

*Scuola di Medicina Omeopatica di Verona*

1 Dicembre 2007

**Biologia e biofisica delle alte diluizione  
Una Base scientifica per l'omeopatia**

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**Experimental Research on High Dilutions by Thermoluminescence**

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## **WATER AS A HEALTH MESSAGE**

Water is, indeed, by far, the largest natural liquid on Earth and the “Water Planet” accounts for close to 1.4 billion megatons of water, 75 p. 100 of it being in the oceans, seas, ice-caps, lakes and rivers, the remaining being held in underground water tables and in the ever whirling atmospheric masses.

Water has shaped the surface of the earth but it is also the unavoidable support of life. When it is extracted from living cells by drying or low-temperature freezing, most are killed and those which do survive enter a state of “suspended animation” which will last until the initial water content is restored.

As a chemical, water is a very strange compound with many anomalous properties (density, freezing point, specific heat, compressibility ...). Water scientists as José TEIXEIRA, H.E. STANLEY and Rustum ROY, have thoroughly described the very peculiar behaviour of this polar molecule which is susceptible to establish strong links with its neighbours by hydrogen bonding in tetrahedric arrangements. Moreover, in many cases, these building blocks can merge together in much more complex structures, 3-D clusters and polyhedric arrangements which appear to be specific. In presence of hydrophilic solutes, like Cl Na, the whole water mass gets organized as multiple shells around the dissolved ions, whilst, when a hydrophobic compound is added, water molecules enclose hollow clathrate structures. Similarly they coat nanobubbles with one or two layers as they are hydrodynamically bound to large molecules like proteins or nucleic acids.

All these structures, however, are in continuous motion and change at the pico-second level which drives José Teixeira to say : “there are no permanent clusters in liquid water”. However, depending upon its prior

treatment, these evanescent structures do appear, move and disappear to be regenerated again. In other terms, water is a statistically structured fluid.

This, ladies and gentlemen, is the very basis of homeopathy : try and develop in a water system a given structure by the combined action of intense mechanical stirring and successive dilution. This, of course, is quite well known, but what is really new is that, today, we have novel experimental tools which allows us to challenge a long-lasting issue. Fundamentally, when a sample of water containing foreign compounds is diluted and dynamized in many successive operations until the added products have phased out, do we end up with a distinctive medium or only an aliquot of the dilution fluid ? The answer given by low temperature thermoluminescence is quite clear : The ultra high dilutions have a given selective identity.

Without going in too many details, let us just explain the basic concept of this method. A representative sample of “dynamized” ultra high dilutions is frozen to liquid nitrogen temperature ( $-196^{\circ}\text{C}$  / 77 K) and its ever moving dynamics turned in as a stable solid. We assume, then, that the statistically significant structures which were present in the original liquid are frozen stiff and appear now as isolated “defects” in the organized network of hexagonal ice. The material is further irradiated by Gamma Rays, X Rays or Electron Beams and the whole solid is “activated”. It is then rewarmed progressively under a photo multiplier and / or spectrograph and, as thermal energy is fed in, the different traps containing the “activated species” empty the one after the other and, in doing so, they emit light. This thermoluminescent glow is some kind as a finger print of the frozen solid where “defects” play a leading role and since these defects are directly connected to the structure of the original liquid, this recording appears to be specific to the dilution.

Actually, this low temperature thermoluminescence is just the transposition at sub-zero temperatures of the classical thermoluminescence methods developed for dating ceramics or geological events and which have

been in regular use in India since decennia thanks to the pioneering work of Professor GARTIA in Manipur. In our own studies we have found that ultra high dilutions - beyond the Avogadro number, which means dilutions in which all chemical products have disappeared - display, nevertheless, substantially different glow curves for Na Cl, Li Cl, histamine, potassium dichromate, all different from the solvent one. This, undoubtedly, demonstrates that, at the origin, the dilutions were structured under different and specific modes. The elegant experimental work done on calorimetry by Professor ELIA has confirmed this point of view and shown also that these dilutions might slowly evolve with age which corresponds equally to some recent observations done by Professor Van WIJKE

In very recent, unpublished, experimental work it appears that the dissolved gases, might play an important role in this process..As we have said before, in the homeopathic preparation scheme, we feel that a major element is the “dynamization = succussion” step which releases a considerable energy in the fluid. In view of this fact we became interested into the research done recently on the role of nano bubbles in water by Philippe VALLEE and feel that part of the “message” transferred from one dilution step to the next one might be linked to the nano bubbles created into the liquid by the successive strong mechanical stirring.

To investigate that issue, we built a special equipment to achieve dynamization either under gas pressure or under vacuum. Our first preliminary results definitely show that the gas-phase seems to play a major role in the “personalization” of the dilutions. Bearing in mind that the number of nano bubbles created into the fluid amounts to billions (which represents a very large “contact” surface with the surrounding liquid) and that, due to their size, they may remain stable undisturbed into the dilution for months and even much longer, this might open some new perspectives into our understanding of the whole homeopathic preparation process.

As such, we may conclude that ultra high dilutions are susceptible to carry a specific “health message” and constitute the basis of a reliable therapy. At that point, it is not my purpose to endeavour to deal with the numerous clinical testing done in double blind, which have been reported by

Philippe BELON, Michael FRASS and many others, in respectable international reviews, but I only want to show how very recent experimental work supports this idea. In doing so, I am perfectly aware that homeopathy has had for decennia its own detractors but I think that it is fair to say to this distinguished audience that “water-based health messages” conveyed by homeopathic preparations do lie on solid sound scientific basis and should get their due place in human therapeutics.

Ladies and Gentlemen, as a conclusion, may I quote His Excellency The Prime Minister of India, Dr. Manmohan SINGH who wrote in his message to the LIGA 2005 Conference in Berlin :

*“The discovery of homeopathy ... proved to be a great boon for humanity by strengthening the immunity of the body ... As a holistic system of medicine it tries to address the conditions which create health disorders and, therefore, deals with the root of the problem” and Dr. Manmohan Singh to add “safety and efficiency of the homeopathic drugs and the absence of side effects has made it popular all over the world”.*

Ladies and Gentlemen, when we are planning our future actions in the health field for the best interest of mankind, let us not forget that we hold there an important asset which should not be overlooked since it comes as a natural complement to the use of biologicals and chemical drugs. With homeopathy we take care of the patient first, as a whole, and no longer address only his disease.

Lausanne October 2007

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Nome file: REY-Relazione -INGLESE.doc  
Directory: C:\Documents and  
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Titolo: WATER STRUCTURE AND LYOPHILIZATON  
Oggetto:  
Autore: Antje Barbey  
Parole chiave:  
Commenti:  
Data creazione: 15/11/2007 10.01  
Numero revisione: 2  
Data ultimo salvataggio: 15/11/2007 10.01  
Autore ultimo salvataggio: Studio  
Tempo totale modifica0 minuti  
Data ultima stampa: 04/12/2007 18.09  
Come da ultima stampa completa  
Numero pagine: 5  
Numero parole: 1.298 (circa)  
Numero caratteri: 7.399 (circa)