading to destructive interference.
2. the remedy's population volume must be the same or more than the steady state's c's population in order to promote destructive interference.

If these parameters hold then the organism/system shifts/surpasses the C-1 critical threshold value, since steady state c is annihilated and the organism once again goes back to steady state a [the non-pathological steady state.]

WHERE THERAPY FIRST OCCURS

The "makeup" of the person or the information content is not only in the genome or DNA content, but also in the form of different spatio-temporal patterns, electromagnetic wave fields and self organization phenomena in the cellular water of the mictrotubules. The microtubules are very important in the organism.

The cell is the basic unit of the organism. The cell contains cytoplasm and this is made up of approximately 60-65% water. Within the tubular structures of the microtubules we have water which can lead to quantum coherent oscillations occurring via the stabilization of new spatio-temporal patterns.

The difference with the cellular or vicinal water in the microtubules is that because of genetic and acquired predisposition we already have specific spatio-temporal patterns or clusters and specific coherent oscillations or electromagnetic fields set up. Thus in the organism we are always dealing with pre-existing layers of information. These layers of information change as the organism evolves through life. It is this pre-existing information that leads to phenomena such as the Adey window occurring.

Professor W. Ross Adey discovered in experiments on chicks that their cells do not just respond selectively to the frequency of oscillations but also to their intensity as well. No reaction takes place below or above given intensities.

This explains why certain stressors, be they positive or negative must display specific frequencies and intensities to react with a specific organism at a specific time. This also explains why in certain pathological situations only a specific homeopathic remedy is warranted at a certain potency to affect a cure or return of the organism to a previous steady state of health; and why an organism will react to different or the same stressors differently at different times. It is this non-linearity and the constant interactions with our environments plus the fact of a genetic predisposition that an uncertainty principle as to how the organism will finally react is always present. This can also explain how in certain serious cancer cases, multiple sclerosis cases, etc. “miraculous” cures or remissions have taken place without the conventional medical community understanding just what was the trigger.

Doctors and therapists are not in the patient’s organism jotting down exactly what is going on in all the levels at all times. We can only approximate the reality of that moment and in so doing try to give the patient the correct homeopathic remedy or other drug/information so as to alleviate his pathology. In doing so, in rendering the same information - the same spatio-temporal patterns, the same oscillations - back to the organism we are in fact promoting a change in the oscillatory dynamics, in the phases.

The cytoskeleton provides a dynamic network for the cell and plays a role in how it reacts to different stressors. This is a complex network of protein filaments made up of actin filaments, microtubules and intermediate filaments. **Microtubules** are thought to be the primary organizers of the cytoskeleton. They are cylindrical, polymer proteins that are interconnected via proteins called Microtubule Associated Proteins or MAPS for short.

A microtubule is a polar structure, a hollow tube, normally consisting of 13 columns of tubulin dimer. Each tubulin molecule is capable of at least two conformations - a and b. [note Diagram 8] They are connected to the cell membrane and to the nucleus of the cell. [note Diagram 9] The microtubules take part in:

1. Maintaining the structure of the cell
2. As a transport system for different substances, information, etc. **The cellular liquid that is made up of cellular [vicinal] water flows within these microtubules.**
3. They take part in the mitosis of the cell
4. They regulate the force of the neural synapses
5. Due to their paracrystalline and tubular structure they are able to:

a. undergo self-organization phenomena
b. to produce soliton waves; to exhibit quantum level effects
c. they are able to change thermal, chemical or electromagnetic energy and thus stabilize “new” spatio-temporal patterns, oscillating coherent fields, etc. linking them to superconductivity or superfluidity and in return able to change thermal, chemical or electromagnetic energy into photons and this is called super radiance.

Microtubules are made of the protein tubulin. And as their name implies Microtubules are tubular or cylindrical in structure with all that this entails. The microtubules since they are attached to the cell membrane and the nucleus are affected by the different processes going on in and around these structures and in turn they affect these structures by what happens in the microtubules themselves. Thus it is a biofeedback pathway, they all affect each other in one way or another, they are all interconnected in their actions.

The configurations [a or b conformation of the microtubules] or stereochemical structure of the microtubules can change according to the different stressors the microtubules are exposed to. These may have to do with temperature, pressure, thermal, chemical or electromagnetic energy. What is affected is the cellular water that flows in the microtubules. The above stressors can promote changes or stabilize new spatio-temporal patterns or conformations, that all come under the general heading of self-organization phenomena in the cellular or vicinal water flowing through the microtubules.

They can do so if these stressors, as in the Benard cell, keep the cellular water away from its present equilibrium long enough in order to stabilize these new spatio-temporal conformations or clusters in the water. This is analogous to what happens when a "plant, mineral or organic substance drop" is added to the water or water/ethanol dilution in potentization. This is repeated in the organism at the site of the microtubules. Again we have in the microtubules a state of homeostasis, if at this point we introduce some form of thermal, chemical or electromagnetic energy or field that is considered a stressor by the system we will have the formation and stabilization of new spatio-temporal patterns, temporal rhythms, waves or fields.

Because of the microtubules being attached to the cellular membrane and to the nucleus, the above stressors might be introduced internally as a change in the dynamics of the system or it might be introduced externally as in taking the wrong kind of drugs, etc., thus the information might come through the cellular membrane or induced by it as well as from the nucleus and induced by it and vice versa. They work via biofeedback or mixed feedback mechanisms. They are all interacting between each other and reacting to any type of stressor introduced in the system.

The changes in the vicinal water of the microtubules then proceed upwards via a fractal pathway, [note Diagram 10] affecting the cellular membrane by promoting changes in it, affecting the different cell messengers, etc. As the pathology progresses we have a progression of symptoms through the different levels of the organism that can be explained by Fractal Progressions.

Thus in a vessel/microcapillary system, such as the one represented by the microtubules in the organism, the spatial and time dynamics change according to stressors in the environment. It has been proven experimentally that, at a certain critical value of distance between the walls of a tubule, [or in a very narrow gap between two glass plates] that contains a liquid crystal [and the water and ethanol molecules make up such crystal lattice structures]; when this is subjected to oscillating electric or magnetic fields [this is the theory of proton conductivity in which proton transfer in hydrogen-bonded systems is described by a solitonic mechanism and viewed in fluid dynamics as superfluidity or as superconductivity in making a permanent ferromagnet.] we have the formation of specific spatio-temporal patterns that display oscillating behavior with a specific chirality that can be described via wave patterns or fields.

Results from the Evidence and abstracts that support the model

The model is based on experimental and clinical evidence of others and Delinick's work in the field. Its main premise is based on Epicurus,' Ilya Prigogine's and Gregory Nicholis' ideas on order arising from disorder or chaos and self-organization phenomena in systems far from equilibrium. [Please see references 23-26.] These ideas were first presented by the author circa 1992-1993 in the reference articles and books references 1- 15.

The experimental and clinical basis for the constructive and destructive interference of electromagnetic fields applied to the organism is supported by Photios Anninos' work in the field of biomagnetometers, otherwise known as SQUID [Superconducting Quantum Interference Devices.] Please note references 15-17. Patients suffering from Parkinson's disease and non-trauma induced epilepsy have been treated with this method for more than 20 years. Hundreds of patients have been treated with this technique by Photios Anninos at the University of Thrace, Department of Medicine, Medical Physics Sector, Alexandroupolis, Greece.

In the support that homeopathic remedies are electromagnetic fields/frequencies please note references 1-14 and S Weber, P.C. Endler, S.U. Welles, et al, 2008. The effect of homeopathically prepared thyroxine on highland frogs: influence of electromagnetic fields. Homeopathy 97, 3-9.

Vittorio Elia and his coworkers at the Department of Chemistry and Physics,

University "Federico II" of Naples, seem to agree with Delinick and cite the explanations given by her in references 1-15 on what happens in the stabilization of information in the homeopathic dilution in their calorimetric and conductivity experiments. See references 18-22.

DISCUSSION

The biophysics model put forward can explain to the homeopaths the following:

1. the therapeutic exacerbation we often times see. This is dependent on the strength of the pathology in the organism, if there is a strong genetic factor and/or acquired predisposition factor. Also it is dependent on the potency of the remedy that is given, the amount of times it is given, etc.
2. through the hysteresis process we see the appearance of past pathological symptoms come to the surface in a reverse time sequence.
3. the type of potency that is needed and how many times it is needed, etc.
4. what Hahnemann put in his footnotes in the 6th edition of the Organon, about tribelectricity and electromagnetic forces.

This model can explain to the conventional medical doctor the following:

1. why when we bombard the organism with many types of drugs with dissimilar information to the organism we increase complexity and oftentimes entropy leading to higher pathologies.
2. how memories of past events of historical significance to the health of the organism can be triggered by events of the here and now in the life of the individual.
3. how non-linearity, chaos theory and system that are far from equilibrium can help us better understand pathology and the organism.
4. and can provide a mathematical model for the organism

Water has certain properties that enables it, under specific conditions to stabilize certain "spatio-temporal patterns" that oscillate with a specific frequency and thus change the information within the water content to new information. Both the organism and the homeopathic remedy use this property of water to their fullest advantage.

The organism is made up of 60-65% water. This water runs through the microtubules of the cells and one might say is the "storer" or "gatherer" of information the organism receives from the internal and external environment. Thus it is at this level of the cell, which could be called the quantum level that the organism interprets any type of messages, be they thermal, chemical, electromagnetic, etc. and if these messages or stressors persist we will have the stabilization of new oscillating spatio-temporal patterns occurring that can affect the workings

of the cell because the microtubules are attached to the cell membrane, the centromere and to the nucleus that contains the genome. Through fractal progression we have these changes occurring at different levels of the organism and interpreted as such in their own right at each level. Thus, as an example, these changes are registered on different levels as i.e. a change in glucose, HDL, LDL, amount of leukocytes in the blood, tachycardia, the appearance of migraine headaches during the weekend, etc.

The way the stabilization of "new" spatio-temporal patterns work in the organism is that because of the stressors the organism is exposed to we have the system being pushed further away from equilibrium or from a homeostatic steady state. In other words the organism already has certain spatio-temporal patterns in the water of the cytoplasm and this is what gives the organism its present steady state, this is what gives it certain biomagnetic frequencies/fields that the SQUIDs can pick up. The organism with this information that is genetic and acquired maintains the organism in the lowest entropic state available to it.

When this steady state of being is disturbed by new information that has an affinity to this system and it can no longer maintain the system at this lower entropic state it will go into chaotic dynamics and promote a new lower entropic steady state by stabilizing new spatio-temporal patterns. The organism always has to maintain a low-noise, low stress threshold [low entropy] because this is the state that requires less energy to keep it going and thus energy wise it is the most suitable for the organism at that time. Now when new information comes into the organism in the form of stressors and the immune system cannot handle these stressors, we have an increase in the amount of energy needed by the organism to maintain the old steady state of homeostasis [a non-pathological state]. In order to again decrease the noise or stress in the system we have to get rid of this excess information and we do so in the form of pathological symptoms.

The pathological symptoms are the solutions or answer to the increased stress in the system, they are the immune system's answer to decreasing the noise, stress or entropy in the system. Thus the pathological symptoms are the new spatio-temporal patterns stabilized in the cytoplasmic water of the microtubules and these are what change the old steady state of the organism to a new steady state that can be registered by the SQUID as new pathological biomagnetic fields, different from the previous non-pathological biomagnetic fields and as pathological lab and clinical tests. To annihilate or constructively interfere with these pathological symptoms one must flood the system with the same type of information to promote a therapeutic effect. In this respect water is the connecting link between these two processes: the process of Homeopathic potentization and the process of changing steady states in the organism from a non-pathological one to a pathological one.

Thus what is maintained in this abstract is that an organism, be it a human being, animal or plant needs certain, specific information to help it along in its life journey.

In other words, when a person is sick and this person displays a certain pathological clinical picture, we should look into what elements in the universe, be they plant, mineral or organic substances produce this same clinical picture in experimental or clinical provings on healthy human beings. In doing this we are in fact trying to locate the correct and similar information that can annihilate the present pathological clinical picture without adding any more noise or disorder in the system.

If we do find this and these can be called homeopathic remedies, isopathic remedies, the same biomagnetic fields [measured by SQUIDS and given back by SQUIDS,] "hands on" therapy by people who have the ability to detect a patients' biomagnetic field and give back to

the patient the same biomagnetic field, resonance machines that provide pulse stimuli, etc. then we are truly helping our immune systems. This is called homeotherapy.

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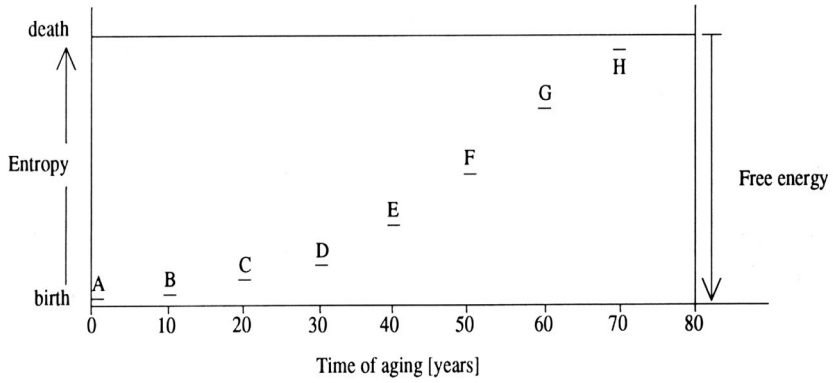

Diagram 1. Entropy vs. Free energy. As we age entropy increases and free energy decreases

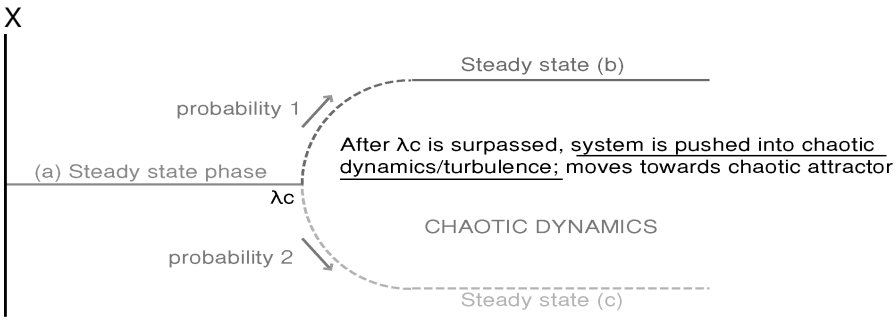

Diagram 2. Bifurcation Diagram. This diagram depicts the bifurcation states available to the organism/system when there is instability in the Steady state phase.

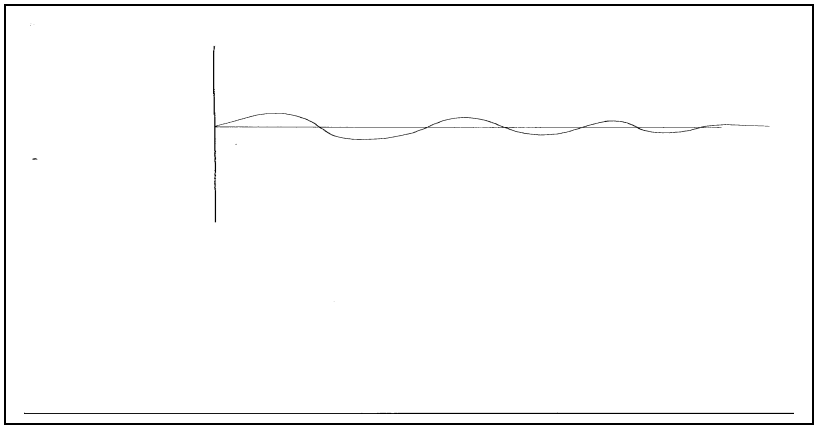

Diagram 3. Asymptotic stability

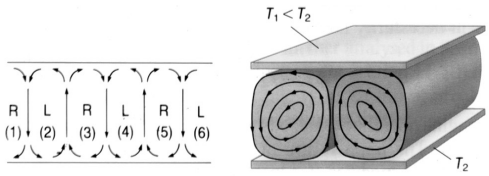

Diagram 4. Benard cell formation

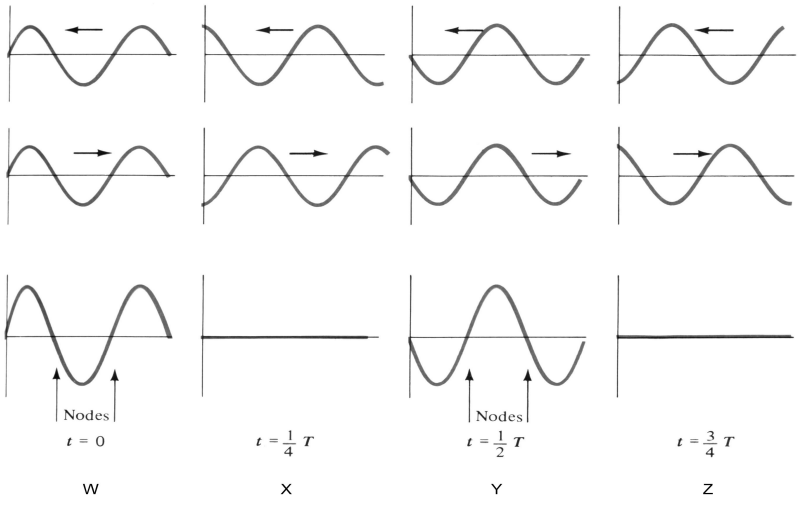

Diagram 5. W and Y portray Constructive Interference, X and Z portray Destructive Interference.

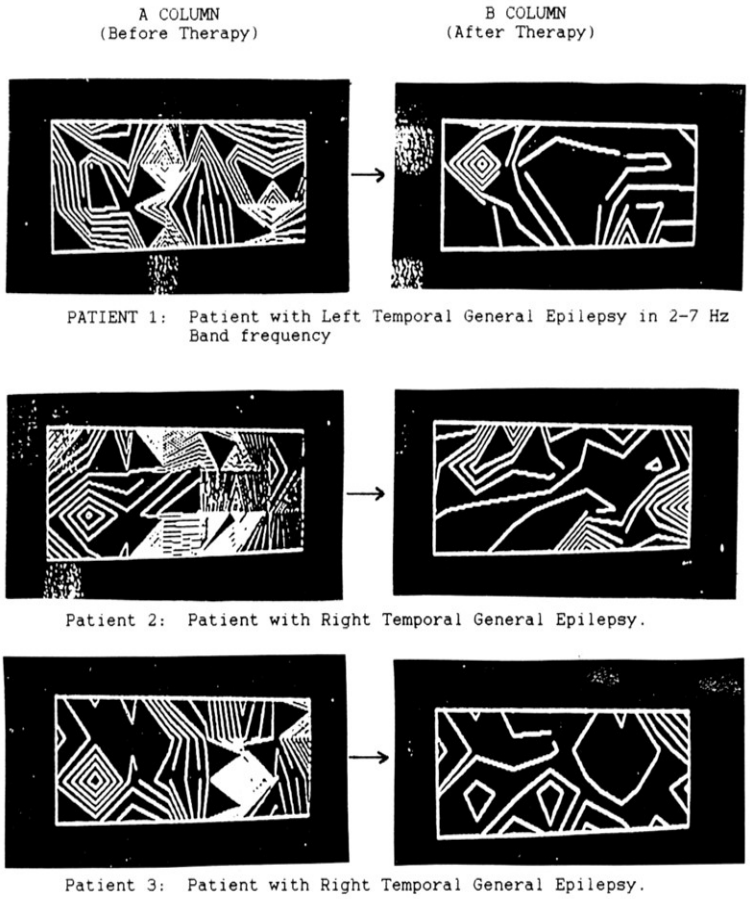

Diagram 6. Iso-spectral maps of epileptic patients before and after SQUID therapy

Diagram 7. Constructive and Destructive Interference

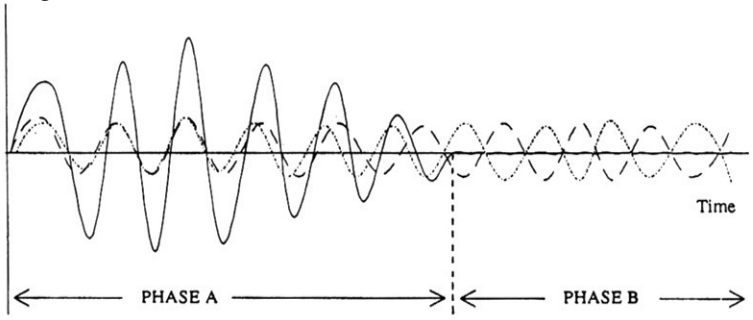

Diagram 8. Microtubule and Tubulin molecule capable of two conformations

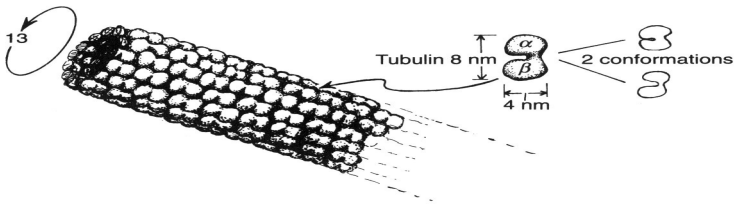

Diagram 9. Microtubules in the cell