

GUEST EDITORIAL

The electrical properties of high dilutions

Cyril Smith ¹

¹ Retired from the University of Salford, Salford, England.

Correspondence: cyril.smith@which.net

The measurement of the electrical properties of highly diluted and succussed preparations has a chequered history. A method which was said to be highly sensitive in distinguishing homeopathic preparations from controls turned out, in a blinded trial published in this journal 10 years ago, to be incapable of differentiating homeopathic potencies from control dilutions. The exact parameter measured was never revealed; this research treated the apparatus as a 'black box'. However the homeopathic medicine used was *Natrum muriaticum*.¹

More recently Vitorio Elia and collaborators, in a long series of experiments² have shown large changes in the properties of homeopathically-prepared solutions, including electrical properties such as specific conductivity as a function of their history, the solute previously dissolved, and time. This was supported by their microcalorimetric heat-of-mixing experiments. They detected two surprising and entirely unpredicted properties in homeopathic dilutions: the size of the measured physicochemical differences increased with age, and the parameters vary with the volume in which the dilution was prepared, being relatively greater with small volumes. They have worked with a variety of homeopathic medicines, not always

revealing their names.³ Their microcalorimetric procedure also showed changes in water following its exposure to electrical resonators⁴.

In this issue Roberto de Toledo Assumpção presents new, objective evidence that there are measurable physical effects in dilutions of sodium chloride (*Natrum muriaticum* in the homeopathic nomenclature), diluted beyond Avogadro's Number, the magical value at which the chemists tell us no molecule of sodium chloride should remain. They are correct, that the sodium chloride has been diluted out, but an absence of chemistry does not exclude effects in physics. This paper continues the process of bringing homeopathy into the 21st. Century. I will note items in this paper of particular relevance to homeopathy, for fuller details see my on-line series.⁵

Impedance and the corona discharge effect

Assumpção used measurement of electrical impedance and high voltage plasma photography to image the corona discharge effect. Electrical impedance contains two terms: one relates to the electrical capacitance or charge storage capability, the other to electrical conductivity which depends on the number of charge carriers (sodium and chloride ions) available (for dielectric theory see Hasted⁵). In Assumpção's figure 6, the impedance increases as expected as ions are removed by dilution. But it then starts to come down again, at around the 'Avogadro Boundary' of 12 cH. If it rises again after a minimum at 30 cH, it would be behaving like an allergen dilution. If H⁺ ions (protons) are involved in information storage in the water domains, their inactivation would make the water more alkaline (increase the pH)⁶ and more conductive.

High voltage plasma photography is also known as Kirlian photography: high voltage is applied momentarily to a photographic plate to make an exposure and the corona discharge between the object and the plate is recorded. As a result of claims that it can image the 'human aura' etc, this method has acquired some negative connotations, it has been referred to as bioelectrography. But such terminology is now outmoded: the same plasma discharge phenomena can be observed in organic and inorganic systems, the main difference between these being that, under the same experimental conditions images of living organisms differ, those of inorganic systems do not. Electrical discharge phenomena in gases are well understood⁷. Gas ion and plasma surface interactions are technologically important.

The patterns of the plasma images shown by Assumpção (Figures 2a-e) in this paper suggest that the spikes (avalanches and streamers) in the halos may start on coherence domains where the potency information is stored, they change with increasing potency. For the first time he has analysed these changes using image analysis software, showing that some properties vary with dilution, others with the number of succussion cycles.

Coherence

In recent years, there have been important developments in physics which are relevant to homeopathy. Coherence is a fundamental property of water.^{7,8} As a consequence, domains of coherence appear spontaneously on condensation from the vapour. In a coherent system, frequency becomes a fractal quantity with no absolute value. Patterns of frequencies repeat in many parts of the electromagnetic spectrum. It is this which links the frequencies of the chemical bonds in the "Mother Tincture" to frequencies of biological significance in the potencies. If there was not a duality between frequency and the chemical bond, spectroscopic analysis would be impossible. Frequencies convey bio-information, fractality makes it accessible.

Society needs homeopathy and society needs homoeopathic concepts. The effects of environmental chemicals and frequencies of environmental electromagnetic fields at intensities insufficient to produce significant heating are becoming more and more apparent. These are the ‘proving symptoms’ of the frequency patterns of ‘environmental potencies’ taking effect. Chronic exposure can result in adaptation until proving and disease states become indistinguishable.

Some years ago I visited a school of homoeopathy in another part of the world; they had just been asked to set up a school of homoeopathy in another city to train medical orderlies to serve villages as front-line health care. Their government had realised that it would never be possible or affordable to deliver ‘high-tech’ medicine to the entire population. The Third World needs the development of homoeopathy to meet its health needs affordably.

Homoeopathy needs the development of its theoretical basis to survive in a ‘high-tech’ world. But in the light of the controversy which has attended previous claims in this field, caution, and independent repetition of these results is required.

References

1. Walach H, Van Asseldonk T, Bourkas P et al. Electrical measurement of ultra-high dilution – a blinded controlled experiment. *Br Homoeo J.* 1998;87:3-12.
2. Elia V, Baiano S, Duro I, et al. New and permanent physicochemical properties of the extremely diluted aqueous solutions of the homeopathic

- medicine. A conductivity measurements study at 25 °C in function of the age of the potencies. *Homeopathy* 2004; 93: 144–150.
3. Elia V, Napoli E, Germano R. The ‘Memory of Water’: an almost deciphered enigma. Dissipative structures in extremely dilute aqueous solutions
Homeopathy 2007; 96:163-169
 4. Cardella C, de Magistris L, Florio E and Smith CW (2001) Permanent Changes in the Physico-Chemical Properties of Water Following Exposure to Resonant Circuits. *Journal of Scientific Exploration* 15(4): 501-518. Correspondence: 16(2): 256-259 (2002).
 5. www.hpathy.com/research/smith-how-homeopathy-works.asp and further articles in this series
 6. Hasted JB (1973) *Aqueous Dielectrics*. London: Chapman and Hall.
 7. Raether H (1964) *Electron Avalanches and Breakdown in Gases*. London: Butterworths.
 8. Smith CW (2007) Water - its clinical and scientific depths. In: Emoto M, The Healing Power of Water. London: Hay House. Chap.3, 77-88.
 9. Arani R, Bono I, Del Giudice E and Preparata G (1995) QED coherence and the thermodynamics of water. *International Journal of Modern Physics B*, **9**: 1833-1841.
 10. Smith CW (2006) Fröhlich’s *Interpretation of Biology through Theoretical Physics*. In: Hyland GJ and Rowlands P (Eds.) Herbert Fröhlich FRS: A physicist ahead of his time. Liverpool: University of Liverpool. 91-138.