

## Water Memory – an Unscientific Perspective

It's not often a flaky complimentary therapist starts with some hard science, but bear with me...

Scientists are still unable to agree why or whether water does retain the imprint of substances it has been in contact with, but that is as much to do with their own internal political dogma as it is with the issue of water itself.

Water has a simple molecular structure composed of one oxygen atom and two hydrogen atoms. The hydrogen atoms bond to the oxygen atoms by sharing electrons, known as covalent bonding. However, because the oxygen molecule has 4 pairs of electrons, this means that the oxygen molecule has 2 other unshared pairs of electrons, leading to an uneven distribution of electron density, making it a 'polar' molecule, which is partially positive at the unshared electron pair end, and partially negative at the shared electron paired end with the hydrogen.

With me so far?

This imbalance creates an electrostatic attraction between each molecule such that the positive ends of each polar water molecule are attracted to the negative ends of another polar water molecule, creating what are referred to as hydrogen bonds (or ionic bonds), resulting in each water molecule being hydrogen bonded to its 4 nearest neighbours. These bonds are very much weaker than the covalent bonds linking oxygen and hydrogen and are constantly breaking and reforming within a body of water: this gives water its excellent solvent properties for a huge range of substances.

An imprecise but nonetheless illustrative analogy would be: a very large crowd of people in a stadium, for example, who are all shaking hands with each other. At any one moment, the majority of the group are linked but some won't be, and the links are constantly changing as each person turns to another to shake hands again as they try to shake hands with as many people as possible.

Water is one of the few substances which has both covalent and hydrogen bonding forming its molecular structure, and this is in part what gives it some of its unique properties. It has, apparently, 41 different anomalies - here are a few:

- Water has an unusually high boiling point
- It shrinks on melting
- The number of nearest neighbours increases on melting and with temperature.
- Hot water freezes faster than cold water (the Mpemba effect).
- X ray diffraction shows an unusually detailed structure
- Warm water vibrates longer than cold water

Water's solvent ability and the various anomalies may in part describe the concept of the memory of water, used to explain how homeopathic dilutions and amplification by succussion work as well as the production of flower, gem and other essences, although the theory continues to disobey the second law of thermodynamics ('Energy spontaneously disperses, if it is not hindered. When it does so, entropy increases in the combination of system plus surroundings' [flambert@entropysite.com](mailto:flambert@entropysite.com)) – but then, apparently, so does life!

Without getting too weighed down by the concepts of co-operation between icosahedral expanded water networks (!), if we return to our crowd analogy, we can see that as the individuals in the group intermingle and get to shake each other's hands, each person is likely to register or remember who it is they have already met and who they haven't, so that if they've all met once already the 'I've met you' knowledge bank of the group will be full, as it were, although repeated

meetings between individuals will strengthen the knowledge already present. If we then temporarily introduce some new members, this will increase the 'I've met you' knowledge bank of the group, even if those individuals then depart, leaving a kind of imprint of their presence on the group. Indeed, the more people in the second group meet the original group members (as in succussing), the greater the group memory of their presence after they've gone. In water, this seems to be due to the fact that the icosahedral structure of the molecules actually restructure so as to accommodate any solute molecules which then hold that structure even when there are no molecules of solute left. Elvis Presley has left the building (but we all know he's been there)...

Works for me!!

By the way – an icosahedron is a 20 sided structure composed of equilateral triangles, which has 6 5-fold axes each of  $72^\circ$  passing through pairs of opposite vertices and ten 3-fold axes. It forms one of the Platonic Solids (which were known to the ancients well before Plato gave his name to them) – and guess which element it's supposed to represent? Water!