NANOPHARMACOLOGY AND THE MEMORY OF WATER

In my opinion, in the future all medicines will be made from ultraclean water, since this will have no adverse affects on the organism. This water will probably have gone through a process, whereby, a certain plant, mineral or organic substance has been dissolved in water and then succused. This process was first introduced by Samuel Hahnemann in the late 1800's and is calle Potentization. This process actually instills in the water a "memory" of the substances dissolved in it, even beyond Avodadro's number.

Thus the water now has a different electromagnetic field or frequency than it had before. This new idiopathic frequency of the water is made possible through the hydrogen and oxygen molecules particularly by the rearrangement/reformation of the hydrogen bonds.

This is what Nanopharmacology will be about in the future and one of the first instances of Nanopharmacology is Homeopathy. This was first proposed by the German scientist, doctor, chemist, botanist and genius Samuel Hahnemann.

Homeopathy was the first form of nanopharmacology and the following hypotheses you will read come to combine nanopharmacology with the memory of water.

I will first introduce a summary of this ideas and then delve in the physics, quantum physics of the memory of water. We must have ultra clean water in order to have best results in therapy.

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THE NANOREMEDY OR HOMEOPATHIC REMEDY

A SUMMARY
Chapter IV

(The numbers in brackets refer to their definition in the Glossary (last Page) and the chapters refer to the 2nd edition of my book "Homeotherapeutics; A Scientific Handbook of Homeopathic Medicine" published by B.Jain Publishers, India 2006 . The first edition was published by KOAN Publishers in Athens in 2001

It all begins with water. 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 nanoremedy use this property of water to their fullest advantage.

The nanoremedy is a mineral, plant or organic substance that is diluted in a water or water/ethanol dilution. In other words for the mineral, plant or organic substances to become remedies or to offer a specific type of information back to the organism for therapy they must undergo the process of potentization - dilution and succussion in the water. It is important that one realizes that without the water this is not possible, because it is the water that can undergo the process of stabilizing new information as spatio-temporal patterns and producing oscillating wave fronts that exhibit superconductivity or lattice crystal structures.

The water, water/ethanol in the homeopathic remedy can stabilize this new information because the moment the drop of mineral, plant or organic substance is diluted in the water or water/ethanol dilution and succussed [shaken up and down with a specific force, a specific no. of times and in a specific direction] we have at this point broken symmetry or removed the system from its steady, homogeneous state to one where new "spatio-temporal" patterns begin to form combining the information of the homeopathic substance and the water molecules. Before with no such drop added and no potentization occurring we had the spatio-temporal patterns of the water being formed and being "un-formed." Since there was no other substance dissolved in the water. [But since we know water can never be 100% pure, we have seen that even impurities in the water can be potentized and will register a difference in resistance/conductivity measurements.]

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,{35} LDL,{41} amount of leukocytes{44} 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. [entropy is the degree of randomness or disorder in the system]

In simple language, 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.

Other similarities which I have not gone into depth in this book, but I will in others, are the tubular structures, the polarization and depolarization aspects of the two processes, etc.

Also do not forget dear readers, we came from the sea and we still maintain in our organisms the memory of specific procedures that changed our evolution through time. Evolution-wise we are the sum total of our experiences and genetic predispositions. We are connected to our Earth, our Universe through the elements that we are composed of, which are the same elements the earth is composed of. In bombarding our organism with information different from these we are asking for trouble in that we are increasing the Entropy in our systems and thus our Pathology.

Thus what I am maintaining in this book 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 filed 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. In this way we can call all these therapies, Homeotherapies, or HOMEOTHERAPEUTICS. These can be put under the umbrella of nanotechnology or nanoscience. This is the branch of technology/science that deals with dimensions and tolerances of less than 100 nanometers, especially the manipulations of individual atoms and molecules.

I do believe that future medicine and the medicine that will be prevalent in the 21st century will be preventive medicine and this will come under the heading of Homeotherapy or Homeotherapeutics.

The list of abstracts below are where these ideas first appeared.

1. Delinick, A.N."Life, the organism and the way homeopathic remedies act upon it." *Abstract Proceedings: 6th Panhellenic Medical Homeopathic Congress 26 - 27 Nov. 1988*
2. Delinick, A.N. "A New Medical Model of the Organism and its Pathology*" The Berlin Journal on Research in Homeopathy.* Vol. 1., No. 4 & 5; Sept./Dec. 1991, pp. 243-248
3. Delinick, A.N. "A Hypothesis on how homeopathic remedies work on the Organism" *The Berlin Journal on Research in Homeopathy.* Vol. 1., No. 4 & 5; Sept./Dec. 1991, pp. 249-253
4. Delinick, A.N. "The wavelike behavior between homeopathic remedies and the organism" *Homeopathia Internationalis Newsletter* No. 3 [1991], pp. 50-56
5. Delinick, A.N. "Protocol for statistical clinical research study in classical Homeopathy" *ACTAS - Proceedings of the 47th International Medical Homeopathic Congress* organized by the International Medical Homeopathic League. 27-31 Oct. 1992, Cordoba, Argentina
6. Delinick, A.N. "Hypothetical relations between pathology, the organism and self-organization phenomena in far from equilibrium systems" *ACTAS - Proceedings of the 47th International Medical Homeopathic Congress* organized by the International Medical Homeopathic League. 27-31 Oct. 1992, Cordoba, Argentina
7. Delinick, A.N. "A New Model of the Organism and its Pathology" *Abstract Proceedings of the 8th Panhellenic Medical Homeopathic Congress,* 1992, Thessaloniki Greece
8. Delinick, A.N. "A Hypothesis on how the Homeopathic Remedies work on the Organism" *Abstract Proceedings of the 8th Panhellenic Medical Homeopathic Congress,* 1992, Thessaloniki Greece
9. Delinick, A.N. "A Thermodynamic Model of the Organism conducive to Homeopathy" *Abstract Proceedings - OMEOMED 92: First International Congress: The Homeopathic Medicine in Europe 1993*. Organized by Prof. Bornoroni - Istituto Superiore di Medicina Olistica e di Ecologia - University of Urbino- Sept. 24-27 1992

10. Delinick, A.N. “A Hypothesis on the Wavelike Behavior of the homeopathic remedy” *Abstract Proceedings - OMEOMED 92: First International Congress: The Homeopathic Medicine in Europe 1993*. Organized by Prof. Bornoroni - Istituto Superiore di Medicina Olistica e di Ecologia - University of Urbino- Sept. 24-27 1992
11. Delinick, A.N. “A Hypothesis on how the homeopathic remedies react with the organism and how pathological symptoms arise using the new physics theories."*Abstract Proceedings - 48th International Medical Homeopathic Congress* organized by the International Medical Homeopathic League. 24 - 28 April 1993, Vienna, Austria.
12. Delinick A.N., Antonchenko V., Ilyin V., " Physical properties of water and how they relate to homeopathic preparations*" Abstract Proceedings of GIRI Conference*, Montpellier France, 1993
13. Delinick A.N. " The Chamomilla Experiment" *Abstract Proceedings of the GIRI Conference*, Montpellier France, 1993.
14. Delinick A.N., Bourkas P.D., Karagiannopoulos C.G., "Potency measurements of Homeopathic Remedies” *Abstract Proceedings of GIRI Conference*, Montpellier France, 1993.
15. Delinick, A.N. “A Possible Explanation why Like cures Like, in Biomagnetism” *The International Proceedings of Interdisciplinary Congress in "Biomagnetism and Medicine*. Held by the Medical Physics Dept.[Prof. Anninos] - Demokrition University of Alexandroupolis, Greece. Held in Kefallonia, Ionian Islands. Greece May 12-16 1993
16. Delinick A.N., Bourkas P.D., Karagiannopoulos C.G., "Experimental evaluation of the results of the potentization of Homeopathic Dilutions." *Society of Athens*, Greece - *Abstract Proceedings of the 20th Panhellenic Congress of the Medical* May 1994.
17. P.D. Bourkas, A.N. Delinick, C.G. Karagiannopoulos. "Experimental Evaluation of Homeopathic Remedies" *European Journal of Drug Metabolism and Pharmacokinetics.* First International Meeting on Scientific Basis of Modern Pharmacy. Athens,Greece June 8-10 1994, Organized by the military Pharmaceutical Laboratories and Panhellenic Association of Pharmacists
18. P.D. Bourkas, A.N. Delinick, C.G. Karagiannopoulos. "Experimental Evaluation of the Homeopathic Remedy" *Abstracts of the 7th Panhellenic Pharmaceutical Congress,* June 11-13, 1994 organized by Panhellenic Association of Pharmacists and the Hellenic Pharmaceuticals Organization
19. Delinick, A.N., Bourkas P.D., Karagiannopoulos C.G. "Experimental evaluation of differences between homeopathic dilutions in comparison to double distilled water." *Abstract proceedings of the GIRI Conference* held in Israel in 10-12 Dec. 1994.
20. Delinick, A.N., “Research Methodology in Homeopathy” *Abstract Proceedings of the50th LIGA International Medical Homeopathic Conference* held in Oaxaca, Mexico, Oct. 2-6, 1995.
21. Delinick, A.N., “The point of scientific Homeopathic Research” *AbstractProceedings of 51st International Medical Homeopathic League*, Capri, Italy 2-6 Oct. 1996

22. Delinick, A.N., “Experimental Measurements of Natrum Muriaticum - a homeopathic remedy" *Abstract Proceedings of the Milan Conference on Holistic Therapies*, Milan, Italy, Feb. 1997
23. Delinick, A.N., "Experimental Measurements of the Homeopathic Remedy carried out at the National Technical University of Athens" *Abstract Proceedings of 52nd LIGA International Medical Homeopathic Conference*, Seattle, Washington, U.S.A. May 1997.
24. Bourkas P.D., Karagiannopoulos C.G., Delinick, A.N., “Identification of Water Dilutions through Electrical Measurements” *Abstract proceedings of 9th International Symposium on Electrical Instruments in Industry - IMEKO - International Measurement Confederation - IMEKO TC-4 Technical Committee on Measurement of Electrical Quantities*. Sept. 1-9 1997, University of Strathclyde, Glasgow, Scotland. Pp. 213-216.
25. Delinick A.N., *Compilation of my research articles in the European Journal of Classical Homeopathy*, Published by the Association of Homeopathic Physicians in Bulgaria, [in Bulgarian] 1999.
26. Delinick A.N.,“Water, its properties and the Homeopathic Remedy” *Abstract Proceedings of the 12thPanhellenic Medical Homeopathic Congress*, November 25-26, 2000 Athens, Greece
27. Delinick A.N., “Reductionism vs. Holism*”* *European Journal of Classical Homeopathy*. Spring 1995. Vol. 1. No. 1. [Research] Pp. 22-26.
28. Delinick A.N., “The Question of Research” *”* *European Journal of Classical Homeopathy*. Summer 1995. Vol. 1. No. 2. [Editorial]
29. Delinick A.N., “On What Primary Level of the Organism does the Homeopathic Remedy Act Upon?… A Hypothesis” *”* *European Journal of Classical Homeopathy* Fall-Winter 1995. Vol. 1. Nos. 3 - 4. [Research] Pp.42-50
30. Delinick A.N., . “A Model of Stress Adaptive Response in Cells and Organisms - Part I” *European Journal of Classical Homeopathy*, Spring-Summer 1996. Vol. 2. Nos. 5 - 6. [Research] Pp. 42-49
31. Delinick, A.N., Bourkas P.D., Karagiannopoulos C.G., “A Pilot Experiment on the Measurements of the Homeopathic Remedies” *European Journal of Classical Homeopathy*, Fall-Winter 1996. Vol. 2. Nos. 7 - 8. [Research] Pp. 11-16
32. Delinick A.N., “A Model of Stress Adaptive Response in Cells and Organisms - PartII” ” *European Journal of Classical Homeopathy*, Fall-Winter 1996. Vol. 2. Nos. 7 - 8. [Research] Pp. 21-30
33. Development of plant model to study biological effects of nanodilutions
Kosturkova G.P.,[1*] Delinick [Delinikou] A.N.,[2]
[1]Senior researcher, Ph.D., Department of Plant Biotechnology, Institute of Genetics, Bulgarian Academy of Sciences Sofia, Bulgaria
[2], M..D, Ph.D undergrad, Department of Chemical Engineering, Aristotle University of Thessaloniki
[3]Sikalidis, C**.A.,** Assoc. Professor, Department of Chemical Engineering Department of Chemical Engineering, Aristotle University of Thessaloniki 34.

Delinick,[Delinikou] Alexandra, **"A Holistic Model of the organism and its pathology"** Abstract, European congress for Integrative Medicine together with the German Congress for Integrative Medicine, 7-8 Nov. 2008, International Congress Centrum ICC, Berlin, Germany.

34. Delinick, [Delinikou] Alexandra, "A Biophysics Model of the Organism and its Pathology" Published in May 2009; 1:2:2009 in "Clinical and Experimental Homeopathy. www.sukulhomoepathycom/newjournal.
35. Invited Guest speaker at International Conference on "Homeopathy, Molecular to Organismal level." Will speak on "Homeopathy, An Introduction to Nanopharmacology" Dec. 10-12 2010, Kolkata, India
36. Invited Guest speaker and co-chair at 4th Annual World Congress of Nanoscience and Nanotechnology – 2014. "Using nanomedicines in the form of electromagnetic fields or frequencies to combat pathologies without any adverse side effects: the Delinick model of disease" October 29-31 2014 Qingdao, China
37. Invited Guest speaker from the International Homeopathic Foundation for the 1st International Homeopathic Congress from April 8 to April 10, 2016 in New Delhi, India. My lecture was entitled "An Introduction to Nanopharmacology." I was also awarded for my book, "Homeotherapeutics, A Scientific Handbook of Homeopathic Medicine."
38. Invited Guest speaker from SCIO-Eductor International, to speak at the Annual Quantum Biofeedback Conference by BHO (27-29 Oct. 2016,) on how bioresonance / biofeedback machines work to implement therapeutic results on the organism as outlined in my book, "Homeotherapeutics, A Scientific Handbook of Homeopathic Medicine."

THE HOMEOPATHIC REMEDY OR NANOREMEDY
CHAPTER V

Unfortunately research in Homeopathy was at a standstill for many years because of "metaphysical notions" and bias on the part of very prominent Homeopaths such as James Tyler Kent, John Henry Clarke, etc. Since Kent and others could not explain how high potencies worked they decided to take an "I don't care about basic research, all I know is that clinically Homeopathy works" attitude. This notion still holds true for many modern day Homeopaths who do not know about the recent advances in science I mention below, and who, because of this lack of knowledge have such an attitude.

It is only recently that new advances in Biophysics, Quantum Physics, Chaos theory, Complexity theory,{17} Self-organization phenomena have led many of us, including myself, to further research into explaining how the homeopathic remedy works and at what level.

During this century Newtonian Physics have been overwhelmed by Quantum Physics.{63} Many of what we considered laws in Newtonian physics no longer hold in this day and age, because of this evolution in knowledge. With more experiments and more knowledge we have a "deepening" of the truth. Truth or reality changes with the evolution of knowledge and this changes as new technology taps into this truth at a deeper level, in different periods of man's evolution.

Basic Homeopathic research is involved with answering three questions.

1. What is the homeopathic remedy? How does the homeopathic remedy convey its information to the water/ethanol or water dilution?
2. How does the homeopathic remedy still maintain this information after Avogadro's Number?
3. How does the homeopathic remedy affect the organism and at what level?

Thus in 1988 I formulated a hypothesis where I explained using complexity and wave theory how the homeopathic remedy works on the organism. My hypothesis was published in an article entitled "A Hypothesis on how homeopathic remedies work on the organism" in "The Berlin Journal on Research in Homeopathy" Vol.1, No. 4/5 Sept./Dec. 1991.

This hypothesis states that through Hahnemann's potentization process we have the emergence of a specific electromagnetic or magnetic field or frequency in the water or ethanol dilution which is representative of the specific properties of the homeopathic mother tincture diluted in this dilution.
I was led to this assumption from what I had read in 1987 in Samuel Hahnemann's 6th edition of the Organon. The type of information the homeopathic remedy gives to the organism is mentioned in Footnotes 146 and 147 of paragraph 269.

146 "Long before this discovery of mine, experience had taught several changes which could be brought about in different natural substances by means of friction, for instance, warmth, heat, fire, development of odor in odorless bodies, magnetization of steel, and so forth. But all these properties produced by friction were related only to physical and inanimate things, whereas it is a law of nature according to which physiological and pathogenic changes take place in the body's condition by means of forces capable of changing the crude material of drugs, even in such as had never shown any medicinal properties. This is brought about by trituration and succussion, but under the condition of employing an indifferent vehicle in certain proportions . . .
147 "The same thing is seen in a bar of iron and steel where a slumbering trace of latent magnetic force cannot but be recognized in their interior. Both, after their completion by means of the forge stand upright, repulse the north pole of a magnetic needle with the lower end and attract the south pole, while the upper end shows itself as the south pole of the magnetic needle. But this is only a latent force; not even the finest iron particles can be drawn magnetically or held on either end of such a bar. Only after this bar of steel is dynamized, rubbing it with a dull file in one direction, will it become a true active powerful magnet, one able to attract iron and steel to itself and impart to another bar of steel by mere contact and even some distance away, magnetic power and this in a higher degree the more it has been rubbed. In the same way will triturating a medicinal substance and shaking of its solution (dynamization, potentiation) develop the medicinal powers hidden with and manifest them more and more or if one may say so, spiritualizes the material substance itself."

Since we know from Physics that waves carry information it is this information that is given back to the organism in the form of an electromagnetic field, magnetic field or frequency that promotes

a therapeutic effect in the organism. This is done via the Superposition Principle.{79} Thus the homeopathic remedy gives back to the organism a specific electromagnetic or magnetic field or frequency which is the same as that of the organism. This is what is meant by "Like cures Like" or "Similia Similibus Curentur" in Latin.

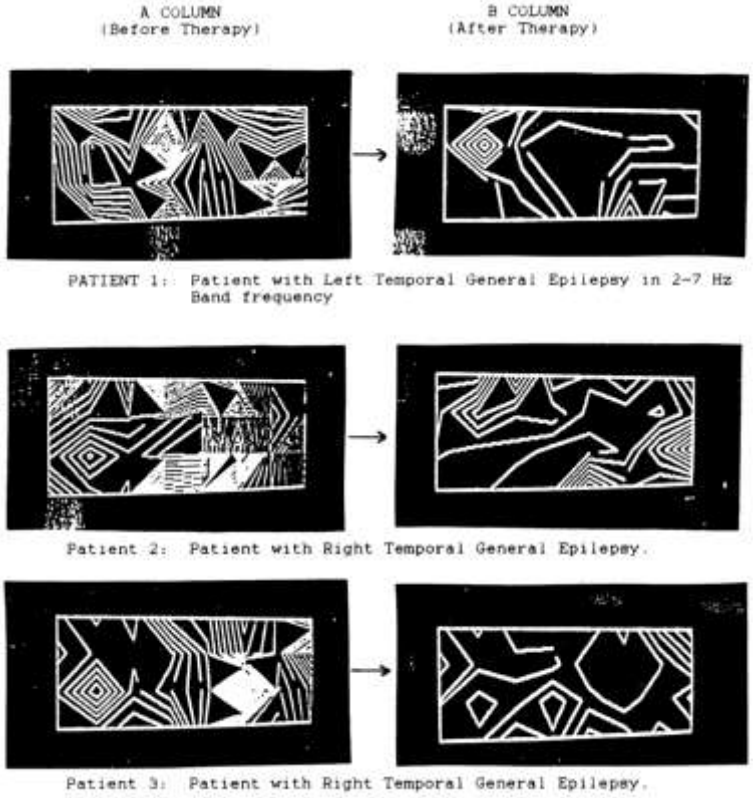
This can also be seen as new spatio-temporal patterns [breaking symmetry{9}]occurring in the water-ethanol dilution since the homeopathic remedy can be seen as the force keeping the dilution far from equilibrium. These spatio-temporal patterns oscillate quite distinctly and can be annihilated by their exact mirror images. Let us suffice here by saying that in using the wave analogy one can see this operation quite simply.
And how do we know that the organism has the same electromagnetic/magnetic fields? We know that living organisms are made up of cells and these are usually surrounded by cell membranes. In order for metabolism to occur there is usually an ingoing and outgoing flux of ions across these membranes. When we have an accumulation of positive ions on the outside of the cell membrane and an accumulation of negative ions on the inside of the cell membrane we have different action potentials being set up.
These action potentials have the ability to produce currents and thus living organisms are considered capacitors, they have the ability to produce electricity or current and thus also have the ability to produce electromagnetic fields, since around each current we have a specific electromagnetic field being produced.
Certain specific machines have been made to measure these biomagnetic fields and these are called Super Conducting Quantum Interference Devices, or SQUIDS for short. So we may say that the present clinical situation of the organism may also be seen as the specific electromagnetic/magnetic fields displayed by the organism at that time. These biomagnetic fields change according to a pathological or non-pathological situation of the organism, and thus change through time and from different stressors{75} affecting the organism.

So a Homeopath asks all of the questions listed in Chapter IV and more in order to understand the clinical picture of the patient at that moment. Now if we were to take this a step further we could say that the pathological symptoms coming to the surface as pain in the right side of the forehead, etc. represent on the quantum/cellular level of the organism different electromagnetic or magnetic fields and these can be registered by the SQUID [**S**uper Conductor **Q**uantum **I**nterference **D**evice.]

The SQUID measures the changes in bio-magnetic fields of the organism and these changes are displayed by Iso-spectral maps (ISO-SA.)
Through different experiments with a SQUID, Professor of Medical Physics - Fotios Anninos of Democrition University of Alexandroupolis, Greece has seen that the SQUID does not only measure specific brain magnetic fields of epileptic patients but in giving back to these patients the same magnetic fields he can promote an annihilation of their epileptic symptoms. This is shown quite nicely in Diagram 1. Where in Column A we have iso-spectral maps of patients before SQUID therapy and in Column B we have iso-spectral maps of patients after SQUID therapy. As you well notice the lines or patterns are fewer in column B - this represent the annihilation of certain magnetic fields or spatio-temporal patterns that represent the pathological symptoms of epilepsy. In column B we have the bio-

magnetic fields of the patients after they have undergone therapy and their epileptic symptoms have abated.

DIAGRAM 1. Iso-spectral maps of epileptic patients before and after SQUID therapy

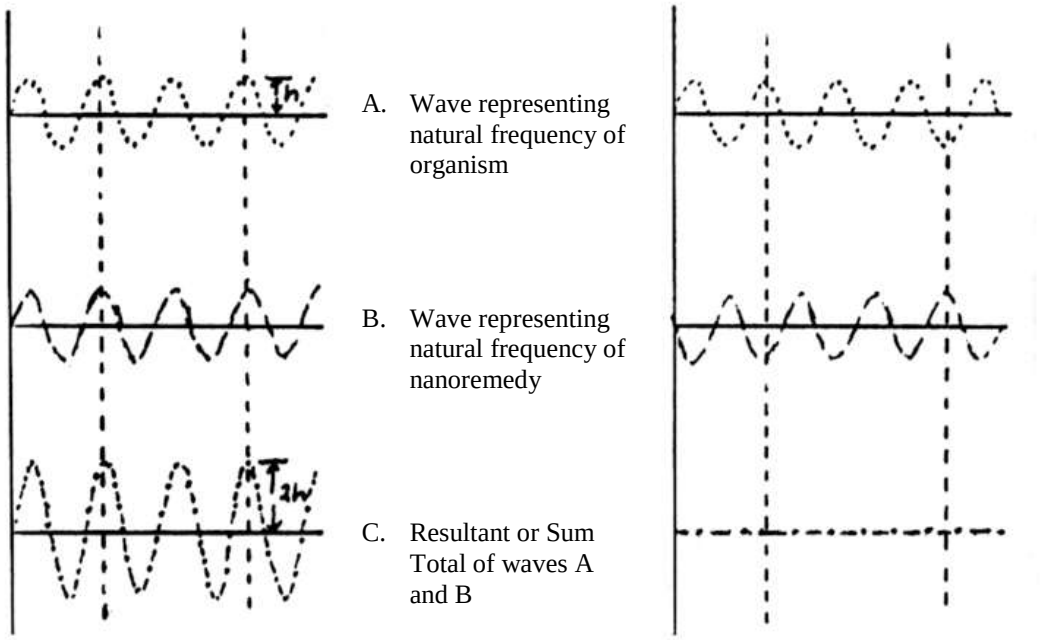


Professor Anninos took epileptic patients and put them in a room where they were attached to the SQUID via electrodes placed at certain points on their head. He turned on the SQUID and measured via a computer in another room the magnetic fields of the brain of these patients. Since we know epilepsy arises from problems in the firing of brain signals, etc. what Anninos measured was the pathological magnetic fields of the brain of the epileptic patient. What he then did was to give back to the patient in the other room the same magnetic field measured from the SQUID. This is an analogy in my mind of what happens with the homeopathic remedies themselves and this was the hypothesis I made using the superposition principle.{79} Please note Diagram 1.
Professor Anninos accepted my hypothesis in an abstract I sent to him entitled “Á Possible Explanation why Like cures Like in Biomagnetism.” Thus I was invited to present this paper at the Interdisciplinary Congress in "Biomagnetism and Medicine" on the island of Kefallonia, Greece on May 12-16 1993, hosted by the Demokrition University, Dept. of Medical Physics.

We can represent the organism at its present state of health or pathology via a wave diagram, (note electrophysiological explanation above) And we can also represent the homeopathic remedy as a wave diagram (National Technical University measurement experiments) Please note Diagram 2.

DIAGRAM 2 Wave Diagram of Organism and Nanoremedy

[Type a quote from the document or the summary of an interesting point. You can position the text box anywhere in the document. Use the Text Box Tools tab to change the formatting of the pull quote text box.]



According to the superposition principle when waves of the same frequency are IN PHASE [coherent waves] we have the summation of the two called CONSTRUCTIVE INTERFERENCE (or in homeopathic therapeutic terms: THERAPEUTIC EXACERBATION.)
And when waves of the same frequency are OUT OF PHASE we have the subtraction/annihilation of these waves and thus DESTRUCTIVE INTERFERENCE(or in homeopathic therapeutic terms: THERAPY or the HEALTH PHASE.)In Homeopathic therapy what we have occurring are both these phases and this can be seen in Diagram 3.

DIAGRAM 3. Wave representation of what happens between the organism and the nanoremedy or any similar frequency/wave field.

A.1. Homeopathic remedy (nanoremedy)acts via providing organism with a specific Electromagnetic wave frequency / field or specific spatio-temporal patterns.

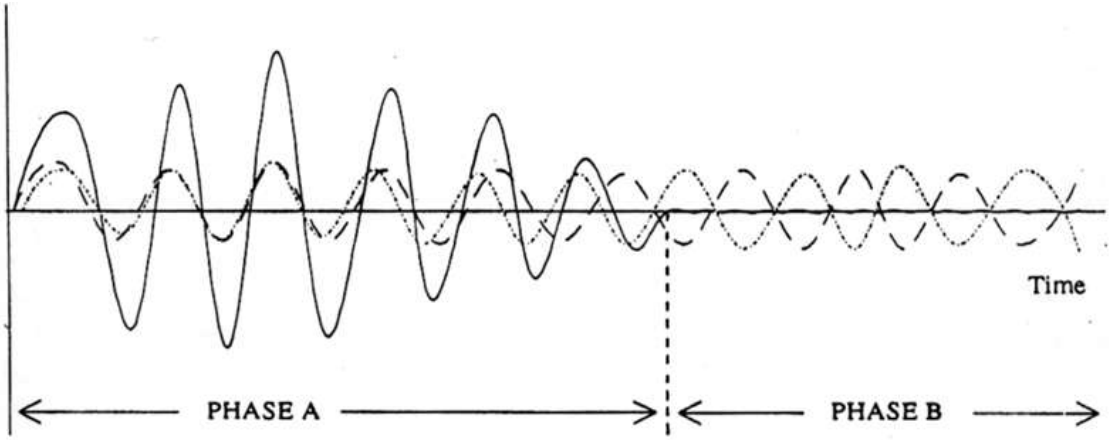
2. The organism also has a specific electromagnetic wave frequency / field, or specific spatio-temporal patterns which represent its present state of health or pathology.

B. Diagram depicting what happens to the organism in a pathological state when given the correct homeopathic remedy.

1.Organism's electromagnetic wave frequency / field (specific spatio-temporal patters) is represented by dotted (…….) line.

2. Homeopathic remedy's electromagnetic wave frequency / field (specific spatio-temporal patters) is represented by dashed (- - - - -) line.

3. Resultant electromagnetic wave frequency / field (specific spatio-temporal patters) is represented by solid (_____) line.



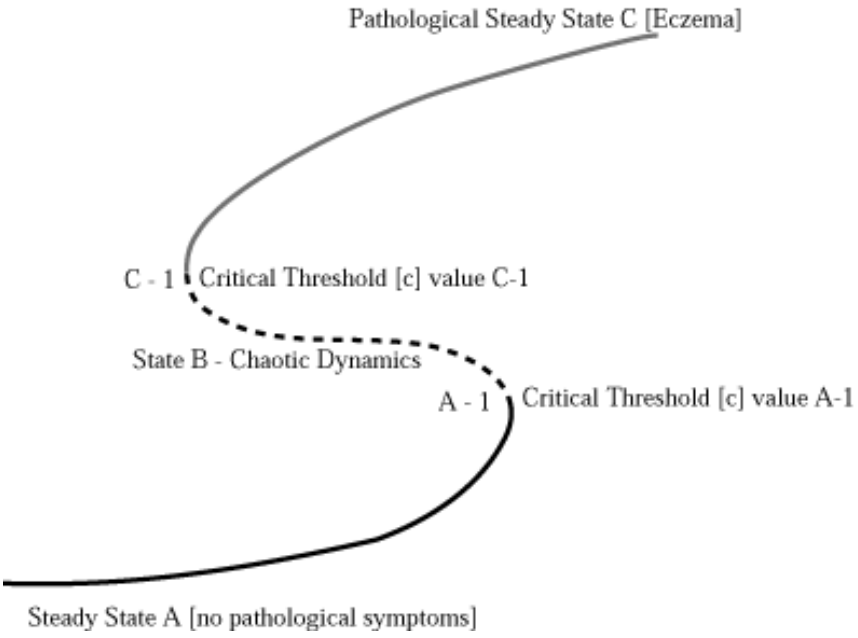
PHASE A: Exacerbation of pathological symptoms (homeopathic therapeutic exacerbation) this is where Constructive Interference is occurring between two fields / frequencies. In Phase

PHASE B: Annihilation of pathological symptoms or Health phase. We have Destructive Interference occurring here. Out of Phase

*The above diagram was first presented at the Hellenic Medical Homeopathic Society Conference in 1998 and published in the "The Berlin Journal on Research in Homeopathy" Vol.1, No. 4/5 Sept./Dec. 1991 in an abstract entitled “A Hypothesis on how homeopathic remedies work on the organism."

So in giving the correct homeopathic remedy to the organism and this could be a person or an animal, we have the return of the organism to a previous healthier steady state. This in physics is explained by Hysteresis.{38} Please note Diagram 4.

DIAGRAM 4: Hysteresis



Hysteresis in this case may be seen as the path taken forwards in the organism to arrive at the new pathology and it is also the same path taken "backwards" when the correct homeopathic remedy is given to the organism that allows the organism to go back to a previous steady health state that did not have any of the "new" pathological symptoms. More about how the homeopathic remedy affects a therapeutic effect on the organism will be given in Chapter IX.

Now after introducing this hypothesis to the homeopathic doctors and pharmacists, a homeopathic and conventional pharmacist Mary Bourkas got in touch with me and told me that her husband Pericles Bourkas, a professor at the National Technical University of Athens, wanted to talk to me about a machine. In fact when we met he made a point of telling me that his wife, since she was a homeopathic pharmacist, had asked him to make a simple machine that would succuss the remedies. Wanting to find out more about this process he read the available literature and he then told his wife to get in touch with someone from the Homeopathic community involved in research who did not deal in metaphysical explanations. She apparently gave him to read what I had written and a meeting was held between us. We then proceeded to work together to carry out measurement experiments on the homeopathic remedies at the National Technical University of Athens.

Since the first prototype machine made by P.Bourkas and C. Karagiannopoulos did not lend itself to the appropriate measurement task a second prototype machine was made according to the input of my ideas. This second prototype machine measured the electrical resistance {65} or conductivity{18}of the homeopathic dilution.

This was an important step in the development of homeopathic research since before this time there was no way of measuring the homeopathic substance through chemical or biological means. These experiments are still being continued.

The problem with measuring the homeopathic substance through chemical or biological means is that in the "potentization" process, in other words in the way the homeopathic remedy is prepared, the dilution surpasses Avogadro's number. [Avogadro's number, named after the scientist who proposed the principle on which it is based, is a mole or the quantity of a substance which contains 6.02×10^{23} items.] It was believed that in dilutions surpassing this number there is none of the primary substance dissolved in solution. In other words if a dilution surpassed this number and for the homeopathic dilution this is 12CH for centesimal potentization and 23x for decimal potentization then the scientific community believed that there was no homeopathic information still in the water or ethanol/water dilution. Thus, they believed, that the homeopathic dilution past this Avogadro's number did not contain any homeopathic drug information and thus they considered it to be placebo. Up till this time, researchers, scientists and homeopaths were trying to use chemical or biological means to detect changes in the dilutions and they were unsuccessful because they were trying to measure properties not easily measured or exhibited by the homeopathic remedy in the potentized state.

At this time when we looked to measure resistance/conductivity we were more successful. Let me now describe the experiments as they were carried out and our results from the experiments.

The hypothesis was that the "potentization" process begins an electrochemical reaction in the dilution. Since the potentization process is comprised of succussion{76} and dilution we may begin by explaining that water or ethanol dilutions are considered the "neutral" solutions or what Hahnemann refers to in Footnote 146 of the Organon, when he speaks of, "whereas it is a law of nature according to which physiological and pathogenic changes take place in the body's condition by means of forces capable of changing the crude material of drugs, even in such as had never shown any medicinal properties. This is brought about by trituration and succussion, but under the condition of **employing an indifferent vehicle in certain proportions . . ."**

The **indifferent vehicle** he refers to is the water and ethanol he uses. What this means is that water and ethanol have certain specific properties that render them able through certain procedures, such as potentization, to be able to stabilize "new information" that has been diluted in it.

Many have tried to give an explanation to this process. They have done so from their own points of expertise and knowledge. That is why when you read different papers on the subject you might be confused as to the multitude of different ideas brought forth to explain the phenomenon that goes on during potentization. I will cover this discussion in Chapter VII and in another book.

In this respect during the potentization process we are introducing a substance, different from the water and ethanol molecules that keeps the system far from equilibrium. In succussion we are providing the necessary conditions for the stabilization of new spatio-temporal patterns that exhibit oscillating behavior and that do exhibit particle and wavelike properties.

In this book, where I make it easier for the lay person, medical doctor, homeopath who do not have a background in Biophysics, Quantum Physics,{63} etc. to understand, we will suffice with a very "general and loose" description of the process. One may say that these electromagnetic fields or oscillating spatio-temporal patterns represent the specific homeopathic information of the specific homeopathic substance dissolved in dilution and thus it is this information that is passed on to the organism.

So the above information was substantiated also by the measurement experiments done by my colleagues and myself at the National Technical University of Athens. We saw that in measuring the resistance of the homeopathic dilutions that each homeopathic remedy and each potency had a certain specific frequency or resistance value. This was a quantifiable measurement or property that was measured by the second prototype machine.

Let me just show you some values when we measured the voltage of potentized and non-potentized Natrum muriaticum [a Homeopathic drug, a mineral substance, Sodium chloride]. The Natrum muriaticum was dissolved in Cooper Co. Water for Injection [a double distilled water used in pharmaceutical preparations]

	Volts	Resistance [kiloohms]
1. Non-potentized Cooper Co. Water for Injection:	4.9	15.3
2. Potentized 6CH Cooper Co. Water for Injection:	4.8	15.0
3. Potentized 30CH Cooper Co. Water for Injection:	4.8	15.0
4. Natrum muriaticum-potentized 6CH [made from same Cooper Co. Water for Injection]	1.96	61.2
5. Natrum muriaticum - potentized 30CH [made from same Cooper Co. Water for Injection]	3.48	108.7
6. Natrum muriaticum - potentized 6CH [in 43% ethanol made with Cooper Co. Water for Injection.	0.523	16.3
7. Natrum muriaticum - potentized 30CH [in 43% ethanol made with Cooper Co. Water for injection]	5.938	185.2

As you can see in No.1, the distilled water which was the Cooper Co. Water for Injection that did not have the remedy Natrum muriaticum in it and was not potentized gave us almost the same readings as No. 2 and No.3. This is what we expected. Although we potentized [using Hahnemann's method of dilution and succussion] the water, because there was no Homeopathic remedy [no Natrum muriaticum] in the water there was no major difference in the readings. The difference between the No. 1 and Nos. 2 and 3 readings could be the fact that during potentization any "impurity" in the water is potentized, in other words is given a certain field or spatio-temporal pattern in the water, water and ethanol. In the succussion process what we have occurring is constructive and destructive interference between similar impurities.

But now going on to No.4, where we have a potency of 6CH Natrum muriaticum dissolved in the water we see an immediate difference in the measurements between the water by itself and the water with Natrum muriaticum.

In No. 5, where we have a larger potency of Natrum muriaticum 30CH we again see a higher value than compared to that of 6CH and this is what we would expect for our hypothesis to be correct.

In No. 6 where we use ethanol to stabilize the 6CH remedy even more so than just in plain water we have the value received.

But then in No.7 with the 30CH potency we see why pharmacists prefer to stabilize the homeopathic remedies and make them stronger by adding ethanol to the water. The 5.938 value is much greater than the 3.48 value gotten from 30CH Natrum muriaticum dissolved only in water.

*The dilutions were prepared by an experienced Homeopathic chemist - Arhontoula Hatzilazarou - chief chemist for Homeopathic pharmacist George Korres. The experiments were carried out in Korres' homeopathic lab area following classical homeopathic guidelines. George Korres is one of the leading Homeopathic pharmacists in Greece.
The follow-up to this experiment and unfortunately the one written up in the British Homeopathic Journal - Jan. 1998, Vol 87, pp. 3-12 concluded that these same results were not observed in a second experiment. The same results were not obtained because of certain mistakes and variations on the parts of the experimenters, which I was not aware of at the time and which were made clear to me by my fellow experimenters after the experiment was finished.
Unfortunately for the homeopathic research community, Harald Walach [Ph.D. in Rehabilitation Psychology], Rainer Ludtke, Claudia Witt, Tedje Van Asseldonk and Galen Ives, who participated in the second experiment, did not accept my fully documented explanation why the second experiment went wrong. Michel Van Wassenhoven accepted my explanation but he was out ruled by the others. They did not accept the explanation for their very own reasons and because of their lack of knowledge in electrical engineering, their lack of knowledge in how the machine or Delmeter worked. The experiments were never repeated and unfortunately for reasons beyond my knowledge and comprehension my explanation was never published in the above journal and the "machine" was considered a failure by the homeopathic community and rather by people who did not know anything about measuring resistance or what it entails to make such a machine. Of course this had repercussions for me professionally as well as personally.
But I am satisfied that people who are experts in this field accepted our explanations and a paper entitled "Identification of Water Dilutions through Electrical Measurements" Bourkas, Karagiannopoulos and Delinick was published in the Proceedings pp. 213-216 of the International Symposium on Electrical Instruments in Industry, IMEKO TC-4 Technical Committee on Measurement of Electrical Quantities, IMEKO International Measurement Confederation held at the University of Strathclyde, Scotland on Sept. 8-9 1997. The experiments in the measurements of the homeopathic remedies will be continued by me on a new prototype Delmeter.

So in conclusion we saw that as we increased potency we increased resistance and this was difficult to explain in classical chemical terms since in classical chemical terms we would think that in increasing dilution of a substance we would be decreasing its resistance and not increasing it and since a picture is worth a thousand words please take a look at Diagram 5 of a homeopathic remedy -Chamomilla [chamomile - plant substance] 200CH and l000CH potencies.

DIAGRAM 5. Chamomilla 200CH and 1000CH. Waveforms depicting measurement of current of the nanoremedy Chamomilla. These were measured at the National Technical University of Athens by Bourkas, Delinick and Karagiannopoulos.

Fig. 1. Waveform of current in alcoholic dilution of nanoremedy – Chamomilla 200CH under alternating field of 100 Hz.

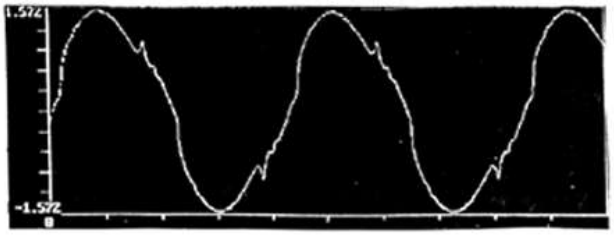
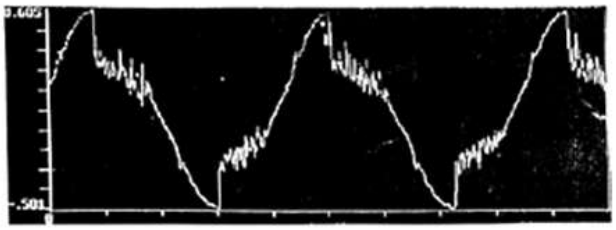


Fig. 2. Waveform of current in alcoholic dilution of nanoremedy – Chamomilla 1M (1000CH) under alternating field of 100 Hz.



*Note the differences between the 200CH and 1M potencies in the waveforms of the alcoholic dilutions of the nanoremedy Chamomilla. As current goes down, resistance goes up, the 1M larger potency chamomilla has a greater resistance and a smaller current reading 0.605 as opposed to the lower potency Chamomilla 200CH and higher current reading of 1.572. The opposite would be expected by the scientific community.
*The 1M (1000CH) Chamomilla has a larger electromagnetic wave field / frequency.

It is the Chamomilla 1000CH which is diluted more times that has increased resistance rather than the other way around. In other words 200CH is a one [1] with 400 zeros before it and 1000CH is a one [1] with 2000 zeros before it. For example 3CH is **.0000001**

This is explained by the fact that in my hypothesis as the potentization process occurs we have the increase of a specific electromagnetic field or increase of specific spatio-temporal patterns, clusters{13} or coherent domains, [although different names are given we are talking about quite the same phenomenon.] In other words in the 1 CH potency let us say we have infused only 1% of the total area of the dilution with this specific information and as we increase potencies we have an increase in the percentage of "area" of the dilution that contains this information, but also this information is also stronger so there in an increase in area and an increase in information strength which can be measured as increased resistance. This is also explained by superconductivity{77} or superfluidity.{78} I say more about this in Chapter VII.

So via the experiments at the National Technical University of Athens we received information on the specific quantifiable and qualifiable properties of the homeopathic remedy. So we see that the homeopathic remedy can be seen as wavelike or it can be seen with particle properties. Each

remedy has a specific electromagnetic field and specific spatio-temporal patterns that it stabilizes in the water/ethanol dilution and it is this specific information that helps promote a therapeutic effect in the organism. So according to our experimental results everything ties in. In measuring the homeopathic remedy we measured its resistance and thus proved its wavelike nature. In giving homeopathic remedies to individuals or animals that have the same clinical picture as the homeopathic remedy in its clinical provings{15} we are in fact promoting feedback of the same information and of constructive and destructive interference as related in the physics of waves or fields and in phase and out of phase oscillation of spatio-temporal patterns as is witnessed in the microtubules of cells. [more about this in Chapter VIII]

Another experiment I would like to include in this book is the Differential Scanning Calorimetry experiment* done in the Chemistry Dept. at the Kapodistrian University of Athens. This experiment proves the changes in phases that the homeopathic remedy can undergo if subjected to an increase in temperature/heat. John Zambetakis, a student at the University, who was also my patient, introduced me to Professor of Analytical Chemistry at the Kapodistrian University of Athens, Anthony Kalokerinos, who showed me a 1932 article from the "Journal of American Chemical Society" entitled "The Integral Heats of Dilution and the relative Partial Molal Heat Contents of Aqueous Sodium chloride solutions at 25^{o} C." It was this article that gave me the idea for the experiments using the Differential Scanning Calorimeter. Since there was a Differential Scanning Calorimeter at the university John then introduced me to Professor Viras who was in charge of the Differential Scanning Calorimeter.{22}

We set up an experimental procedure with Prof. Viras and at the time I was contacted by G.S. Anagnostatos, a nuclear physicist working at the Institute of Nuclear Physics - National Center for Scientific Research "Demokritos" who had found out about my work from another colleague, Beverly Rubik, and had asked to be included in these experiments.

The Differential Scanning Calorimeter used was a DSC-4 Perkin Elmer. What this machine does is measure the energy absorbed or released from a test sample during heating, cooling or being maintained at the same temperature. In this way any change in phase of the substance can be studied in the temperature from 77K to 900K.

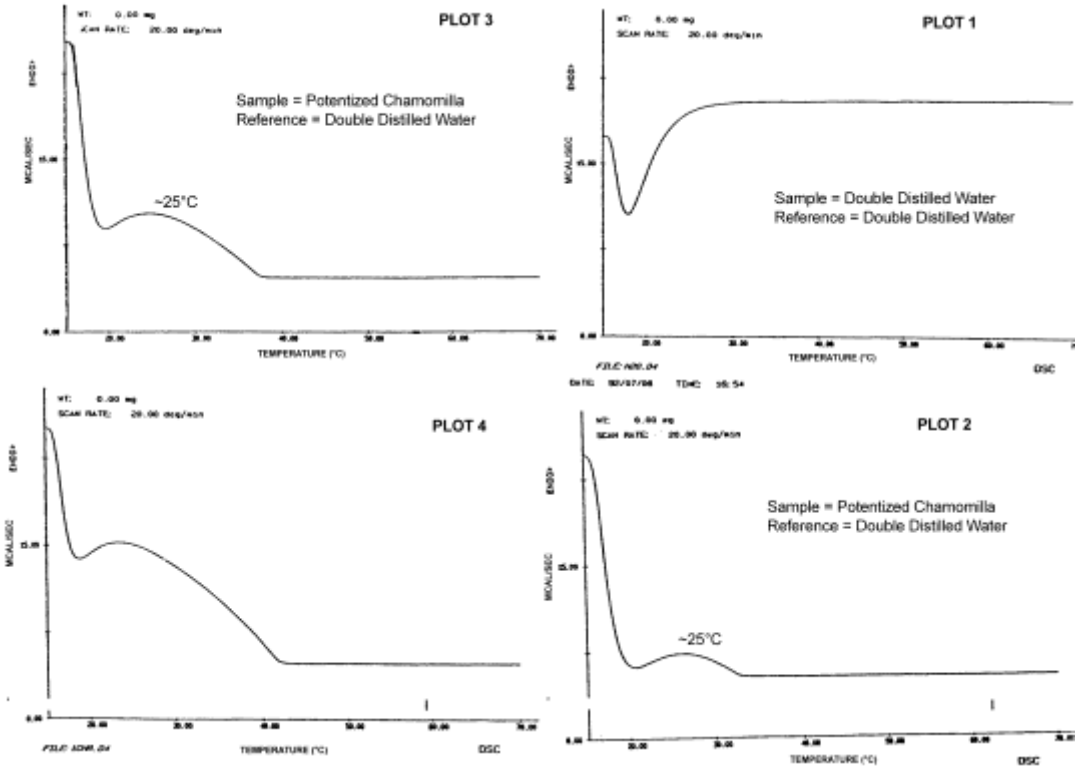
What we saw in doing these experiments using Chamomilla mother tincture potentized to 1CH, 6CH, 12CH and 30CH was a change in phase as we increased the temperature.

What we saw in the actual graphs measured from the DSC was that the spatio-temporal patterns in the homeopathic remedy, the Chamomilla dilution, were broken down steadily as we increased the temperature until no spatio-temporal patterns of the Chamomilla/water molecules were present and thus the graph resembled the graph of simple double distilled water. And since a picture is worth a thousand words I refer you to the graphs below. [note Diagram 6]

In these plots and figures, numbered 1 through 7 below I refer to the different samples and references in the Differential Scanning Calorimeter. Plots 1 through 7 refer to the actual plot results received from the calorimeter as sample and reference were changed and heat was increased. Figures 1 through 7 that are next to them are pictorial representations of the changes in phase or in structure of what I believed was going on in dilution with attractive interactions, the

formation of Cooper pairs and superfluidity. Thus Plot 1 corresponds to Figure 1, Plot 2 to Figure 2, etc.

DIAGRAM 6. Differential Scanning Calorimetry experiments; plots [upper plots 1-4, 5-7] and pictorial representations [plots 1-4, 5-7 below] of what is happening in dilution as heat increases

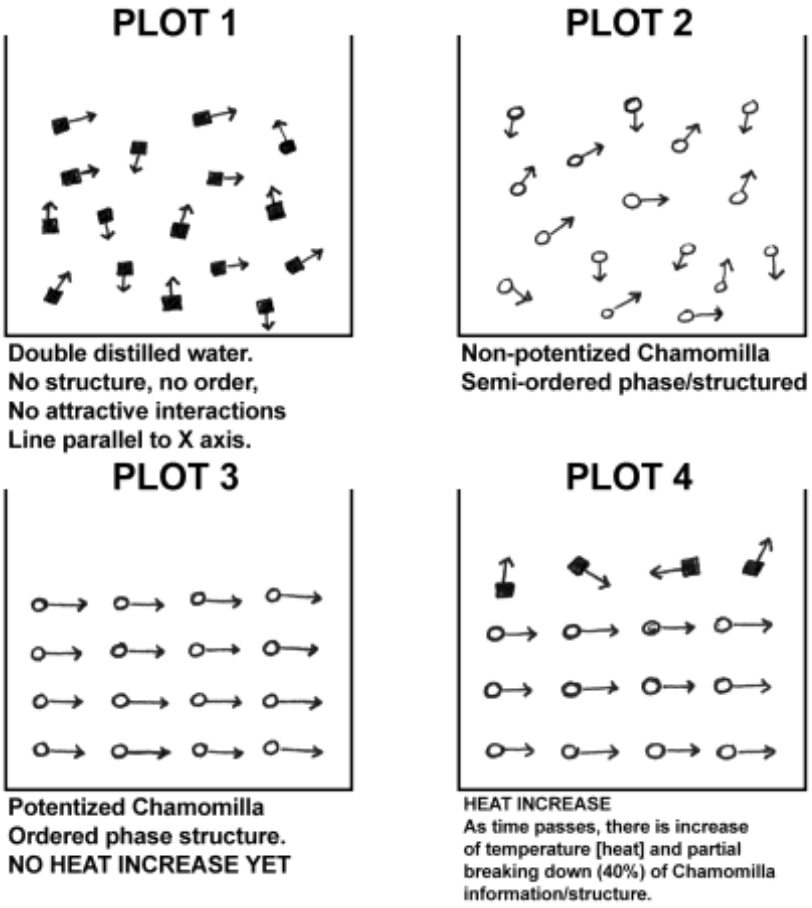


Plot 1: This shows double distilled water in the source sample and double distilled water in the reference. What we see in the Differential Scanning Calorimeter is a comparison measurement between a source and a reference sample. In Plot 1 the instrument did not show any difference since both were water and we got a straight line parallel to the x axis.

Plot 2: Here we used Non-potentized Chamomilla or Chamomilla mother tincture as the source and double distilled water as the reference. And we note an imprint of the Chamomilla information between 20 and 32 degrees.

Plot 3: Here we added the Potentized Chamomilla as the source and double distilled water as the reference. Again we see the imprint of the Chamomilla between 20 and 37 degrees.

Plot 4: This is the same sample as in Plot 3, the only difference is that now we are increasing the temperature, the thermal kinetic order of the molecules and helping break down the specific spatio-temporal patterns or specific field.



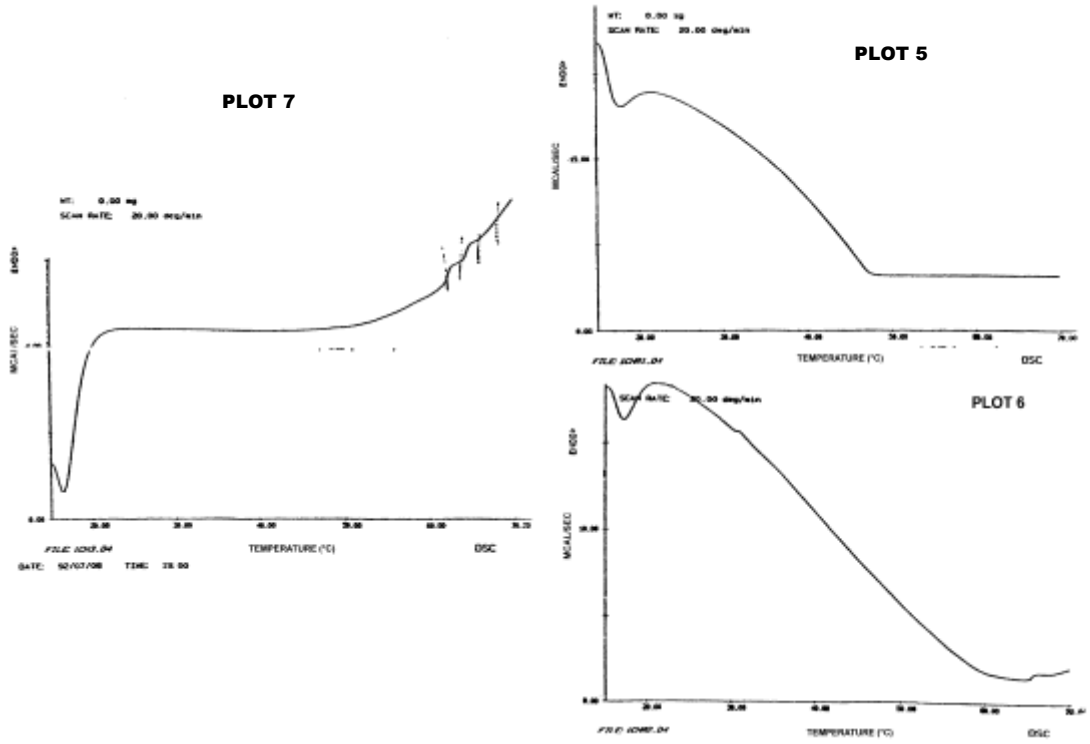
Plot 1: Here we have double distilled water in sample and reference. There is no structure, no attractive interactions, or Cooper pairs.

Plot 2: The dilution of Non-potentized Chamomilla would look different than the water, a semi-ordered phase structure would be present. But it would still be unlike the structured, ordered phase of potentized Chamomilla shown in Figures 3 to 6.

Plot 3: Here we have an ordered phase structure, where superfluidity or permanent magnetism is being displayed by the potentized homeopathic remedy Chamomilla. From Diagram 3 to Diagram 7 we have the **SAME** Potentized Chamomilla as source and double distilled water as reference. No heat increase yet in Plot 3/Figure 3.

Plot 4: With the increase in temperature there is a partial breaking down of ordered phase structure and therefore a small percentage loss of approximately 25% of the Chamomilla information. Thus we could say that 25% of dilution has lost its Chamomilla spatio-temporal order, pattern or field and contains only water inforamtion. It is the beginning of the change of phase.

In Plots 4 to 7 we are simply increasing the heat and noting the reactions in the Figures..

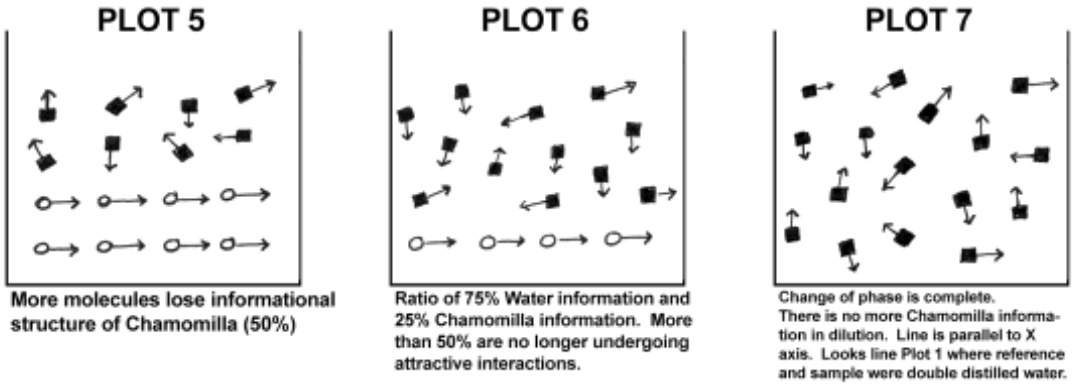


Plot 5: Same sample and reference as in Plot 3. We are continuing to increase the temperature on the same sample and reference. The temperature is still increasing at a rate of 20 degrees per minute. This is the point where more than 50% of the dilution still contains the Chamomilla information and the rest is water information. [see Comparison of plots 1 - 7]

Plot 6: Same as in Plot 3. As seen in the Comparison of plots 1 - 7 this plot - no. 6 contains less than 50% of the dilution containing Chamomilla information. That is why on the Comparison plot it is at 18 mcal/sec while plot 5 is above it at 21 mcal/sec.

Plot 7: Still using the same sample and reference as in plot 3, only increasing the temperature even more we finally come to destroy all the Chamomilla information in dilution and thus we have the Differential Scanning Calorimeter registering both the sample [the previous Chamomilla remedy] and the reference as double distilled water. Line is parallel to X axis as in Plot 1.

The change of phase is completed, there is no more Chamomilla information and we see that the line is parallel to the x axis [see Plot 7 and Comparison Diagram of plots] and it very much looks like Plot 1 which is only double distilled water both in source and reference. Thus by increasing the heat we have destroyed the Chamomilla information in the water and the source sample again displays only water and no Chamomilla and that is why we have the straight line.



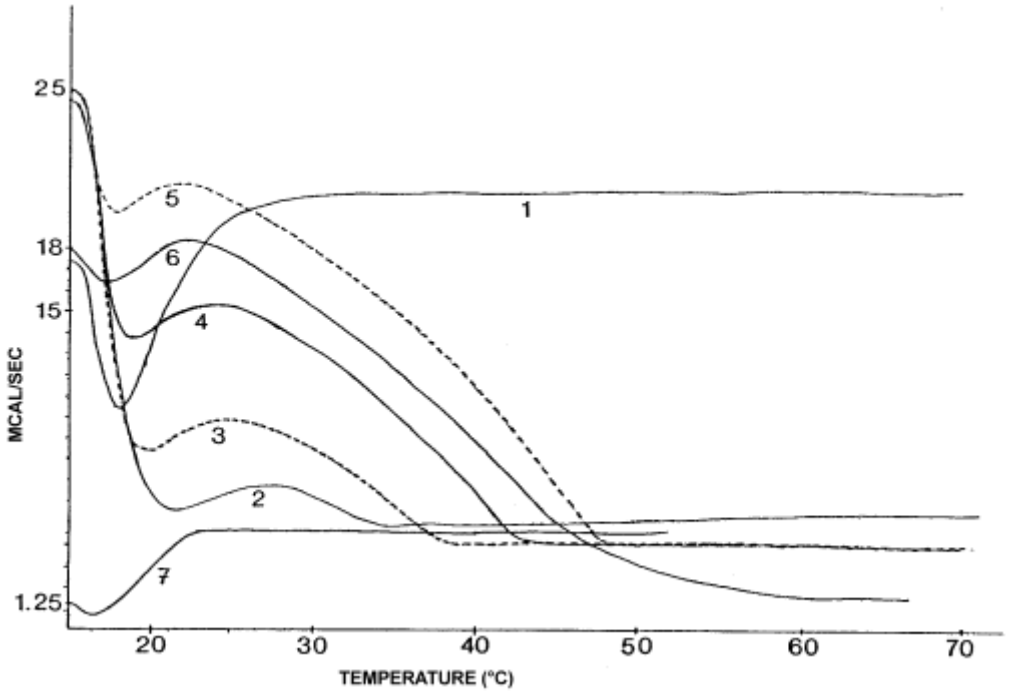
Plot 5: More molecules lose the ordered phase structure of Chamomilla. Approximately half of the dilution is again water and half contains Chamomilla information

Plot 6: Now the ratio is about 75% water information and 25% Chamomilla information. That is why in the Comparison Diagram we see Plot 6 under Plot 5.

Plot 7: A complete change of phase has occurred in the dilution. There is no more ordered phase structure of Chamomilla information. The dilution no longer displays properties of superfluidity, Cooper pairs, attractive interactions or of permanent magnetism. The dilution only displays properties of water.

In other words by keeping the same potentized Chamomilla sample as the source and double distilled water as the reference and just by increasing the temperature by 20 degrees/min. we go from Plot 3 to Plot 7 noting that we have changes occurring. What these changes show us is that by increasing the temperature we are destroying the Chamomilla information and thus the source is reverting back to its double distilled water state. In plot 7 you have a double distilled water curve for source and sample.

COMPARISON DIAGRAM 7: Plots 1 - 7



The Chamomilla experiment using the DSC was first published in the 1992 OMEOMED Proceedings Book under an article by G. S. Anagnostatos, et. al. pp.77-85. My name was omitted but G.S. Anagnostatos thanks me at the end of the article for telling him that the Chemistry Dept. of the Kapodistrian University of Athens had a Differential Scannning Calorimeter. I wrote about this experiment in the Abstract Proceedings of the GIRI Conference held at the University of Montpellier , Pharmacology Department , France in November 1993.

A possible explanation for this phenomenon can be seen easily if we make an analogy between this and how a magnet is made or in seeing how a particular electromagnetic field intensity or frequency is imparted or transferred to a solvent. The solvent in this case is water.
Distilled water is a stable complex, it is an oxide of H_2 it reacts with metals, with non-metals, with acid and basic oxides. Therefore it acts as an ampholyte [amphoteric electrolyte] in other words as an acid or as a base, depending on the other substance.
What we have occurring when we impart one drop of chamomilla in double distilled water and then succussing it is called an equilibrium phase transition. This is comparable to freezing or spontaneous magnetization and is the result of competition between the intermolecular interaction forces, which tend to order the system and the random thermal motion of the molecules which tend to disorder the system.
When we succuss the dilution we are actually inducing equilibrium phase transition by increasing the pressure and thus favoring attractive interaction between molecules [clustering.] These attractive interactions can also be said to make the dilution anisotropic which means that the observable properties of the substance is characterized by a preferred direction.
In the phase transition we surpass a critical threshold value and we have an anisotropic reaction occurring. This anisotropic reaction is characterized by pointing the molecules in a certain direction of space which is what happens in magnetization.

Another example of phase transition is freezing. Here new crystal lattices are formed in liquids cooled below a certain critical temperature. In the non-potentized and potentized dilutions we have a change in translational symmetry. Where as before we had one type of translational symmetry defining the liquid now we have a new one taking its place.

The material is now more ordered. In any physical system the molecules interact by forces of electromagnetic origin. An example would be the short ranged Van der Waals forces. Yet we are talking about long range correlations which affect a change throughout the dilution. This occurs if we lower the temperature or apply pressure to the system by means of compression or succussion. Here the roles of kinetic energy and of intermolecular forces tend to be reversed.

At this point through the succussion procedure attractive interactions or clustering phenomena occur and adopt a configuration or ordering pattern as we see in a phase transition and it displays a characteristic length which is time independent. This is what is known as a "fossil object."

Now what happens in the succussed homeopathic remedy is that when all the molecules have taken on this configuration or have reverted to this new phase transition again a critical threshold is reached and we have mechanical equilibrium occurring.

What is needed for the homeopathic remedy to be potentized even more, is, once again to change these factors, by adding one more drop of the homeopathic substance and thus drive the dilution far from equilibrium. Thus we take a potentized drop of the homeopathic remedy and we add it to another vial of double distilled water and succuss it once more, again starting a whole cascade of attractive interactions and ordering sequences as in spontaneous magnetization and freezing.

An analogy between the magnetization process and the potentization of homeopathic remedies can be made. The potentization or succussion process strongly "charges" the electromagnetic wave, field or frequency of the substance and therefore the resultant dynamized electromagnetic field acquires electromotive force from induction in its solvent. This is also happening in its neighboring components [in this case the remedy.]

This is occurring due to the Law of Mutual Induction, where the primary component, the potentized remedy is the primary source of "new ordering information or frequencies" and transfers to the secondary component found in the magnetic field by virtue of position this "new order."

Subsequent dilutions are also needed because there is a certain critical threshold value reached whereby all the molecules in that dilution have taken on this new arrangement. This is due to the fact that the intensity of magnetization of a body equals the quotient of the resultant magnetic moment divided by its volume.

A parallel phenomena is the induction coil. If you wind the coil even more a higher electromotive force is acquired. Here you have two coils, the primary coil is made up of a few coils of wire of great diameter, while the secondary coil while being unattached to the first is made up of a thousand coiled thin wires. In this secondary coil we add many more coils so as to increase the high voltage or intensity to still higher levels.

In the homeopathic remedy each drop of the potentized solution added to a new dilution [which is yet unsuccussed] plays the role of the primary coil. The dilution which is yet unsuccussed plays the role of the secondary coil. As was shown in the experiment involving Chamomilla, even after Avogadro's number was passed [shown by the results with the 12 and 30CH] we still have the imprint of Chamomilla on the graph. In magnetization this is shown in that the electromotive

force from induction is passed on exactly as we have it occurring in permanent magnets. For further explanations of this please read Chapter VII.

So, dear readers, this is why Homeopaths will tell you not to leave homeopathic remedies lying in the sun, nor expose them to high heat. The reason is that they change phase and lose the homeopathic information they contain.

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WATER, THE MISSING LINK:
THE POTENTIZATION OF THE NANOREMEDY* CHAPTER VII

In Chapter VI, I have given you an overall picture of the organism and its pathology using the laws of nature, thermodynamics, deterministic chaos and self-organization phenomena.

In this chapter I will relate how the above concepts may be seen and interpreted during the making of a homeopathic remedy, during potentization. In Chapter VIII I will relate how these same processes can occur on the cellular/microtubular level of the organism.

To begin with I have to introduce another concept to you and that is the concept of water and the role it plays in the workings of our organism and in potentization. Water has certain special physical properties that afford it to carry information through specific spatio-temporal patterns, conformations or clusters. These spatio-temporal patterns in turn provide a specific electromagnetic field set up in dilution which travels as waves of differing electric polarization [compressions and rarefactions] or quantum coherent oscillations and which come under the headings of superfluidity and superconductivity. Two examples of this phenomenon is the cellular water that flows in the microtubules of organisms and the potentization process of the homeopathic remedy.

Let us first examine the potentization process of the homeopathic remedy.

Water plays a specific role in the homeopathic potentization process. This concept was introduced by Professors Victor Antonchenko, Victor Ilyin and myself in a special lecture given at the National Research Institute in Athens, Greece on May 19, 1993. The lecture was called "The Physical Properties of Water and how they relate to Homeopathic preparations." Below I have summarized the main ideas of this lecture plus the measurement results at the National Technical University of Athens which corroborate these ideas or hypotheses.

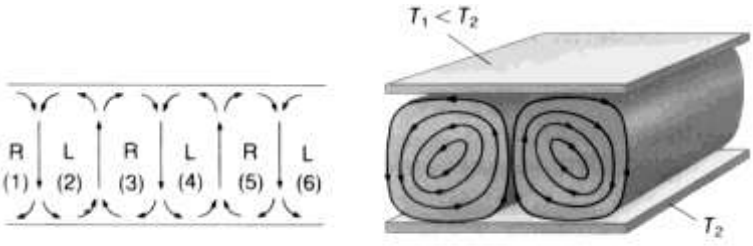
To begin I will have to refer you back to the Benard cell experiment talked about in Chapter 6 and what we learned about order developing from deterministic chaos in the form of the specific spatio-temporal pattern called the Benard cell.

As was stated in Chapter 6 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.

This also occurs in the cell of the organism and in the homeopathic potentization process. 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 unless it is changed by specific circumstances. Biomolecules also display chirality. [Please note Diagram 1]

DIAGRAM 1: Example of self-organization phenomena



In passing the Critcal Threshold value, the system displays bulk movement and forms what are know as Benard Cells. This displays Symmetry Breading and Long Range Correlations. The Benard cell is known as a Dissipative Structure.

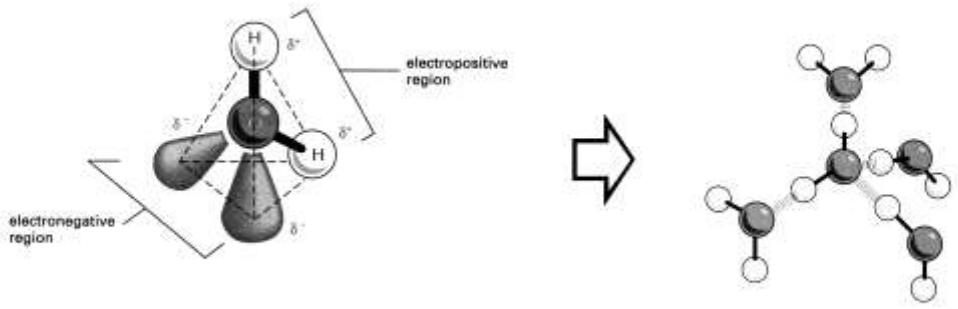
The above is considered an example of self-organization phenomena and complexity, ideas brought forth by Ilya Prigogine and expanded upon by Gregory Nicholis. This is also what happens during the potentization process of the homeopathic remedy.
The potentization process of the homeopathic remedy provides:
1. A stressor [external constraint] in the form of a drop of the plant, mineral or organic substance that is dissolved in the water or water/ethanol dilution. This drop is what is needed to keep the system away from equilibrium and thus provide the environment for stabilization of specific spatio-temporal patterns, clusters in the water, water/ethanol dilution.
2. Succussion is the actual energy needed for symmetry breaking to set the whole reaction in motion via a proton transfer soliton mechanism which in turn displays superconductivity or superfluidity. Thus as you see we have satisfied the three conditions that are needed for self-organization phenomena to occur: 1. Far from equilibrium conditions 2. Presence of one or more external constraints and 3. Breaking of symmetry.

Pure or liquid water is made up of photons [intermediate bosons] atoms and ions and these combine to make certain molecules. The structure of the atoms consists of a positively charged proton nucleus surrounded by specific orbits with negatively charged electrons. The number of electrons is specified by Mendeleyev Periodic Table of Elements and for each element there is a specific number. Thus one atom of hydrogen has one orbit with one electron and one atom of oxygen has two orbits, an inner one with two electrons and an outer one with six electrons.

Thus water is made up of one oxygen atom and two hydrogen atoms. [Note Diagram 2] The two hydrogen atoms in the water molecule form a 104 degree which leads to

an asymmetrical distribution of charge and polarize the water molecule. Remember that every polar substance has the ability to store information. [Microtubules are also polar.] Please note that the particles or atoms/ions of water are not resting but vibrating, we have vibrations of the nucleus and the electron shells. Thus we have vibrations in the infrared and microwave regions, to low frequencies.

DIAGRAM 2. The structure of Water



Water: Two atoms, connected by a covalent bond, may exert different attractions for the electrons of the bond. In such cases the bond is dipolar, with one end slightly negatively charged (δ-) and the other slightly postitively charged (δ+). A bond in which both atoms are the same, or in which they attract electrons equally, is called nonpolar. Although water molecules have an overall neutral charge (having the same number of electrons and protons,) the electrons are asymmetrically distributed, which makes the molecule polar. The oxygen nucleus draws electrons away from the hydrogen nuclei, leaving these nuclei with a small net positive charge. The excess of electron density on the oxygen atom creates weakly negative regions at the other two conrners of an imaginary tetrahedron.

Water structure: Molecules of water join together transiently in a hydrogen bonded lattice. Even at 37 degrees C, 15% of the water molecules are joined to four others in a short lived assembly known as a "flickering cluster." The cohesive nature of water is responsible for many of its unusual properties, such as high surface tension, specific heat and heat of vaporization.

"Pure" water is a mixture and consists of many kinds of structures of which three are well known, these are the water molecules, the hydronium ions [H_3O^+] the hydroxyl ions [OH^-] and the photons. Thus water is comprised of tetrahedral structures and of metastable structures. Metastable structures in the water are not stabilized in an equilibrium or homeostatic environment.*

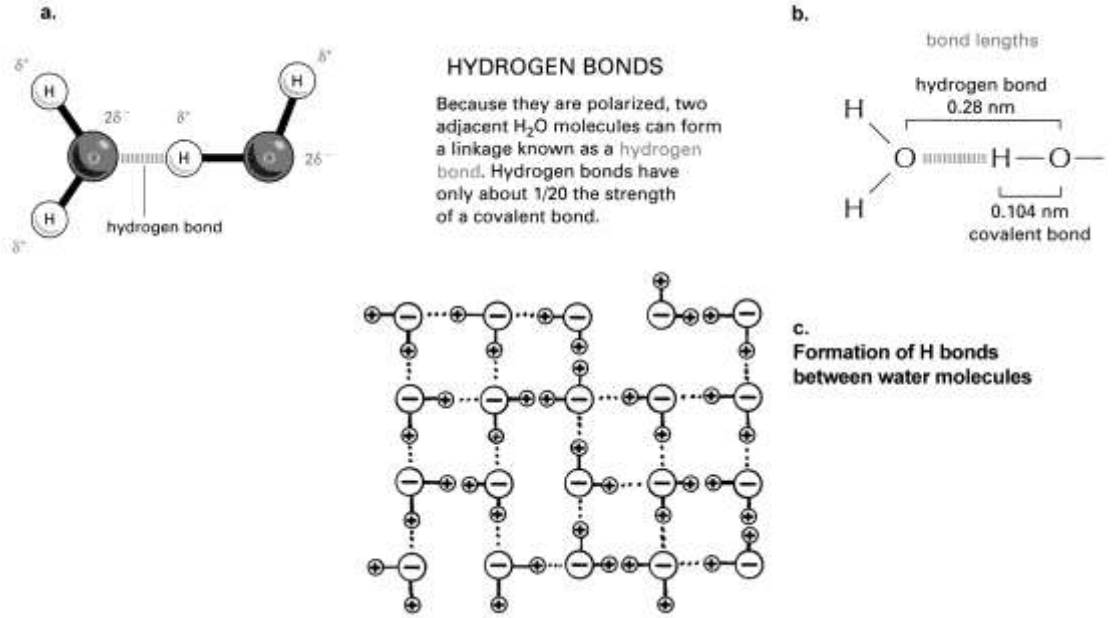
*An equilibrium or homeostatic environment may be considered an environment which portrays specific coherent quantum oscillations in the form of fields or specific spatio-temporal patterns. In order to go from one homeostatic environment to another homeostatic environment one must introduce a stressor to the system to overcome a critical threshold value and to keep the system away from equilibrium . . . [Refer to Chapter 6]

Molecules of water join to make different configurations or spatio-temporal patterns, clusters and in this way they make up a number of different structures. These structures are formed and then unformed due to the thermal movement of the molecules of the water. These are called "flickering clusters."[Note Diagram 2.b.]
So without a stressor [external constraint] the water molecules are in homeostasis.

Now in the organism a homeostatic environment in the microtubules presupposes that because of genetic and acquired predisposition we already have specific spatio-temporal patterns that oscillate with specific frequencies/fields. But in the homeopathic remedy, the closer we are to "pure water" the better off we are. From the measurement experiments done at the National Technical University of Athens we have come to the conclusion that there is no such thing as pure water. All water has previous information in it and this is what we saw from the measurements, the more impure the water, the more information it will contain. If during the experiments we used impure water in the potentization of a homeopathic substance we found out that the "impurities" in this water were also potentized and this led to a change in the conductivity or resistance values for the measured homeopathic dilutions. In other words the homeopathic remedy made was different in resistance/conductivity measurements than the one dissolved in more pure water. This can be explained by how frequencies/waves/fields can undergo constructive and destructive interference or superposition.

The water molecules are connected by hydrogen bonds. A hydrogen bond is an electrostatic reaction between part of the negatively charged oxygen of one molecule water and part of a positive charged neighboring hydrogen molecule. The molecules in this formation are found in dynamic rotation. Between them they create and destroy hydrogen bonds. [Note Diagram 3]

DIAGRAM 3: Hydrogen bonds



Water, more so than other fluids can form up to four strong hydrogen bonds with neighboring hydrogen bonded molecules. They can take the form of circles, chains with branches or without, lattices, helices, etc. In liquid water these structures are formed and unformed since there are no stressors keeping the system away from equilibrium. Hydrogen bonds in water can also become very stable because of electromagnetic coupling [Cooper pairs.] Cooper pairs occur whenever we have interattractive forces between electrons and this is dependent on the behavior of the electrons themselves and on that of their ionic cores, which by their vibrations can transmit forces between the electrons. The forces of the hydrogen bonds are enforced or made stronger by this electromagnetic coupling. This can also be the reason why conductivity is decreased and resistance is increased as we go to higher potencies.*****

***** *[The charged Cooper pairs have integral spin and behave like a boson. Bose condensation and superfluidity may explain what happens in the potentization process.*

I. *Cooper pairs which form in a superfluid [the homeopathic dilution] are anisotropic.*

A. *The nuclear spins of the two atoms involved are at least partly parallel so that the molecule has a net spin of one [rather than 0] and moreover there is a relative rotational motion [relative angular momentum.] thus the molecule does not look the same when viewed from different directions.*

1. *We should expect each pair to be characterized by a particular axis [unit vector] which tells us how the total nuclear spin of the pair is oriented and also by a second unit vector which specifies the axis around which the two atoms are rotating relative to one another [orbital axis.]*

B. *The crucial point is that the Cooper pairs are automatically Bose condensed and hence must all behave in the same way not only as regards their motion as a whole but also regards their*

internal structure and orientation. Please look at Diagram 6, figures 1-7 of DSC experiment - Chapter V.

Thus a) unit vector and b) orbital axis must be the same for all pairs.

This means that the liquid as a whole acquires two characteristic vectors, one of which governs its spin properties and the other its "orbital" properties.

II. *Thus in a diatomic molecule such as hydrogen, a state would be favored in which the spins lay parallel to one another and perpendicular to the axis around which the molecule is rotating; such a state would have slightly lower energy than the spins parallel to the rotational axis. However the energy difference [ΔE] is extremely tiny. But in a superfluid [the homeopathic dilution] although the magnetic interaction energy of the nuclear spins is very tiny, the crucial difference is we cannot choose the orientation of the Cooper pairs independently for each pair. In fact if pair 1 has its nuclear spins oriented parallel to the rotation axis, then so must pair 2 and must all the pairs in the system.*

A. *Thus there are two possibilities only: a) all spins are parallel to the rotational axis and b) all spins are perpendicular to the rotational axis and the energy difference between these alternatives is not ΔE, but rather ΔE times something like 10^{23} that is a very large energy, thus the Magnetic Interaction Effect actually determines the orientation and hence many of the properties of the liquid.*

B. *Thus we have Orbital Magnetism where the rotation of an ordinary homonuclear diatomic molecule [such as the hydrogen molecule] gives rise to a magnetic moment along the axis of rotation, since the rotation of the positively charged nuclei is not exactly canceled by that of the negatively charged electrons. This effect is small but NMR confirms it. In ordinary molecular hydrogen, the axis of rotation is oriented at random so that the resulting magnetic moments cancel on average and the gas as a whole has no magnetic moment. By contrast in a superfluid [the homeopathic dilution] the axis of rotation for the Cooper pairs must be the same. Thus the tiny magnetic moments associated with the rotation add up and the* ***liquid is a permanent magnet.***

C. *So here we come back to something called the de Broglie wave which in a superfluid dilution, because of the Cooper or anisotropic pairs has a geometrical significance. It is equivalent in some sense to a rotation of the state of the pair around the orbital axis. For example in an annular container the orbital axis is held fixed in a particular direction which is constant in space, then a quantum state in which the phase goes through $2n\pi$ as we go once around the ring (i.e. a state with 'winding number n') is one in which the state of the pair is in effect rotated n times around the orbital axis as we go once around the ring. Can we deform the state of the system continuously, without forcing the pair density to go to zero at any point, so as to reach the state with n equal to zero (no current?) If the orbital axis is held fixed this cannot be done, but if in the course of the deformation, we allow the orbital axis itself to twist in space then it can be done.*

D. *Do not forget that supefluid systems are extremely sensitive to ultraweak forces. There is strong evidence that the "weak forces" which exists between elementary particles unlike the electrical and gravitational forces, in some sense know the difference between right and left chirality and forward and backward directions of time.]* [This will be covered more fully in another book.]

Measured by Raman spectroscopy, the forces of the hydrogen bonds are twenty times or more stronger in water than in other liquids. Thus water can have two different phases. It could be in a crystal lattice phase with order and high energy [after it has undergone potentization] or it could be in a "liquid" water phase [pre-potentization.] Also the homeopathic remedy is in a different phase before Avogadro's number and after Avogadro's number.
Guy Murchie in his book, "The Seven Mysteries of Life" mentions that "…it was discovered that protons in hydrogen atoms all over the earth align themselves like compass needles parallel to the geomagnetic field. For hydrogen is abundant in living tissue and the solitary proton in the nucleus of each hydrogen atom is in effect a tiny spinning magnet a trillionth of a millimeter thick, just might somehow convey its bias to whatever organism it is in…"

The water and ethanol molecules react with one another to make all sorts of molecular arrangements. Now, in potentization, when a stressor [external constraint] in the form of a homeopathic plant, mineral or organic substance is put in this water or water/ethanol dilution and it is succussed we have all sorts of things happening.

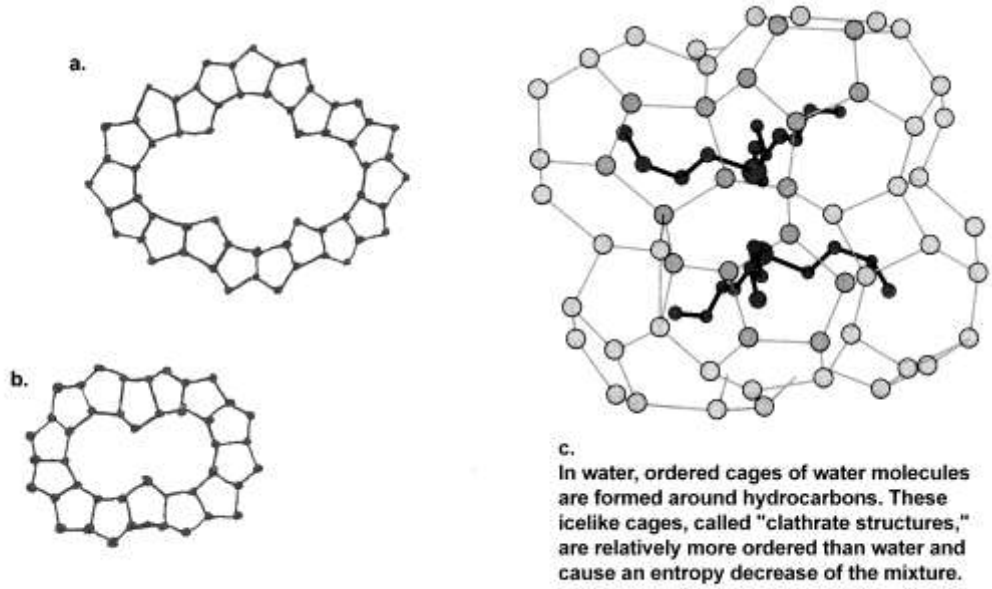
1. An external constraint has been introduced in the homeostatic environment that keeps the system away from equilibrium up till a certain critical threshold value is reached. This critical value has to do with the amount of area in the dilution that will be oscillating at a specific frequency or quantum coherence. When this is reached, then we have a fossil object created [an analogy can made to a ferromagnet, in which we have a permanent magnetic moment and to a liquid crystal.] Unless other forms of energy or stressors invade the system this information can be kept forever. That is why homeopathic dilutions must be kept from heat sources, they should not be exposed to the sun, etc. because of the danger of surpassing another critical threshold in this specific information and having the dilution revert to its original state of water or water and ethanol. This is what we saw with the Differential Scanning Calorimetry experiments. [see Chapter V] In reality one might see the strength of the homeopathic remedy diminish in time via asymptotic stability but ideally if not disturbed it should remain in that homeopathic 1CH, 2CH . . . state for ever.

2. In the succussion process itself we have introduced a certain "increase in temperature" because of the kinetic energy and increased pressure because the dilution is in a specific volume [the vial or test tube the homeopathic dilution is in] thus we have disturbed the hydrogen bonding of the molecules. The molecules that are closest to the sides of the vial and to the surface might be the place where a primary type of oscillating behavior occurs, because I am hypothesizing that this is the place where new spatio-temporal patterns and new electromagnetic fields are also first stabilized. I am thinking in this manner because observations in restricted water volumes show that the molecules close to the wall/barrier/plate have a greater density portion of the molecules. It has been noted in experiments [Benard cell experiment] that as we increase or decrease the distance between the plates or the wall of the vial [use a

smaller vial, etc.] we are in turn changing the pressure between the two plates. When the plates are in very close proximity and equal to a certain critical threshold value different for each dilution and system then we will have oscillating behavior as it occurred in the Benard cell experiment.

3. As mentioned above I believe that stabilization of new spatio-temporal patterns, conformations or clusters occur more frequently along a wall/barrier/plate. In dilutions with "impurities," and by impurities I mean anything else than the water molecules, [i.e. the homeopathic substance] there is a restructuring of molecules around these impurities. This restructuring conformation is in the form of hydratic shells that comprise a cluster. [Note Diagram 4] And I note that in stabilizing these structures we preserve their stability for considerable molecular distances. There are two phases occurring, one below Avogadro's number and one above. Below Avogadro's number beginning with 1CH there is the substance that is needed to start this whole process, but as the potentization process continues do not forget that the 12CH or 13CH -[dilutions above Avogadro's number] has been processed with this increasing in strength information like a ferromagnet or an inductive coil. A possible explanation can be given here if we look at the Aharonov-Bohm effect where the current transported by the electrons is dependent upon the magnetic field present in the spatio-temporal patterns or clusters.

DIAGRAM 4.



At this point I would like to tell you what hypotheses we deduced from the measurement experiments at the National Technical University of Athens about what happens during the potentization process which only reaffirms what I am already

talking about. Do not be confused by this electrochemical interpretation below; all the explanations given from different scientific specialties tend to agree but they use different language because they are explaining it from their particular point of view or expertise.

The conductance of electrical current in the liquids occurs with ions [charged atoms or molecules or group of atoms or molecules]and not with free electrons. This is exhibited in the homeopathic dilution after potentization with the formation of new spatio-temporal patterns, clusters or new electromagnetic fields, coherent oscillations, formed between the water molecules and homeopathic substance.

The above conductivity of electrical current is characterized as electrolytic and the liquid is characterized as an electrolyte. Double distilled water has a specific electrical resistance : $p = 10^{10}\ \Omega mm^2/m$. The change in electrical resistance from potentization to potentization can be attributed to two phenomena:

1. Triboelectricity phenomena during potentization
2. Change in electrolytic properties from potentization to potentization

From the measurement experiments we deduced that during the process of dilution, when we added the plant, mineral or organic substance [the future homeopathic remedy] we changed the homeostatic environment of the water, water/ethanol dilution.

Let us say in the 1CH solution we had 1% strength of all the molecules in dilution behaving as a crystal lattice structure and 99% behaving as liquid water; as the potencies were increased this strength increased. In other words, as we had increase in potentization the crystal lattice structure percentage grew as opposed to the liquid water percentage.

In succussing the dilution we helped this external constraint or this homeopathic drop to keep the dilution far from equilibrium and in this way promoted certain things to happen in dilution.

These things are:

1. Triboelectricity phenomena start occurring during succussion of the dilution.
   What this generally means is that we have production of electrostatic fields/electricity being produced without an external source. We have a change in the status of the hydrogen bonds, their rotation, etc. This is also what Hahnemann mentions in paragraphs 246 and 247 of the 6th edition of the Organon.
2. Triboelectricity is the phenomenon of inducing charge by friction. We can induce this by cutting something into pieces, pouring out of liquids and solids and the flow of liquids.
3. Thus Triboelectricity is related to charging of materials of great resistance which is due to the following:

a. Phenomenon of charging due to: friction, pouring out of liquids, flow of liquids
b. Inductive effect of electrostatic fields
c. Thermoionic emission
d. Ionization by succussion

4. In the hydrogen and oxygen molecules, the nucleus and the electron shells are vibrating, not standing still. We have infrared region vibration and microwave region vibrations. And water is mostly made up of photons [intermediate bosons.] Thus when one electron is bumped up to a higher shell, when it goes back it emits a photon or a specific type of radiation. Water consists of a lot of different types of radiation.

In the potentized dilution triboelectricity phenomena occur because during potentization we have occurring:

1. A change in up and down liquid flow inside the vial or test tube.
2. Induced friction between molecules, atoms, groups of molecules, groups of atom.
3. Induced friction due to the rubbing of atoms, molecules with the inside surfaces of the inside of vial or test tube. [a specific barrier]
   Thus we have production of ions due to electrostatic fields. A part of these ions are possibly neutralized after the forced mechanical slowing down of the crushing of molecules/atoms between themselves and because of succussion and the change in the direction of the flow. A part of the stimulated charges can acquire a higher amount of energy and can produce ions, so it is possible to remain in dilution as ions or to be neutralized.
   It is also possible that we have decharging or destimulation of carriers and this is due to the change in flow of direction during succussion [change in flow of direction of electrostatic field.]
   All the phenomena given above can lead to a stronger and different substance or homeopathic remedy with a resistance R larger than the previous potency. The resistance of the 1CH potency is much bigger than that of the double distilled water.
4. Thus the hydratic shells, clusters or conformations establish themselves as ordered one dimensional chains, helices, etc. In this way one can realize a possible proton conductivity mechanism occurring in such a “universal” conductor [a type of superconductor] The theory of proton conductivity is a non-linear theory in which proton transfer in hydrogen bonded systems is described by a soliton mechanism. The theory supposes that extended “spread" areas of compression and rarefaction of average proton density are moving in a water system rather than oxonium and hydroxyl ions. This "spreading" effect is a consequence of collective non-linear interactions in the system.
5. This ensures an exceptionally high stability of corresponding proton displacements. Thus in this case the water properties acquire additional stability since they are defined by three dimensional polymer spatio-temporal patterns known as microclusters. A proton, at the expense of high mobility is placed in an external electromagnetic field and migrates along the structure of comparatively rigid hydrogen bonds increasing effectively the interaction energy of the water molecules. Because the clusters are made up of water molecules organized as one-dimensional chains this leads to their additional stability.

From spectroscopy measurements [measuring angle bonding of water, etc.] scientists have deduced that in water we can have a different amount of molecules in clusters dependent on different temperature and conditions.

Being placed in an electromagnetic field or fields the oxonium and hydroxyl ions move from their point of appearance, after water dimer disintegration and rotate in one and same plane [but in opposite directions] and thus orient the nearest water molecule, as if "stringing" them on a cycloid arc." This results in the joining of the molecules situated on the "hydroxyl" and "oxonium arcs" and forming ring associations or structures.

6. The way a soliton wave is moving or the way a proton or positive charge moves along the one dimensional chain can be seen in Diagram 5.

DIAGRAM 5: Proton Transfer and Soliton Mechanism

Figure 1.

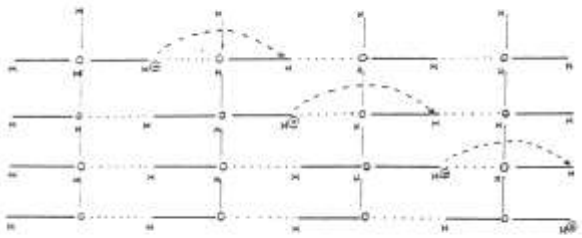


Figure 2.

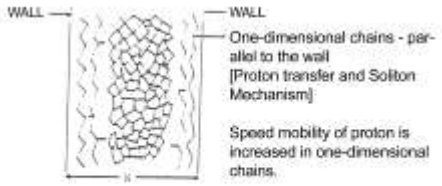


Figure 3.

Figure 1. These one-dimensional chains of proton transfer can also be represented in a restricted volume system with conforamtions parallel to the wass / barrier plate. See Figure 2.

Figure 2. Not only is the speed / mobility of the proton increased along this one-dimensional chain but the energy of this hydrogen bond is also increased as compared to the energy of a common hydrogen bond. The energy of a common hydrogen bond is approximately 5kcal / mole but the energy of a hydrogen bond where we have transfer of protons (ions) is approximately 100kcal / mole. This is the reason why when this transfer of protons is repeated in a one-dimensional chain we have more energy and thus greater stabilization of structure / conformation. See Figures 3 a. and b. below.

For the system to again reach its lowest energy point or equilibrium certain new spatio-temporal patterns must be stabilized in this dilution that oscillate with a certain

frequency or represent a certain field. This is what we saw from the measurement experiments as well. This is seen in Potentization as the water or water and ethanol molecules restructure themselves around the dissolved drop in specific patterns or clusters. This brings about a new steady state for the water and one which is called a 1CH homeopathic potency.

In dilution we have two processes occurring simultaneously. These are:

1. Production of current and thus creation of specific electrostatic field in dilution
2. Creation of new spatio-temporal patterns [clusters]

What we must remember is that in the homeopathic remedy as well as in the microtubules we have fields of dynamic instabilities. We have symmetries of oscillating systems operating both in space and time. Thus we have:

1. Spatial symmetry: the permutations of the oscillators is a coupled system
2. Temporal symmetry: these are patterns of phase locking

The system goes back and forth; when spatio-temporal patterns are introduced to a new frequency, field that can affect it [see explanation of Adey window in Chapter VIII] we can interfere with previous spatio temporal pattern oscillation and change it.

A possibility of the existence of a spiral conductive path in water is also postulated, this was first postulated by C.W.Smith and S. Best. [This was mentioned by Antonchenko, Ilyin and myself in the paper given at the National Research Institute in Athens] This arises from a pentagonal ice structure [lattice] in which instead of a bond closing the ring we have the molecular formation of a helix.

Such a helix is equivalent to a solenoid current. What is necessary to create such a helical water structure is an alternating magnetic field inducing conductive pathways and a sufficient amount of energy to ensure stability of the arising structure relative to thermal energy.

Thus the coherent proton and “jumping” conductivity in a diluted water medium is considered the most probable physical mechanism. Such spatio-temporal water molecular associations or “structures” may appear spontaneously if there is present a constant external constraint and there is energy exchange between a self-organized system and its environment. This is why they are called dissipative structures.

The homeopathic remedies are not only prepared in liquid form but also in globule or tablet form of saccharum lactis. In the latter case their surface is a highly dispersed system covered with a microscopic water layer in which all the same processes proceed as in the liquid homeopathic remedies.

An analogy can be seen in spontaneous magnetization and freezing. Let us look at an example of a ferromagnet. Past a certain critical threshold value we can in certain conductors [and I am supposing that the homeopathic dilution affords us such an environment] have a percentage of the dilution behaving as a coherent domain. A coherent domain is where the spins of the conduction electrons are aligned in a parallel direction. And this is caused by an interaction between the free electrons and those on the lattice ions. This also occurs when there is a weak external field. There is a net alignment of the domains in the field direction. As the field increases, [with each successive potentization] the alignment of individual domains increases, and those

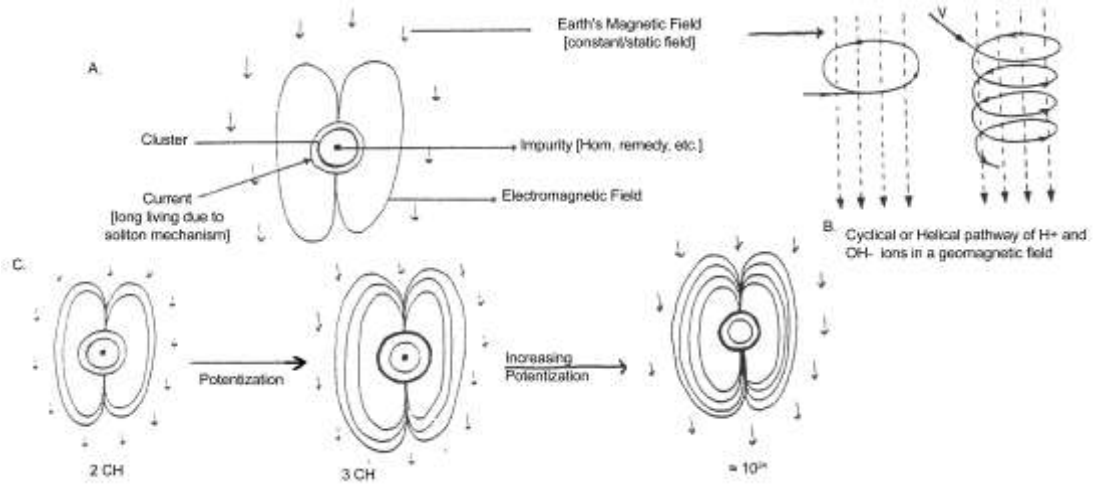
domains which are already aligned become enlarged at the expense of the others. These effects continue until saturation for the material is reached, when a large proportion of the conduction electron spins are lined up. As we succuss the dilution in the earth's magnetic field we are strongly charging the electromagnetic wave or frequency of the homeopathic remedy due to the production of long-living current due to the soliton mechanism [transfer of protons] and from this we have the production of electromagnetic fields.

This is occurring due to the Law of Mutual Induction, where the primary component, the potentized remedy is the primary source of "new ordering information or frequencies" and transfers to the secondary component found in the magnetic field by virtue of position this "new order." Subsequent dilution are also needed because there is a certain critical threshold value reached whereby all the molecules in that dilution have taken on this new arrangement. This is due to the fact that the intensity of magnetization of a body equals the quotient of the resultant magnetic moment divided by its volume.

A parallel phenomenon is the well known inductive coil where if you wind the coil even more, a higher electromotive force is acquired. Here you have two coils, the primary coil is made up of a few coils of wire of great diameter while the secondary coil while being unattached to the first is made up of a thousand coiled thin wires. In this secondary coil we add many more coils so as to increase the high voltage or intensity to still higher levels.

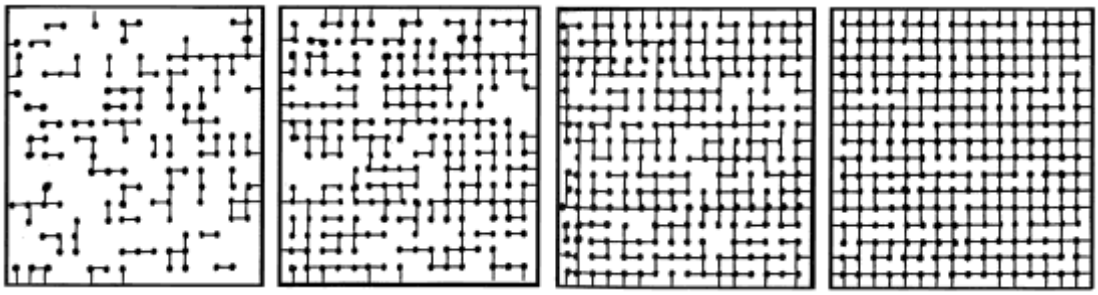
In the homeopathic remedy each drop of the potentized solution added to a new dilution [which is yet unsuccussed] play the role of the primary coil. The dilution which is yet unsuccussed plays the role of the secondary coil. Please note Diagram 6.

DIAGRAM 6: Increasing the Magnetic Field



From the National Technical University experiments we saw this experimentally in the measurements as a "fattening" of the molecules or the enlargement of the cluster, or strengthening of the specific crystal lattice structure. [Note Diagram 7]

DIAGRAM 7. Increasing Lattice Structure in Dilution



When we succuss or potentize the remedy what we are actually doing is adding, stronger current and thus increasing the strength of the specific electromagnetic fields. And in this case when we pass Avogadro's number the homeopathic remedy can maintain the information without the primary substance by acting as an emitting device. The drop of the previously succussed and potentized remedy is the external constraint needed to keep the system away from equilibrium.

Thus a certain resonance/oscillation is imparted by the proton conductivity because of the formation of specific spatio-temporal patterns. This specific flow of current with a certain frequency and thus information is what now stabilizes these metastable structures and thus preserves the conformation of the original homeopathic remedy.

Thus in going from a dilution close to Avogadro's number to one passing Avogadro's number we do not need the presence of the homeopathic remedy since only the induction of a specific type of current [proton transfer in the form of a soliton mechanism] or frequency is needed to maintain stable the primary information and thus stabilize the new spatio-temporal patterns. Thus we have resonance occurring of a specific oscillation that can be quantized and thus measured. This is also what happens in the cellular level of the organism when any kind of change is initiated by a stressor.

In summary, I believe, the Homeopathic dilution is a "quantum liquid" or "superfluid."

Quantum liquids are the class of systems which show a particular quantum mechanical kind of order. Superfluids are a subclass of the quantum liquids and they show this quantum mechanical kind of order on a macroscopic scale. In a quantum liquid we have a microscopic particle represented by a wave. The deBroglie wave represents the particle in quantum mechanics.

Also the homeopathic dilution acts a a Bose-Einstein condensate. In a normal system disorder reigns. In a Bose condensed system the atoms are all forced to be in the same quantum state and therefore resemble well drilled soldiers in line, every atom must do exactly the same thing at the same time. Thus a large number of particles participate collectively in a single quantum state. There is a specific wavefunction that represents one particle, but in the homeopathic dilution where we have an entire collection of particles in this quantum state then we have a wavefunction representing all the particles. The entire system behaves as a whole. There is coherence on a large

scale where many of the strange features of quantum wavefunctions hold on a macroscopic level. This now is called ENTANGLEMENT; it is the combined concept of superposition and non-locality defining quantum particles.

Entanglement is when two quantum particles remain in non-local contact with each other however far apart they are and they are described mathematically by just one unified wave function the contains the combined and shared information about both their quantum states.

Schrodinger first used the term entanglement in the early days of quantum mechanics and it has resurfaced circa 2002 to describe the above fundamental concepts.

Microtubules can also display quantum coherence in cytoskeletal activity.

WATER, THE MISSING LINK:
THE MICROTUBULES
CHAPTER VIII

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 spatio-temporal patterns via the mechanism put forth in Chapter VII.

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.

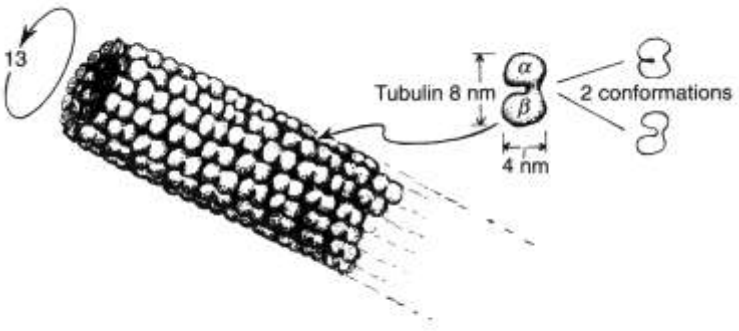
This explains why certain stressors, be they positive or negative must display specific frequencies and intensities to react with a specific organism at a specific time. This also explains why in certain pathological situations only a specific homeopathic remedy is warranted at a certain potency to affect 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.

But in saying this I am not by any means refuting all the things I have said in previous chapters. What I am saying here is that 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 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. I will talk about this change in phases in the organism in Chapter IX.

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.

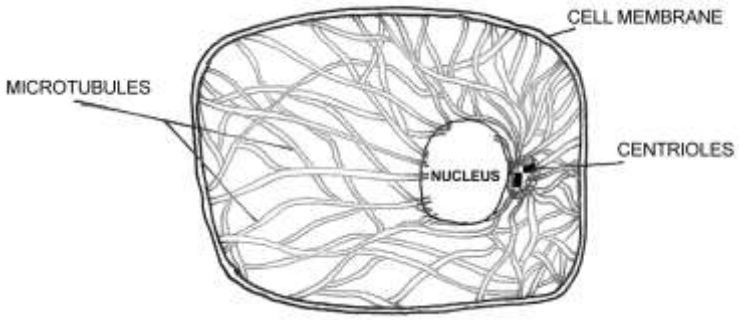
A microtubule is a polar structure, a hollow tube, normally consisting of 13 columns of tubulin dimer. Each tubulin molecule is capable of at least two conformations - a and b. [note Diagram 1]

DIAGRAM 1. Microtubule



They are connected to the cell membrane and to the nucleus of the cell. [note Diagram 2]

DIAGRAM 2. Microtubules in the cell (quantum level)



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 dear readers, believe it or not, 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.

If the stressors do not surpass a critical threshold value in the system and this is defined by the immune system of that organism, local factors, and by the type of stressor, etc. then the dissipative structures will disappear after a while undergoing ASYMPTOTIC STABILITY. But if they persist then we definitely will have these new dissipative structures or wave fronts affecting the cellular membrane and affecting the nucleus or genome{33} of the cell. In this manner we can see how certain diseases such as cancer, multiple sclerosis might come about in the organism.

Thus every organism is different and thus it already has specific magnetic fields, stabilized spatio-temporal patterns or clusters in the cellular water that lend to that specific organism a specific coherent oscillation. But if stressors, be they positive or negative, affect the organism and if these stressors are of a specific information then they will lead to changes in phase and either to new pathological symptoms appearing [negative stressors] or to the organism achieving a better state of health [positive stressors.] Please see Chapter VI, diagrams 9-11.

I mentioned previously in this chapter that microtubules also take part in the division or mitosis of the cell. In the cell we see that the microtubules surround the centrosome with the centrioles. The centrosome is considered the headquarters of the microtubules and the cytoskeleton. It controls the movement of the cell and its organization. It also control mitosis, the division of the cell.

It is my strong opinion that the unchecked division of cells which characterizes cancer begins from the information passed on to the centrosome from the microtubules and from the genome/nucleus.

In taking an actual case of cancer we see that nine times out of ten a cancer case has evolved because the patient has been under stress for a long period of time. [but it could be a short time as well depending on the type of stressor and the individual patient] So the evolution of the cancer has begun long before there are any detectable symptoms or signs, and in each individual case this is different.

For example the stress may be emotional, a patient was in a relationship that he/she was not happy with. A woman is married to a man that she does not love and because she has children and no other means of financial support she cannot get out of the marriage then her problem/stress becomes chronic. At one point or another in time a critical threshold value will be passed in the organism, certain new dissipative structures will form in the microtubules that won't go away since the woman finds no solution or release from this problem. Then another critical threshold value may be passed and these new dissipative structures now actually affect the genome of the cell triggering the stabilization of an oncogene. The oncogene then sets into motion

certain newer information affecting the centrosome and centrioles and thus setting into motion the unchecked multiplication or division of cells which characterize cancer.

Everything works via biofeedback. This occurs because the microtubules connect the centriole to different DNA{20} strands in the nucleus at their centromeres and the DNA strands separate [come apart] and thus begins cell division or mitosis. We can also take the other point of view in that first affected is the centrosome and then this triggers the stabilization of the oncogene.{52} Research is ongoing in this area.

I believe it is this mechanism that breaks down during cancer and it does so because of the above reasons stated. And because of the proximity of the cells and the information that is passed between them we see a type of oscillating behavior or symmetry set in the system to this new information mode. Thus the new pathological symptoms or new pathological steady state is the new change in phase of the organism; it is the new steady state I spoke of in Chapter VI when I introduced the Bifurcation Diagram to you. This has also been seen when after a severe heart attack and just before the death of the individual we have a steady state oscillation occurring. Death, at this time is considered the "new steady state of the organism."

As the pathology progresses we have a progression of symptoms through the different levels of the organism that can be explained by Fractal Progressions.{30} See Chapter VI.

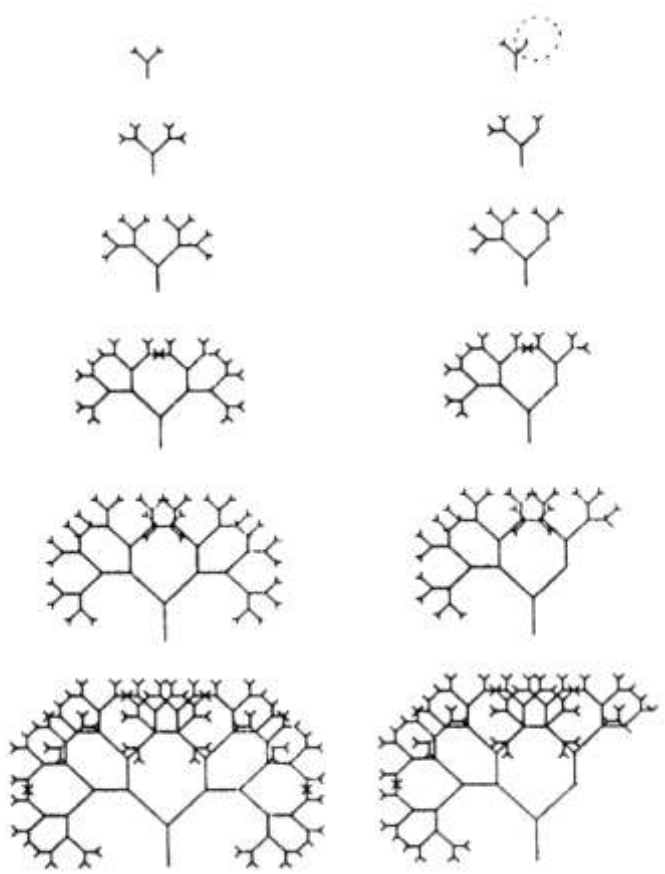
Thus in a vessel/microcapillary system, such as the one represented by the microtubules in the organism, the spatial and time dynamics change according to stressors in the environment. It has been proven experimentally that, at a certain critical value of distance between the walls of a tubule, [or in 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.

They can take on specific spatio-temporal patterns as in the clusters mentioned above, and their oscillations can be described via wave patterns or fields.

Now one may ask but how is it possible that a change on the quantum level can affect a change on the higher levels of the organism. And that is explained by Fractals and Fractal progression. Please note Diagram 3.

Diagram 3. Fractal Progression through different hierarchical levels of the Organism

1. Atomic/Quantum level
2. Cellular level
3. Molecular level
4. Organic level
5. Systemic level
6. Whole system
   [emotional + mental
   + physical levels]



The two diagrams A and B are examples of Fractal Progression. Theses levels represent the different hierarchical levels of the organism, beginning from the atomic or quantum level, then going to the cellular level, then to the molecular, then the organic, then the system level and finally taking into account the whole organism. In diagram A we have physiological, non-pathological progress of the fractals in the different levels.

In Diagram B we have pathological progress of the fractals in the different levels and it is quite clear and apparent that one small change in the fractal on the atomic or quantum level will bring on many more changes on the higher levels of organization in the organism. Thus starting from the atomic or quantum level and following fractal progression we see larger and larger changes on the higher levels.

Thus what we see on the quantum level or on the microtubule level of the organism is that oscillations of the electromagnetic fields/spatio temporal patterns cause a change in homeostasis, stabilizing new self-organization phenomena or spatio-temporal patterns in the cytoplasmic water found in the microtubules. This is also the change in phase of the homeostasis of the cell from a healthy one to a pathological one. In time this change travels throughout all the hierarchical levels of the organism, going from the atomic/quantum level to the moleuclar, to the organic, etc. through fractal

progression, as you can see in Diagram 3. Each hierarchical level of the organism thus translates the pathological change in its own way.

Thus we see the same idea is repeated in the organism at the microtubule or quantum level. The same idea is repeated in the potentization of the homeopathic remedy. This is quite good since we notice that “truths” in science many times repeat themselves in seemingly different situations but which turn out in the end to obey the same mechanisms.

ANNIHILATING THE PRESENT STEADY STATE
OR
PROMOTING THERAPY
Chapter IX

In this chapter I will try to explain how in providing the organism with the same information, same spatio-temporal patterns, clusters, vibrating oscillations or electromagnetic fields one can annihilate the present steady state of pathology and go back to a previous pathology-free steady state of health.

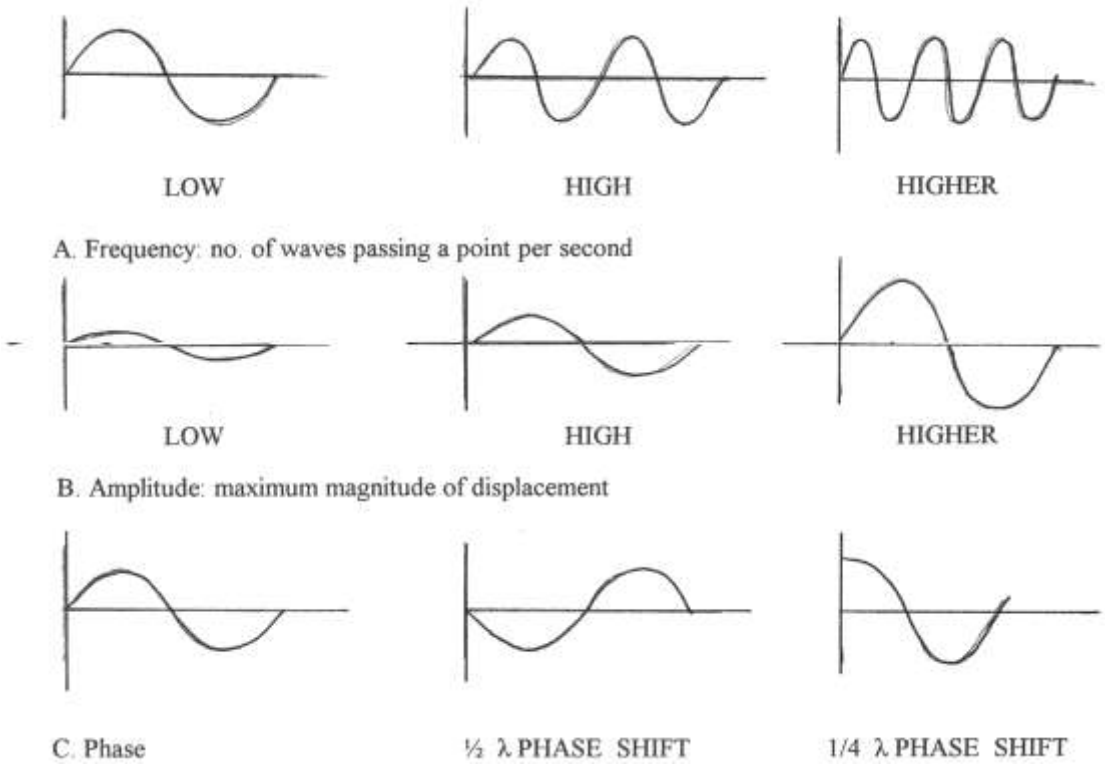
So in taking into account what I have written about in Chapters VI to VIII I will now go back to Chapter V where I first introduced the SQUID to you. SQUID stands for **S**uperconducting **QU**antum **I**nterference **D**evice. In the early 19th century Oersted discovered that electrical currents generate magnetic fields. From electrophysiology and bioelectricity we know that the cell has the ability to produce current. This is evident from the ingoing and outgoing flux of ions across the cell membrane. The differences in the negative and positive ions sets up electrical [action] potentials which have the ability to produce current or electricity. Thus bioelectric currents generate a surrounding biomagnetic field. These biomagnetic fields directly reflect electrophysiological events going on in the cell and are representative of a pathological state or non-pathological state of the cell. The SQUID measures these biomagnetic fields. Thus this machine measures differences in the organism at what we could call the quantum level, since this also takes into account what occurs in the microtubules as changes in spatio-temporal patterns, clusters, coherent oscillation and therefore changes in the biomagnetic fields picked up by the SQUID.

With this in mind I introduced Professor Anninos' experiments with epileptic patients. He had achieved therapeutic results in these patients by measuring their pathological biomagnetic fields using the SQUID and then giving back to these patients the same biomagnetic fields. What occurred then is called the Principle of Superposition. This is a description of the linear behavior of waves. Linearity means that when two or more waves pass the same point, the sum of the individual waves gives us the resulting wave; and after passing, the waves continue along their paths as if no encounter occurred. In achieving a therapeutic effect the SQUID provided the same out of phase biomagnetic fields [measured from the patients] and produced a destructive interference.

There are many kinds of wave phenomena in nature. There are single wave pulses, periodic wave pulses, transverse electromagnetic waves [light], longitudinal waves [sound], a mixture of longitudinal and transverse waves [water]. All these waves can be represented symbolically by similar graphs because they share many common properties. In the diagrams displayed the waves represent displacements of the particles of the "string." The way therapy occurs in the organism from the taking of a homeopathic remedy, from giving a certain pulse to the organism, etc. is explained by these wave phenomena.

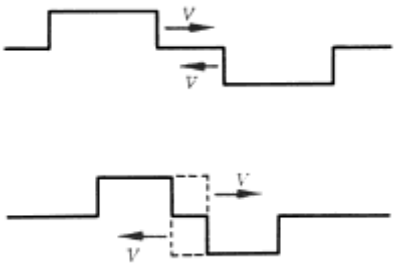
Periodic waves are characterized by frequency, period, velocity, wavelength and amplitude. The frequency is the number of waves passing a point per second and is determined by the source of the waves. The period is the times between successive wave crests. The velocity is the speed at which a wave peak travels. The wavelength is the distance between successive wave peaks. The amplitude is the maximum magnitude of the displacement. For our sakes it is easier to deal with frequency, amplitude and phase. Please note Diagram 1.

DIAGRAM 1. Frequencies, Amplitude and Phase



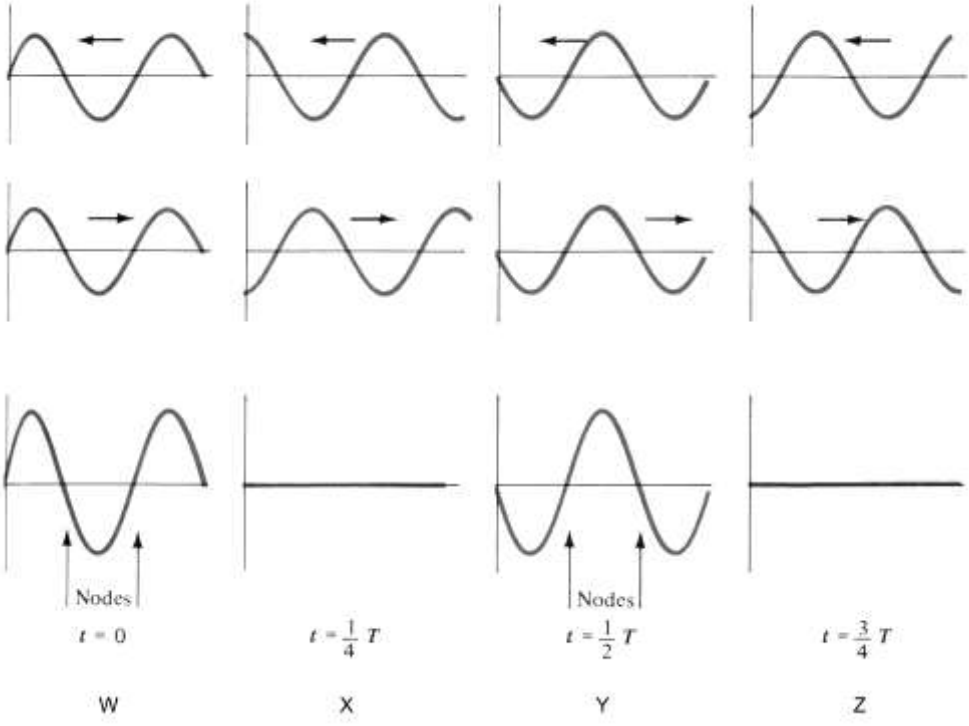
Electromagnetic waves require no medium in which to propagate. These waves are due to mutually induced time-varying electric and magnetic fields. When two or more waves travel, the resulting wave is the sum of the displacement associated with the individual waves. As shown in Chapter V we can view these changes as Constructive and Destructive Interference. Note Diagram 2.

DIAGRAM 2. Sum of the Displacement



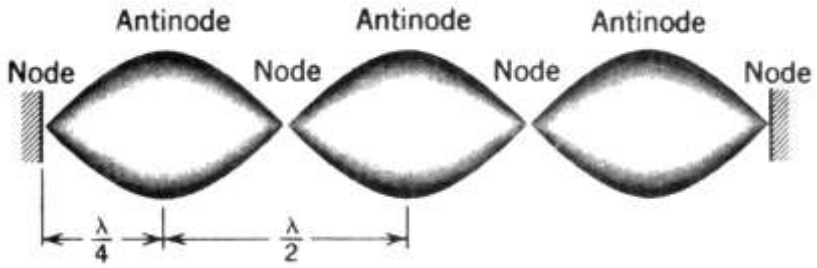
Two waves on the "string" will add as shown when they meet (one is coming from the left and one is coming from the right.)

DIAGRAM 3. Wave Interference and Standing Waves



B. Waves on a "string" at time intervals of 1/4T. [1.a. is a wave traveling to the left and 1.b. is a wave traveling to the right.] As they pass each other we have constructive interference occurring at W and Y and destructive interference occurring at X and Z. The shape of the string changes with time, but its displacement is always zero at the nodes.

DIAGRAM 4. Continuing Pattern of String in Diagram 3.

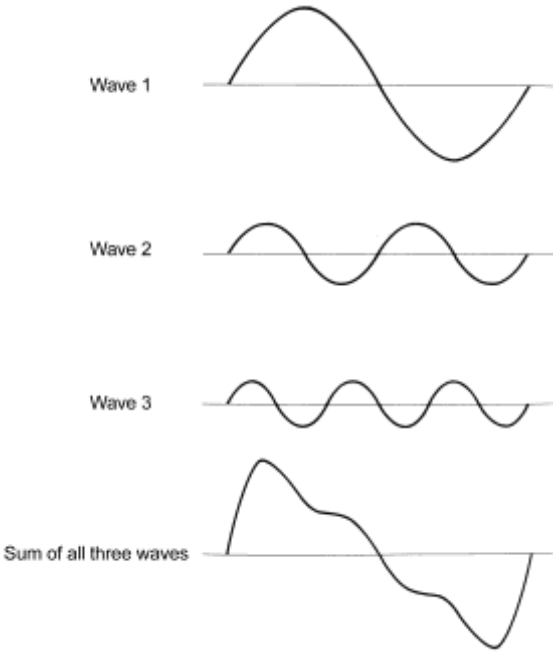


C. **The pattern formed by the string in B if viewed many different times**

What we have occurring in the organism are fluctuating or resonant frequencies and composite or complex waves. A complex wave is composed of many sinusoidal waves of different amplitudes, wavelengths and frequencies. A complex periodic wave of period T can be represented as a sum of pure sinusoidal terms whose frequencies are integral multiples of f=1/T. If the wave is not periodic it becomes a Fourier integral.

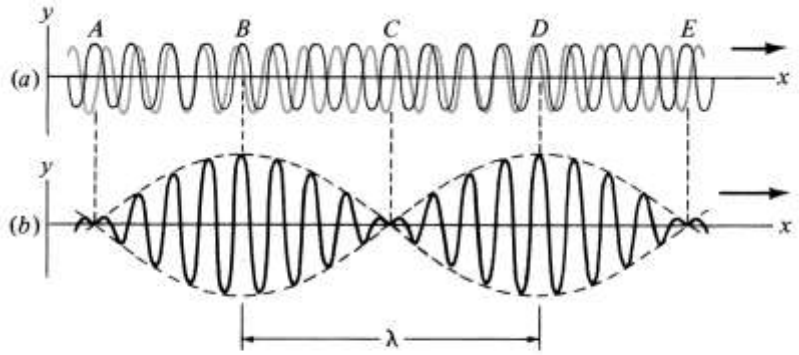
As seen in Diagram 5, the Superposition Principle{82} is the algebraic sum of the amplitudes of the component waves. Thus wave 1 + wave 2 + wave 3 = composite or complex wave 3.

DIAGRAM 5. Complex Waves



What we have occurring between the different stress factors and the organism are complex waves and beats. Please note Diagram 6.

DIAGRAM 6. Complex Waves and Beats



(a): Two waves of slightly different frequencies, f_1 and f_2 add to form the resultant wave in (b)

(b): The broken lines show how the amplitude changes.

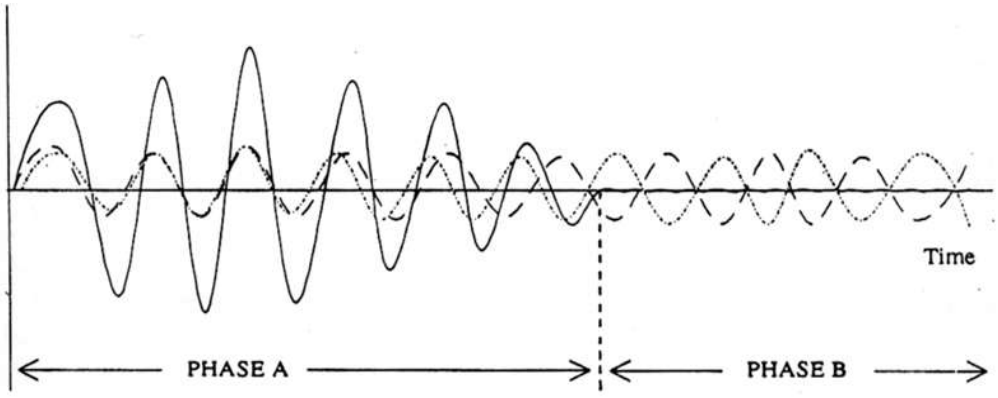
ANNIHILATING THE PRESENT PATHOLOGICAL STEADY STATE OF THE ORGANISM:

The resultant wave shown in Diagram 6. B. can be considered the resultant pathological steady state frequency or field of the organism after the organism has undergone chaotic dynamics and has stabilized certain new spatio-temporal patterns, clusters and thus new biomagnetic fields. In order to annihilate or destructively interfere with this state we have to flood the system with B type of information. This B type of information can be the homeopathic remedy, it can be the biomagnetic field measured by the SQUID and given back to the organism, it can be a specific electrical pulse, and it can be a specific biomagnetic field given to the patient from a "hands on" healer or therapist. If we flood the system with B type of information then we can promote constructive and destructive interference and we will get something like what is pictured in Diagram 7. [this is a simplified version.] Diagram 7 is a representation of what happens when we flood the system with "reverse" polarity fields and spatio-temporal patterns. In other words it represents how "Like cures Like."

DIAGRAM 7. "Like cures Like" or "Similia similibus Curantur"

1. Resultant B pathological steady state of organism is represented by dotted […….] line.

2. Type of information coming into the system to annihilate B patholocial state is represented by dashed [- - - - -] line.



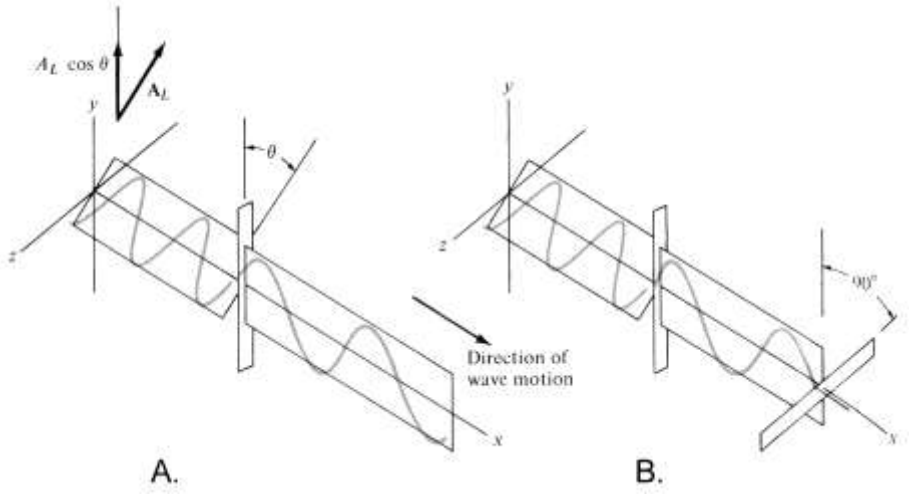
Phase A: Exacerbation of pathological symptoms (Constructive Interference occurring between two fields / frequencies) in Phase

Phase B: Annihilation of pathological symptoms: Health phase (Destructive Interference occurring) out of Phase

Putting it simply, when we flood the system with "new" B type of information or the homeopathic remedy what occurs in the organism is a sort of backward "energy gradient" where proportion wise the "new" B information or homeopathic remedy now coming into the system is the same type of information but with a different polarization and population; it is this different polarization and population that will destructively interfere with the B information of the organism and cause its destructive interference. In Diagram 7, Phase A is considered to be the therapeutic exacerbation of the homeopathic remedy where we have constructive interference occurring and Phase B is the destructive interference or therapeutic phase

In explaining the phenomenon of polarization even further please note Diagram 8. For example in Diagram 8 if a wave is traveling along an x direction, the transverse wave disturbance can be along any line perpendicular to this direction of motion. If the disturbance is always along the same line, the wave is said to be polarized{57} along that line [this also occurs in the potentization process of the homeopathic remedy.] Please note Diagram 8.

DIAGRAM 8. Polarization



A. A wave on a string or a wave field front is vibrating in some arbitrary direction[note that θ angle can be from 0 to 360 degrees] After passing another wave field front or boundary or slot that is situated in some other arbitrary direction or polarization the wave front or wave will change direction and have a smaller amplitude.
B. If the wave front or field met is at right angles to the first the wave field or front will be completely suppressed or destructively interfered with.

Electromagnetic waves are transverse waves. We refer to the direction of the electric vector as the direction of polarization. When the polarizing axes are perpendicular we have destructive interference occurring. This is another way we can view the annihilation of a pathological steady state, etc.

Another mechanism of destructive and constructive interference occurs when we have reflection of waves. A wave pulse traveling down a rope that meets a boundary or is fixed will have an inverted reflected pulse. In other words another wave field or wave front with a different polarization may be considered such a boundary. If a wave or pulse travels down this string with a fixed end or support we will have the wave or pulse exert an upward force on the support. Then the support exerts an equal but opposite force [Newton's third law] downward on the string. This downward force on the string is what generates the inverted reflected pulse and this is considered to be 180^o phase change or the phase is shifted by ½ λ.

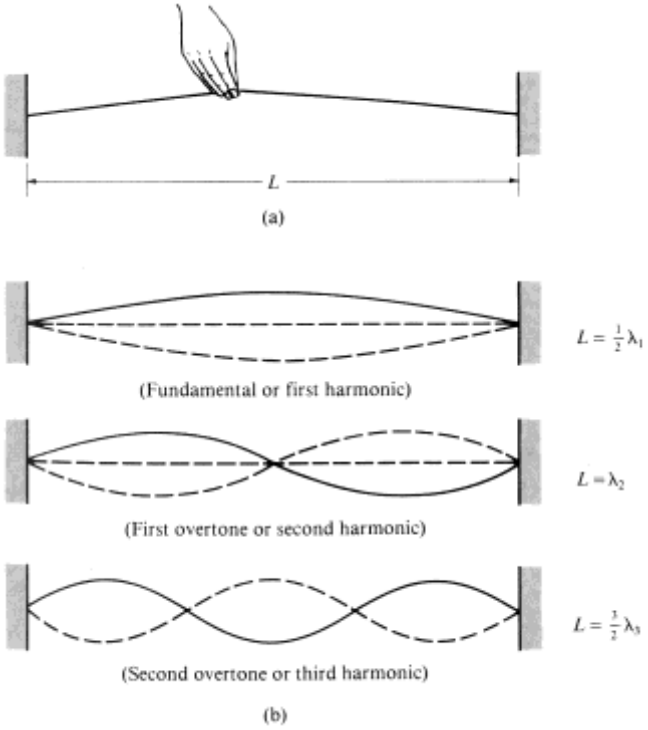
I believe that many of the "therapy" machines that work by giving electrical pulses back to the organism work in this manner. Two of these machines are the Pappas IMI Device and Evan Rapsomanikis' "electro-magnetic chair."

The organism and the homeopathic remedy have specific resonant frequencies. These are called standing waves and they are produced only at specific frequencies [as W. Ross Adey pointed out in the Adey window] When stress factors, either negative or positive are registered by the

organism they usually result in complex waves and beats. The beat frequency is equal to the difference in frequencies of the two waves.

The homeopathic remedy as a wave carries energy, information and momentum to the waves/fields already present in the organism. And the energy and momentum of a sinusoidal wave are proportional to the square of its amplitude. That is why we need specific remedies and potencies to achieve better therapeutic results. In vibrating a string just at the right frequency [which in the case of the organism is the correct homeopathic remedy needed at that time; I am also referring to Adey window frequencies, etc.] two waves will interfere with each other in such a way that a large amplitude standing wave will be produced. The points of destructive interference are called nodes and of constructive interference antinodes. [Please note Diagram 4 and 6] Standing waves occur at more than one frequency. This is shown in Diagram 9.

DIAGRAM 9. Standing Waves



The lowest frequency that the string will vibrate to is called the fundamental frequency or one antinode or loop. Other resonant frequencies or natural frequencies are also called overtones and when they are integral multiples of the fundamental frequency they are also called harmonics.

Also in giving a certain potency we are talking also of the intensity of the wave. This is the power transported across a unit cross-sectional area. Thus the intensity of a wave is proportional to its amplitude squared. The momentum carried by the wave also varies as the amplitude squared.

We have both transverse and longitudinal waves in the organism. When a string is disturbed its particles move at right angles to the string. A transverse wave is a wave with displacement perpendicular to the direction of the wave. Longitudinal waves have displacements along the wave direction.

Waves incident on a boundary can be transmitted, absorbed or reflected. Waves that reach a fixed end of a string are reflected as inverted mirror images. In this manner flooding the system with a particular wave field we can achieve destructive interference by the above method as well.

Thus you see that to get rid of a certain pathology you must give back to the organism the same information. If you do not, what you will get and what you do get with conventional medicine is more information, more complexity, making the organism sicker.

In Homeopathic therapy it isn't that the "healthy vibrations" are directly activated but rather that the "pathological vibrations" are constructively interfered with leading to hysteresis in the organism and return to a previous healthy state vibration.

In conventional medicine we are providing all sorts of information that has a limited capacity for destructive interference occurring. We are flooding the organism with information that can for a while destructively interfere with the present pathological steady state, but after flooding the system every day with nonsense information, mass or noise "frequencies or fields;" this residual information, this noise, is now seen as extra added stress factors in the system which again surpasses a critical threshold value of the immune system and throws the organism into chaotic dynamics, stabilizing new spatio-temporal patterns and biomagnetic fields which are now perceived as the new pathological steady state of the organism. Thus in taking conventional medicine with its unwanted side effects, and all the rest of the information given we are in fact making ourselves sicker in the long run; and that is exactly what we have seen in our experience with conventional medicine. Instead of making our organisms simpler in information, it is making it more complex and harder to control pathologies.

GLOSSARY

1. allopathy: from the Greek - allos meaning other and patheia meaning suffering. Treatment whose action is directly opposed to or incompatible with the effects of the disease. Synonyms: allopathy, enantiopathy [see Chapter I, p.9] Ref. 2
2. Angstrom units: a length unit of 10^{-10} meter (0.1 nanometer) which is used in spectroscopy and to measure intermolecular distances.
3. attractors: a system may be such that its dynamical evolution causes it to approach a stable "end" state. In the phase state representing the system, the representative point tends to be a fixed set of points called an attractor. The attractor may be a point, line or fractal.
4. Avogadro's number: named after the scientist who proposed the principle on which it is based, is a mole or the quantity of a substance which contains 6.02×10^{-23} items. Since a homeopathic dilution in the potentization process is diluted beyond Avogadro's number the premise is that there is no primary plant, mineral or organic substance left in the dilution and thus the homeopathic remedy is a placebo after this dilution. [Chapter I, p. 13] Ref. 2
5. Biochemistry/biochemical: chemistry dealing with the chemical compounds and processes that occur in living organisms/ Ref. 10
6. Molecular Biology/biomolecular: a branch of biology dealing with the structure, organization and functioning of the molecules of living matter./ Ref. 10
7. Biophysics: 1. the study of biological processes and materials by means of the theories and tools of physics. 2. The study of physical processes (e.g. electricity, luminescence) occurring in organisms. Ref. 1
8. bloodletting: a practice in medicine that was abused in Hahnemann's time by many. It is the act of removing blood, usually from a vein as a remedial measure. Used in conventional medicine today in congestive heart failure and polycythemia. [Chapter I, p. 10] Ref. 1
9. breaking symmetry: a basic part of self-organization phenomena. It describes the process whereby a system is driven far from equilibrium by an external constraint or by many. In so doing and overcoming certain critical threshold values defined by the system and the external constraints we have the stabilization of new self-organization phenomena which break the previous symmetry of the system when it was at equilibrium. From simple behavior the system has now acquired complex behavior. [Chapter VI p. 45] Ref. 4.
10. cartesian/pertaining to Cartesianism: of or relating to Descartes, his work in philosophy, science and mathematics. Descartes [1596-1650] developed a dualistic theory of mind and matter and laid the foundations of reductionism. Ref. 9
11. chaos theory: originally used by the Greeks to describe the limitless void. It is now used to describe unpredictable and apparently random structures falling under the bigger title of non-linear dynamics. The study of chaos is revealing universal and fundamental laws that are used to define nature and organisms. In chaotic dynamics we have time-dependent aperiodic regimes in which individual histories

corresponding to initially close states tend subsequently to diverge exponentially. [Introduction and Chapter VI] Ref. 4

12. chirality: molecules that display chirality [from the Greek for hand; right handedness or lefthandedness] can rotate the plane of polarized light to the right or to the left. A chiral molecule is a molecule that cannot be superimposed on its mirror image. Ref. 6 & 7
13. classical Homeopathy: 1. Doctrine or school of homeopathic philosophy and therapeutics claiming to be based on strict Hahnemannian principles. 2. Therapeutic method insisting on the use of a single medicine in a single prescription. 3. Sometimes associated with the Unicist school of homeopathy. Ref. 2
14. cluster: referring to how self-organization phenomena stabilize themselves in particle formation; to how the same quality information groups itself together. Ref. 13
15. clinical provings: testing for medicinal properties. Testing of substances in natural form, mother tincture or potency, by administration to healthy volunteers to elicit effects from which the materia medica of the substance may be derived.
16. coherent domain: an area where the same-self-organization phenomena occur, where clusters of same information abound, where the spins of the conduction electrons are aligned in a parallel direction . Ref. 4 &13
17. complexity: In the physical sciences it is the ability of a system to display long range coherence in space and time and to undergo transitions between different states. In information sciences, complexity measures the length of the shortest description of a given [finite] sequence of symbols. In chaotic dynamics these two may merge. Ref. 4
18. conductivity: the transmission of electricity, heat, etc. by the passage of energy from particle to particle. In electricity it is the quantity of electricity that will flow through a unit cube of a given substance in a unit of time. It is the reciprocal of resistivity. Ref. 3
19. constructive interference: interference refers to what happens when two waves pass through the same region of space at the same time; it is an example of the superposition principle. When the two waves overlap the resultant displacement is the algebraic sum of the separate displacements and thus when they are in the same phase, this displacement is greater than that of either wave. [Chapters V, VI and IX] Ref. 6
20. DNA: Deoxyribonucleic acid. The type of nucleic acid containing doexyribose as the sugar component and found principally in the nuclei (chromatin, chromosomes) of animal and vegetable cells, usually loosely bound to protein. Considered to be the autoreproducing component of chromosomes and of many viruses and the repository of hereditary characteristics. Ref. 1.
21. destructive interference: interference refers to what happens when two waves pass through the same region of space at the same time; it is an example of the superposition principle. When the two waves overlap the resultant displacement is the

algebraic sum of the separate displacements and thus when they are in opposite phase, this displacement is lesser than that of either wave. [Chapters V, VI and IX] Ref. 6.

22. deterministic chaos: essentially what we have occurring in the organism falls under this category of chaos. In theory if we knew all the initial conditions of our organism we could predict its future behavior in pathology, and this is called deterministic. But since we do not know "all" the initial conditions because a small change in the initial conditions would lead to grossly different long-term behavior of the system, we say that the future of a chaotic system like the organism is indeterminable even though the system is deterministic.
23. differential scanning calorimeter: an apparatus for measuring the amount of heat liberated in a chemical reaction. [Chapter V] Ref. 1
24. double blind clinical trials: Method of testing whether a conventional drug produces therapeutic results. In double blind trials patients are not aware whether they are given the drug under testing or a placebo; and the medical personnel administering the drugs also do not know if they are administering the drug under testing or a placebo. Unfortunately this method of testing is not conducive to the nature of the homeopathic drug and thus new double blind trials designed exclusively for testing homeopathic remedies have been proposed by homeopathic clinicians/medical doctors.
25. dynamization: synonymous with potentization. This refers to Hahnemann's potentization procedure developed by him in the late 1700's, which consists of dilution and succussion. [Chapters III, V and VII]
26. electromagnetism: James Clerk Maxwell, a physicist deduced that a magnetic field will be produced in empty space if there is a changing electric field. From this he also deduced that if a changing magnetic field produces an electric field, the electric field will itself be changing. In turn this changing electric field will produce a magnetic field. This magnetic field will be changing so this will producing a changing electric field and so forth and so on propagating electric and magnetic fields. Ref. 6.
27. enthalpy: [H] refers to the heat of the reaction and to the First Law of thermodynamics. Thermodynamics is the branch of science dealing with energy and its conversion from one form into another. This law states that energy can neither be created nor destroyed it can only be converted from one form into another. The change in enthalpy is the maximum available energy from a chemical reaction from the conversion of one mole of substrate into product. If the reaction is exothermic [heat is produced] ΔH is negative and if the reaction is endothermic [heat is absorbed.] [Chapter VI] Ref. 7
28. entropy: [S] introduced in the Second Law of Thermodynamics. It is the degree of disorder in a system or in more formal terms it is the heat absorbed in a thermodynamically reversible reaction at temperature degrees Kelvin divided by the absolute temperature T. [Chapter VI] Ref. 7
29. electrolysis: the decomposition into ions of a chemical compound in solution by the action of an electric current passing through the solution. Ref. 3.

30. fractals: non-uniform structures in which similar patterns recur at progressively smaller scales. They are theoretically useful in describing partly random or chaotic natural phenomena, such as crystal growth, etc. [Chapter VI] Ref. 8
31. fractal progression: the evolution of specific patterns. A generalization of Euclidean geometry suitable for describing irregular and fragmented patterns. A non-integer fractal dimension can frequently [but not always] be associated with such patterns. [Chapter VI] Ref. 8
32. free energy: in thermodynamics it is known as Gibb's free energy (ΔG). It is a thermodynamic [or state] function which describes a system's maximum potential for doing work, so that the second law of thermodynamics can be stated like this - spontaneous reactions are those which when carried out under suitable conditions can be made to perform work. [Chapter VI] Ref. 7
33. friction: the action of one object rubbing against another. [Chapter VII] Ref. 8
34. genome: The total gene complement of a set of chromosomes found in higher life forms or the functionally similar but simpler arrangements found in bacteria and viruses. [Chapter VIII] Ref. 1
35. global bifurcation: Interacting bifurcation may lead to fixed points, limit cycles, tori and new attractors can be unexpectedly generated which give rise to global bifurcation. If this global bifurcaiton contains at least three order parameters then this will lead to chaotic dynamics. Ref. 4
36. HDL: High Density Lipoprotein - a complex or compound containing lipid and protein. Ref. 1
37. holistic: [holism] a term that means that the whole should be regarded as greater than the sum of its parts and not equal to them as expounded by reductionism or Cartesianism. [Introduction and Chapter VI] Ref. 8
38. hormones: a chemical substance formed in one organ or part of the body and carried in the blood to another organ or part. Depending on the specificity of their effect, hormones can alter the functional activity and sometimes the structure of just one organ or of various numbers of them. Ref. 1.
39. hysteresis: the ability to follow two different branches of states, as a parameter built in the system varies first in a monotonic fashion and subsequently comes back to its initial value by varying in the opposite direction. Ref. 4. The lagging behind of an effect when its cause varies in amount etc. especially of magnetic induction being the magnetizing force. [Chapters VI & IX]Ref. 8
40. immune system: the functions and mechanisms by which the organism has the ability to resist specific and non-specific infections, stress, toxins, etc. It is this system that keeps the organism in a healthy steady state. [Chapter VI]
41. K - degrees Kelvin: a scale of temperature on which absolute zero is at 0^{o}C and water freezes at 273.16^{o} under standard conditions. Named after William Thomson [c. 1907] - Lord Kelvin, the Scots physicist who introduced it.
42. LDL: Low density lipoprotein - a complex or compound containing lipid and protein. Ref. 1

43. Law of Similars: The underlying principle of homeopathy that substances may be used therapeutically to treat disorders similar to that which they will themselves induce in a healthy subject. Expressed as 'Similia similibus curentur' - Like cures Like. Ref. 2
44. leucorrhea: a discharge from the vagina of a white or yellowish, more or less viscid fluid, containing mucus and pus cells. Ref. 1
45. leukocyte: white blood cell. Ref. 1
46. linear: 1. Linear: having components arranged in a line, having only one dimension, having an output directly proportional to the input

47. Non-linear: referring to systems that are affected by spatio-temporal memory, by events of historical significance that have happened yesterday or have happened ten, twenty years ago

48 Materia Medica:

1. Documentation of the therapeutic indications and effects of medicines.
2. Documentation of the pathology, the clinical findings and their modifying factors (modalities) associated with homeopathic medicines.
3. Documentation of the characteristics of homeopathic medicines derived from their toxicology and/or provings and clinical experience of their use.

The Materia Medica of homeopathy continues to be developed and refined by the methods listed in 3 above. Ref. 2

47. metaphysics: 1. Dr. Anthony Grayling - "Metaphysics is the inquiry into the ultimate nature of reality. It seeks to determine what genuinely and fundamentally exists and what existence itself is. It asks whether; in addition to physical reality, such things as deity, abstract objects - like numbers and values such as goodness and beauty exist in the universe and if so in what way." Ref. 10 2. The branch of philosophy that studies the most general categories and concepts presupposed in description of ourselves and the world. Examples are causality, substances, ontology time and reality. The rise of science in the 17^{th} century led to attempts by some philosophers - Hume and Locke to limit the claims of metaphysics and earlier this century scientifically minded philosophers - such as logical positivists- claimed that metaphysical assertions were meaningless. Ref. 9
48. microtubules: a minute protein filament making up the cytoskeleton of the eukaryotic cell and involved in transport of cellular water, information, and cell division, etc. [Chapter VIII] Ref. 1 & 8
49. nanogram: denoting a one thousand-millionth [10^{-9}] part of a gram. Ref. 10
50. New Age philosophies: a cultural movement began in the late 60's and given a name by the late 80's, which emphasizes the spiritual and mystical aspects of western society, incorporating elements of eastern religion, astrology, alternative medicine and ecology. Ref. 9 & 10
51. nuclear magnetic resonance spectrometer: a machine used as an analytical technique and in body imaging for diagnosis. It uses the absorption of electromagnetic radiation by a nucleus having a magnetic moment when in an external magnetic field. Ref. 8
52. oncogene: a gene which can transform a cell into a tumor cell. Ref. 8
53. phlogiston theory: theory held by 18^{th} century chemists whereby a substance was supposed to exist in all combustible bodies and to be released in combustion. Since

Jacob Priestley held this theory, he called oxygen, which he had discovered, 'dephlogisticated air.' Lavoisier demonstrated the true nature of oxygen and discredited the phlogiston theory. Ref. 8

54. placebo: a blank sample used as a control in testing new drugs or given to patients for psychological reasons in order to help along a therapy.
55. polar: having magnetic polarity; having a positive charge at one end and negative charge at the other. Ref. 8
56. polychrests: homeopathic remedies that have been deemed the most widely used remedies as in distinction to the smaller remedies whose sphere of action is limited. Ref. 2 & 13
57. polypharmacy: This can be seen in conventional medicine quite frequently and it is the habit and use of giving many different drugs to the same patient at the same time. In homeopathic medicine this usually refers to the pluralist view of homeopathic medicine and practiced widely in France and other countries. Unlike in classical Homeopathy where one remedy should be given to the patient and the reaction noted, in polypharmacy many homeopathic remedies are given hoping that one of these will do the job.
58. potency: Active property of the drug 1. The biophysical property of a homeopathicmedicine conferred by serial dilution with succussion, trituration or fluxion.2.The degree of dilution achieved during the preparation of a homeopathic medicine, expressed as the number of serial dilutions and the proportionate dilution (decimal, centesimal etc) used in the series; thus 200C expresses the potency of the 200th dilution of a centesimal series. The main series of potencies are: Centesimal (C), CH, CK, Decimal (D,X), Fluxion, Hahnemannian (H), Korsakovian (K), LM, Millesimal (M) and Q. More complete lists and descriptions should be obtained from national pharmacopoeias and pharmaceutical documentation. [Chapters V & VII] Ref. 2
59. potentization: see dynamization - No. 25 in this glossary.
60. Psychophysiology: the science of the relation between physiological and psychological processes e.g. conscious elements of autonomic nervous system activity involved in emotion.

    Psychoneuroimmunology: how emotions, feelings, thinking, consciousness, in other words the psychological sphere of the organism affects the nervous and immune systems. Ref. 10
61. psychotropic: referring to drugs used in the treatment of mental ailments. Ref. 1
62. purging: causing a free evacuation of the bowels by cathartics. A therapeutic procedure widely used and abused in Hahnemann's day. [Chapter I, p. 10] Ref. 1
63. Quantum Physics: a branch of physics based on quantum theory. Quantum theory is based on the concept of subdivision of energy into quanta. Ref. 10
64. reductionist: the whole is equal to the sum of its parts and not larger. This in opposition to holistic doctrine where the whole is considered larger than the sum of its parts because of the dynamics of biofeedback, interconnectedness, etc. [Chapter II]
65. resistance: the property of hindering the conduction of electricity, heat, etc. Ref. 8 The definition of resistance is Ohm's Law; simply stated R is the resistance of some

object or device, V is the potential difference across the device and I is the current that flows through it. Thus R = V / I. Ref. 6

66. resonance: 1. The reinforcement or prolongation of sound, etc. by reflection or synchronous vibration 2. Mech. A condition in which an object or system is subjected to an oscillating force having a frequency close to its own natural frequency. 3. Chem. The property of a molecule having a structure best represented by two or more forms rather than a single structural formula. 4. Physics. A short lived subatomic particle that is an excited state of a more stable particle. [Chapter IX] Ref. 8
67. repertories: symptom, medicine cross-reference. Systematic cross reference of symptoms and disorders to the homeopathic medicines in whose therapeutic repertoire they occur. The strength of the association between the two is indicated by the type in which the medicine name is printed. Used in case analysis to identify the medicine indicated for the patient. This process is called repertorization.

1. Data from the therapeutic repertoire of medicines appearing in the repertories are not always found in the Materia Medicas, and vice versa.
2. The validity of data in the repertories is not always proven.
3. A number of electronic repertories now exist.

[Chapter IV} Ref. 2

68. scientific paradigm: a representative example or pattern, especially one underlying a theory or viewpoint. Ref. 8. The present scientific paradigm is Cartesian or reductionist, a pending paradigm shift to holism is needed in science to answer many of the problems brought on by the evolution of knowledge from the previous paradigm.[Chapter I]
69. self-organization phenomena: spontaneous emergence of order arising when certain parameters built in a system reach critical threshold values. Ref. 4. [Chapters VI - IX]
70. spatio-temporal patterns: also called self-organization phenomena, dissipative or metastable structures. They are states of matter arising through bifurcation when a system is driven away from the state of thermodynamic equilibrium by external constraints exceeding a critical value. Ref. 4 [Chapters VI - IX]
71. spectroscopy [Raman]: used as an analytical tool. Laser light is used as the incident light and the Raman spectrum of a sample is recorded and analyzed. The Raman effect attest to the fact that light scattered from different molecules differs in wavelength from the incident light. Ref. 4
72. SQUID magnetometer: Stands for **S**uperconducting **Qu**antum **I**nterference **D**evice. A device used in detecting and measuring stimulus evoked neuromagnetic signals or biomagnetic fields. Ref. 11 [Chapter V]
73. Steiner: c. 1861-1925 Rudolf Steiner was an Austrian philosopher, founder of Anthroposophy. He proposed that spiritual development has been stunted by our attention to the material world and to reverse this process it was necessary to nurture the faculty of cognition. Ref. 8 [Chapter I]

74. strangury: A condition in which urine is passed slowly, painfully and in drops. From the Greek Strangouria; *strang* or *stranx* meaning drop squeezed out and *ouron* meaning urine. Ref. 8
75. stressors: any type of information that affects the organism, be it environmental [microbe, virus] physical [somatic] emotional, mental. We can have stressors that are positive or negative and that have short or long acting effects on the organism. Ref. 13
76. succussion: The second step in Hahnemann's potentization procedure. The shaking up and down of the dilution after the plant, mineral or organic substance drop has been added to the water or water-ethanol dilution. Ref. 2
77. superconductivity: a phenomenon occurring in some metals and other substances at very low temperatures in which the resistance drops to zero and the substance shows many other anomalous properties as well [considered anomalous because they haven't been explained yet.*] Ref. 4 & * Author's comment
78. superfluidity: a phenomenon occurring in liquid helium-4 [but can occur in other liquids*] below about 2.17 degrees
79. Superposition principle: a quantum mechanical principle according to which any two states can be combined to form states which have characteristics intermediate between those of the two which are combined. Ref. 4 [Chapters V, VI & IX]
80. Swedenborg: c. 1688-1772. Emanuel Swedenborg was a Swedish scientist, philosopher and mystic. Ref. 8. [Chapter I]
81. symmetry breaking: see breaking symmetry. See No. nine in this glossary.
82. synergistic: the combined effect of drugs, muscles etc. that exceeds the sum of their individual effects. Ref. 8
83. therapeutic exacerbation: temporary worsening of existing, past and upcoming symptoms following the administration of a correctly chosen homeopathic prescription, which indicates a favorable response to treatment. This is different from therapeutic aggravation in which the chosen homeopathic remedy is not the simillimum but because it is a close simile to the correct homeopathic remedy it produces symptoms not favorable to treatment. Ref. 2 & 13
84. trituration: Preparation of the homeopathic substance to be, by grinding
    Dilution in the solid phase, by grinding. The first stages in the preparation and potentization of homeopathic medicines from solid and insoluble source material by grinding it together with lactose (milk sugar) as a dilutent for a defined period of time to amalgamate the two thoroughly. May be done by hand or by a suitable machine. If the 3rd or 4th trituration is obtained, further potentization may be performed in liquid phase by succussion. Ref. 2
85. vital energy: a metaphysical notion; it is the force, energy or spirit which animates living organisms. Ref. 10. In scientific terms, vital energy takes on other names and relates to other levels of knowledge within biology, chemistry, physics and philosophy. * Ref. 13
86. Vitalism: the theory that the origin and phenomena of life are dependent on a force or principle distinct from purely chemical or physical forms. Ref. 10.