

Structured water: the basis of vital life

Introduction

The purpose of this paper is to describe in general terms the relationship between water structure and magnetism and the interaction of energised or structured water with the function of living cells.

The unique MEA (**m**agnetic, **e**nergised and **a**ctivated) water restructuring and conditioning devices are designed and manufactured in Australia by Resonate Research Pty Ltd (trading as **Phi'on**). Phi'on was granted 4 Australian Innovation Patents by the Australian Government in 2016 for outcomes achieved by these devices, across a wide range of water uses. The patents cover the capacity of the devices to create a permanent negative charge in water, the natural relationship between biology and negatively charged water for application in agriculture; the processing of raw milk to eliminate pathogenic microbes and the capacity to permanently entrain natural light and sound frequencies that can be further entrained to the water.

MEA water restructuring and conditioning devices produce an indefinite or **permanent negative charge in the water**, and this is the natural state of water in pristine, flowing water systems. The devices restructure and condition water into a cohesive, *living* crystalline water structure that has life-affirming effects on soil, biology, plants, animals and humans. When water is in this natural state, the water is extremely responsive and can entrain unlimited natural energies (light and sound) or information. The devices use magnetism in a unique array to energise and activate the water into a natural structure that is aligned to the health of living cells (coherence). That is, structured water can receive, store and transmit information, and this is how cells work in regulation and healing.

Water and biological coherence are fundamental to our energy systems and to optimise health, vitality and longevity. The science of water structure provides insight to the liquid crystalline molecular fabric that interconnects all parts and processes within living things. This living matrix gives a substantial basis for the term *holistic* and a scientific basis for alternative therapies for humans and animals (including homeopathy where the structured water is used as a base or carrier for compounds or elements).

Water structure and energy (including cell polarity) are more critical to life function than the natural chemical constituents of water. The living world is an equal partnership between biology, the concentration of negative hydrogen ions (H-) and water, albeit that the natural minerals in water can be a function of charge potential.

What is Structured Water

Phi'on structured water is water that has been activated or energised to permanently hold a negative charge (- millivolts). This negative charge (entrained from the anti-clockwise spin of a vortex) is also known as *female*, *yang* or *anti-matter*. Water structuring occurs in nature when water moves in a natural flow of vortexes (left and right turning or anti-clockwise and clockwise turning). Most wild (pristine) rivers and some springs produce structured water in the presence of Earth's magnetism, sunlight energy and natural biological conditions. Electrical stormwater is in an

energised, negative voltage form before it hits the ground, air particles (eg, smog) or a surface. Some spring waters are also energised through contact with **magnetic forces** combined with paramagnetic minerals rock strata of the groundwater flow.

The terms **pure water or structured water** are often used interchangeably by companies involved in water conditioning. In this paper **pure water** is the form of water found in a pristine natural environment. This water can be defined as **living water** (ie. having a *life force energy or negative charge*):

- Flowing, pristine water has a six-sided (hexagonal), crystalline structure and carries a negative (-) charge
- Natural water is mineral rich. Minerals anchor the life force in water, and this includes deuterium (2H/2D) that is found in natural waters. Therefore, distilled and desalinated waters are processed, positive charge or dead waters (*no life force energy*)
- Pure water contains the frequencies of sunlight (as photons) and sounds of nature that have been entrained into the water through the crystalline, negative charge of the structured water (*full spectrum living water*)
- Natural, pure water contains the natural beneficial microbes of the earth (ie. the water in a pristine, flowing water system)

Most water that humans and domestic animals consume is positive charge, toxic and not pure or structured. This toxic water, includes rainwater that is exposed to air pollution, soil water contamination (soil water for plants), and water held in dams, tanks and pipes. The limited availability of clean, structured water is now a major limitation to a healthy life and longevity.

The **Phi'ón** water technologies restore and energise water and enable water to *dance* a vortex frequency that frees or neutralises the water of its past, vibrational memory (ie. exposure to human made toxins in the soil, water bodies and air) and transforms the molecular structure of the toxins back into *life giving* molecules or elements, by rearranging the bonds between elements. That is, the water returns to its natural, structured state where it is free of its **toxic energy load**. For example, urban water that is restructured and energised will lose the toxic effects of fluoridation and chlorination (through a process of water detoxification and change to a negative voltage), as the molecular structures of these compounds are changed by the natural, life-affirming vibrations of structured water. Similarly, water in human-made structures, such as dams, tanks, pipes, ponds, etc. can be restructured and energised through the **Phi'ón technology** that replicates water cycling (vortex) processes in nature. Also, this Phi'ón technology process is consistent with the 1st Law of Thermodynamics that states matter and energy cannot be destroyed, however it can be transformed: a MEA water device is a transformer.

Structured (coherent) water has smaller clusters of the water molecule. Also, structured water has low density (LD water: LDW) **LDW** is the state of water to superconduct photons and electrons. This is when water is coherent and has a different crystalline structure with a less open angle and shorter distance of the hydrogen ion to the oxygen ion. In this state, water entrains photons of living light and releases more Oxygen (negatively charged) and negative Hydrogen (H⁻) to living matter (eg. cells). For example, the consumption of structured or energised water will activate cell water, eliminate toxins from cells (ie. structured water cannot attach or hold onto toxins) and thereby increase cell potential for life.

Generally, structured water can be described as light, **smooth**, silky and creamy, compared to unstructured water. This condition also applies to wine and other liquids that have had the water in the liquid permanently changed to a negative (-) charge or structured state with a Phi'on MEA water device.

How is Water Structured

Water that is piped to most households or held in storage will have a positive (+) charge or five-sided (pentagonal) crystalline structure. The restructuring of this water to a negative (-) charge with a six-sided (hexagonal) crystalline structure can be achieved in several ways:

1. Light energy
2. Minerals and specifically silica and crystal energy
3. Vortex energy
4. Magnetic energy
5. Sound or natural frequency (sacred geometry) energy

There are many devices or systems on the market that use one or combinations of these techniques. The devices developed by Phi'on use a magnetic energy system to **permanently place a negative charge in the water**. This capacity is the **unique feature of the Phi'on MEA devices** and the basis of the four Australian Innovation Patents granted to Phi'on. Other devices on the market have either not made this claim, or in most cases the negative charge from these other devices loses charge within 2.5 days or 60 hours. In some cases, these other devices or systems produce **no negative charge** in the water, and therefore the water is not restructured.

There are many **myths about the state of water** on the Internet and these include:

- **Distilled water is pure or structured water.** Distilled water is not a natural state of water and due to its demineralisation is classed as dead water and not suitable for cell life. Desalinated water is in the same category as distilled water and not suitable for long term use.
- **Cells work best with deuterium (2H) depleted water.** Deuterium is a hydrogen isotope in natural waters and some of this 2H is transformed by cells into H and H (including H⁻). This is consistent with the transformation of matter and energy in the 1st Law of Thermodynamics.
- **Alkaline water is best for cell life.** Most natural waters are acidic and when you drink alkaline water it is immediately changed to an acidic form by stomach acid. The whole digestive system is acidic. Cell water and other body fluids are alkaline due to the presence of alkaline minerals in water and food.
- **Electrolysed or ionised water is best for cells.** Water that has been affected by electrolysis or microwave radiation destroys the natural polarity of water (including the water in plant foods). Water from these treatments is dead (ie. no life-force energy)

Many academic and scientific experiments are undertaken using water in an unnatural form in a belief that water is just H₂O. Consequently, the only experiments that have any validity in the analysis of living systems would be structured (negative charge) water that is preferably sourced from a pristine flowing water system or restructured using a Phi'on device. Urban water from a tap is dead water and responds differently in experimental conditions on living systems. Water is in a conscious state and can receive, store and transmit information, including the energy of the

experimenter and the environment of the experiment. Consequently, these factors either enhance or degrade the results of the experiment, and therefore determines the success or failure of an experiment.

Resonate Research is currently trialling a combination of magnetic and natural frequency energy, and early results are very promising. Also, it should be noted that the MEA devices work due to water moving in a natural vortex action. A vortex can be manually induced (eg. the MEA bottle top device) or facilitated by magnetic energy.

Background Science

Conventional science says that water is just H₂O and can exist in 3 phases or states, ie. liquid, gas (water vapour) and solid (ice). Recent science says that cell water can be in a fourth phase or state and it is H₃O₂. This fourth phase is called the exclusion zone (EZ) because this water excludes things profoundly, including small molecules (eg. toxins, gases, etc.). The science of the EZ water is discussed in detail in a book titled *The Fourth Phase of Water*, by Prof. Gerald Pollock. This water occurs in nature as bulk water, as with thunderstorm rain, deep groundwaters, pristine river water, and as the **cell water of all life**. This water has a negative voltage (-mV)/charge and therefore **all cell water has a negative voltage**, unless the cell is in a diseased or dysfunctional state where its polarity has changed to a positive (+) charge.

The H₃O₂ water is biologically vital or life-affirming and this notion has been the centre piece of scientific study by Dr. Albert Szent-Gyorgyi, Boris Derjaguin (physical chemistry of colloids and surfaces), Dr. Martin Chaplin (structure, function, behaviour and properties of liquid water), Dr. Mae-Wan Ho (states of water), Prof. Gerald Pollack (EZ water) and many others associated with water science including Viktor Schaubberger (the vortex science) and Dr Richard Freymen (negative charge of the earth).

This science gave rise to many terms associated with the **fourth phase of water**, including living water, living energies, structured water, energised water, activated water, exclusion zone (EZ) water, etc. These terms acknowledge the amazing anomalous properties of water, including how negative charge (voltage) water is the basis of healing. Dr. Albert Szent-Gyorgyi famously said that **life is water dancing to the tune of molecules**.

However, regardless of this new insight into the science of water, there is very little attention given to water science in the mainstream of public and private science. The whole idea that H₃O₂ water or EZ or structured water is not bulk water, ie. H₂O, or that it can heal, have homeopathic properties, and some form of memory (ie. water's capacity to receive, store and transmit information), is beyond the belief system of mainstream science.

Some people on Earth have access to structured water through glacial melt water, the so-called *sacred or healing* spring waters and pristine river water. This paper describes a way of making your own structured water and enjoying the benefits that natural water brings to cell life and therefore health and longevity.

Magnetism Effects on Cell Water

The most common and effective approach to energise structured water for health and healing qualities is through magnetism. The standout research on the link between magnetism and health was undertaken by Albert Ray Davis (*Magnetism and its Effects on the Living System: 1974*) and Dr. Robert O Becker (*The Body Electric: Electromagnetism and the Foundation of Life*). This research confirmed some critical aspects of the application of magnetism for biological function, ie. separateness of the magnetic pole effects on living systems. They found that the **positive pole** (South on the magnet) is the signal of a stress or injury in the body and that the **negative pole** (North on the magnet) governed healing and normalisation of body functions.

It has been known for some time that the Earth has a negative charge and the atmosphere (space above the ground) has a positive charge (magnetic energy from the sun). Humans release excess positive charge into the Earth through physical contact (bare feet or hands) with the Earth (eg. soil or sand on the beach, etc.) or with plants (eg. trees). This process is natural and is called Earthing or grounding.

This scientific work, particularly by Davis also found that:

- The positive charge is produced by a clockwise spin in water and the negative charge is an anti-clockwise spin
- Positive charge produces oxidation, acidification, excitation, activation and stress
- Negative charge produces oxidation (holds oxygen or + ORP, and opposite of reduction or - ORP), blood alkalinity (due to increased oxygen), calmness, relaxation and anti-stress
- The pineal gland needs to absorb the Earth's negative charge to release melatonin for healthy sleep. Melatonin is enhanced by the sun's red light in the early morning and diminished by the sun's blue light in the afternoon
- Most electro-magnetic energy in the home (TV, computers, and other electrical appliances) emits positive magnetic signals that diminish body functions, eg. melatonin, etc.
- The spin of electrons in the body is anti-clockwise with a negative charge and the body water is predominately negative charge and therefore the body electricity is negatively charged.
- The flow (a vortex action) of blood through the body produces negative magnetic energy. The heart is not a pump but a vortexer. The inhaled oxygen in blood carries the Earth's negative magnetic energy to cells
- The body's negative magnetic energy maintains the buffering system of the cell water pH in a normal and slightly alkaline state. Therefore, acidic conditions in the body's cell water promote mental and physical degradation or deprivation of body functions (eg. inflammation).

This research confirmed that the excessive build-up of **positive charge** in the body electricity was detrimental to health and that exposure to a **negative charge promoted healing and general wellbeing**. This research has enormous implications for the quality (structured) and charge (negative) of water consumed for body functions.

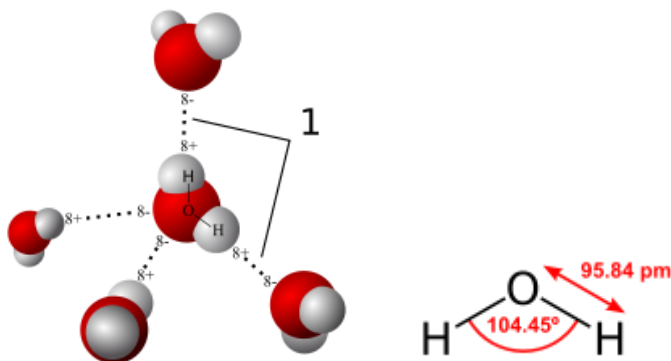
However, this research by Davis only raised more questions about the links between magnetism and water in living cells. Since the 1990's the major focus has been on the structure of water and why water is a fundamental, life-affirming molecule. In 2015 Dr. Jerry Tennant published the 3rd Edition

of his book *Healing is Voltage* and his claim that the on/off switch for cancer is the polarity of cell water. In previous publications of his book, Jerry described how new cells are made when the cell charge is -50mV, and when cell water charge falls to zero mV or into the positive (+) mV charge zone then disease will occur. Clearly, the negative charge on oxygen has a major role in sustaining high negative charge at a cellular level and the idea of flooding the body with oxygen (eg. DMSO) is a major strategy in disease prevention. For example, in the absence of oxygen, the blood glucose undergoes fermentation to lactic acid and the cell pH then drops 7 (or zero mV) and finally down to 6.5 or +30mV. In this acidic zone the DNA loses its positive and negative radical sequence. In addition, the amino acids entering the cell completely loses its control mechanism. Chromosomal aberrations may occur, followed by a cascade of cellular degradation (toxicity), including cancer feeding on glucose. Therefore, it is critical to sustain cellular charge in the high, negative (-) mV zone with fresh, natural foods and negative (-) charged water. Cell charge is also supported by sunlight frequencies, contact with the negative charge of the Earth and contact with seawater and flowing river water. This enables positive (+) charge to be released from the cells and replenished with negative (-) charge.

It is likely **that water extracts or attracts from nature the elements or energies that it best has an affinity with according to its structure** (eg. negative Hydrogen ions: H⁻). It is already known that different waters around the world have qualities that are claimed to be healing and this healing capacity may be linked to water structures. The discussion below is about the probable link between water structures and health.

Water Structure

It is commonly known that water is a simple compound of H₂O and it is the most abundant substance on and within the Earth's crust and upper mantle. Water is fundamental to life and exists in the atmosphere (as vapour) and deep into the Earth's mantle. Most living things comprise at least 70% water by weight (albeit that 99% of human molecules are water molecules), and it readily bonds with other elements through its unique electric dipole in which the positive (+) and negative (-) charges are separated. The oxygen carries the negative charge and the hydrogen carries the positive charge. Hydrogen can bond with other electro-negative atoms, such as oxygen and nitrogen. Therefore, water has such a wide diversity of structures and possibilities in nature.



While water is the most studied substance on Earth, it is remarkable that the science behind its behaviour and function is so poorly understood. The small size of its molecule belies the complexity of its actions and its capabilities. Liquid water's unique properties and nature fit ideally into the

requirements for life as no other molecule. An important feature of the structure of water is its capability to change the angle of the hydrogen ion to the oxygen and the distance of the hydrogen ion to the oxygen ion.

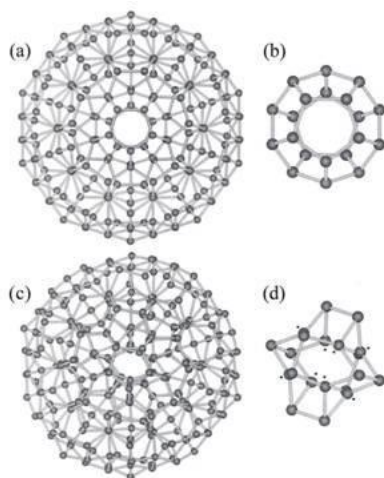
Water structures

The late Wilse Robinson and his group in Texas Tech University Lubbock in the United States revived the *two-state's* theory of water in the 1980s. By the early 1990s, they were able to show that the experimental measurements of the density of water over the range of -30 C in the super-cooled region to -70^o C could be accurately fitted to the *two-state's* model. They envisaged low-density regions in the liquid with intermolecular hydrogen bonds.

Liquid water is best described as an intimate mixture of two liquid phases: one that has three-dimensional hydrogen bonding, an open and less dense structure and with lower hydration capability; and one that consists mostly of hydrogen-bonded chains, with a denser, more compact structure and **greater hydration capability** for all life forms.

X-ray diffraction data on liquid water, and other structural data on different forms of ice indicated that high-density and low-density water (HDW and LDW) differ in bonding in larger water structures. At ordinary temperatures, liquid water consists of rapidly inter-converting LDW clusters where the second neighbour intermolecular O---O distance is 0.45 nm, and compact, HDW clusters where the corresponding O---O distance is 0.35 nm. In super-cooled water, LDW clusters predominate, and hence its volume shrinks when heated, as more and more HDW clusters form until 4^o C, when practically all the clusters are HDW, and the water is at its maximum density.

Water can have a low density and a high-density structure and is illustrated by Chaplin who developed a 280-molecule icosahedrons model that measures 3nm in diameter in its fully expanded form. The beauty of the model is that it can convert between a low-density fully expanded structure (ES) and a high-density collapsed structure (CS) without hydrogen bonds breaking; they only need to bend, with bond strengths about one percent smaller in CS.



Chaplin's two-states model of highly ordered icosahedral network that interconverts between the fully expanded low-density form (a) and the collapsed high-density form (c); with their respective central 20 molecules (dodecahedral) units (b) and (d).

Singularly, water ionises and allows easy proton exchange between molecules, so contributing to the **richness of the ionic interactions in biology** (eg. deuterium as 2H or 2D).

Water flow

The **dynamics of water flow energy and vortex geometry are important factors in the design of water conditioning devices** for a wide range of water use applications. Water flows or behaves in a predictable vortex pattern based on its molecular structure and environmental conditions, ie. space dimensions in a river or pipe and the effects of external energies such as magnetism and gravity. For example, water current charge and direction can be influenced by the magnitude of magnetic strength. However, when water is flowing it does not require any mechanical inducement to vortex. Water knows how to vortex, and this is **water consciousness** in action.

The water vortex possesses extremely high and diverse levels of energy that can be utilised for an abundance of practical applications. The energy potential of vortices is possibly best exhibited by the most familiar kind of vortex, a tornado. The sheer forces caused by the rapid air velocity at the vortical apex of the tornado are evidence of the vast amounts of energy a vortex can generate. The same principle is true for vortices in a body of water. The energy of the vortices can be used for several applications by converting the mechanical energy of the vortices to other kinetic energy, such as electrical energy. That is, **moving water** (under certain natural conditions) **creates energy or charge**.



Water flow also has structure or vortex geometry. The vorticity in a vortex depends on how the speed of the particles varies as the distance from the axis, ie. particle speed is inversely proportional to the distance from the axis.

The fields (eg. magnetic fields) that operate to organise atomic structure are the products of spin vortices: it is the spinning dynamic that creates polarity in all its aspects (Yurth)

Water Science with Gerald Pollack

Dr. Gerald Pollack has undertaken much of the fundamental science on **EZ water** and his findings and ideas can be summarised as follows:

- Water has a fourth phase called exclusion zone (EZ) and is structured as H_3O_2
- EZ water has a negative voltage and is the water in all cells
- EZ water occurs in natural waters and has a blue or green tint (fluorescence)
- EZ water is good for your health and the function of cells
- EZ water has a spectral waveband peak in the 270 nanometers or the UV region of light. The more water absorbs this light the higher the EZ presence in water. This highlights the importance of cellular exposure to sunlight in health (sunlight energy that is absorbed or penetrates inside the body to the EZ water in cells, and builds negative voltage in the cells)
- EZ water has no resistance. This accounts for rainwater falling at 10 times the speed of any object in air, and that EZ water (ie. **structured water**) in a pipe has little or no resistance

- EZ water is the main component of blood and therefore blood can vortex effortlessly through tiny capillaries with a diameter small than the red blood cells, due to the EZ water having no resistance. The cardiovascular system also is assisted by radiant energy from the sun and this assists with blood flow that is 95% EZ (structured) water
- EZ water is denser than H₂O
- All proteins have a sheath of EZ water around them
- Cell health is a function of the presence and voltage (negative) capacity of the EZ water
- EZ water is more viscose. Egg white is highly viscose due to the presence of EZ water.
- The refractive index of EZ water is at least 10% higher than H₂O, ie. capacity to bend light
- The human body is constantly trying to discharge positive voltage/charge through urine, faeces, perspiration, physical contact of human skin with the Earth or vegetation, etc. and maintain high negative voltage in cells.
- Living plants constantly have their roots in a negatively charged soil, and therefore the water that circulates in a plant is negative charge (structured.) Also, this charge is sustained by rainwater and microbial activity, and diminished through chemical fertilisers
- The best sources of EZ waters are glacial water, deep groundwater, natural springs, pristine river water and rainwater (in unpolluted air)
- There is no connection between EZ (living or anti-aging) water and alkaline (dead or aging) water in terms of cell health.

Further information about Dr. Gerald Pollack's science of EZ water can be found on YouTube. However, in this paper **structured water** is used to describe any location of a six-sided, crystalline structured water (eg. in a cell or as Phi'on structured water).

ORMES and Clathrate hydrates

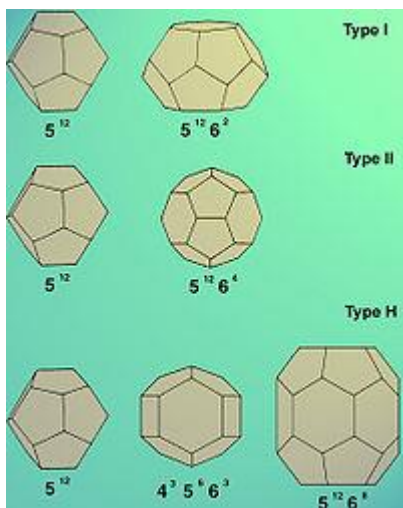
There is good evidence to conclude that natural water in a H₃O₂ and structured form **will form with elements that are in cohesion with this water structure and exclude materials that are not in cohesion**. It is likely that structured water is in harmony with ORMES and clathrate hydrates and these elements/ materials are part of the life-affirming properties of structured. Phi'on was probably the first to create unique products with ORMUS (made by Phi'on as a gel from concentrated seawater) and structured water with a permanent negative charge.

In the 80's and 90's David Hudson coined the acronym ORMES. This is a name for what he defined as a new state of matter. ORMES is an acronym for **Orbitally Rearranged Monatomic Elements**. The term ORMUS is also used to describe these elements. Hudson demonstrated, through his very detailed experiments and multiple testing, that at least 13 of the transition elements (Co, Ni, Cu, Ru, Rh, Pd, Ag, Re, Os, Ir, Pt, Au, Hg.), which are in the centre of the periodic table, can exist in a previously unidentified *state of matter*. He claimed that this occurs when these elements are in a monatomic state. This transformation is possible given the 1st Law of Thermodynamics.

David Hudson found that in this state these elements are chemically inert. In conventional chemistry it is believed that all chemical reactions between elements take place because of the action of their outer electrons. He deduced that when these transition elements exist in a monatomic state and are not sharing or swapping their electrons with their near neighbours in a material structure like a crystal lattice, they become ORMES elements.

At this stage the outer electrons of these elements form Cooper pairs and become whirlwinds of light rotating at super speeds around the atom. Again, as a result of this change, they lose all conventional chemical reactivity. Another important change that takes place is that the whirling electrons that have become light, set up a Meissner antimagnetic field. This antimagnetic field causes a levitating force against the earth's magnetic field and the element effectively loses 4/9's of its weight. According to Hudson, at this same time the nucleus becomes high spin and shrinks to about 1/3 of its original size and distorts to an oblong shape. When in this state as a single atom it should be a very small and very chemically inert atomic gas.

Clathrate hydrates (or *gas clathrates*, *gas hydrates*, *clathrates*, *hydrates*, etc.) are crystalline water-based solids physically resembling ice, in which small non-polar molecules (typically gases) or polar molecules with large hydrophobic moieties are trapped inside **cages** of hydrogen bonded water molecules. In other words, clathrate hydrates are clathrate compounds in which the **host molecule is water and the guest molecule is typically a gas or liquid**. Without the support of the trapped molecules, the lattice structure of hydrate clathrates would collapse into conventional ice crystal structure or liquid water. Most low molecular weight gases (including O₂, H₂, N₂, CO₂, CH₄, H₂S, Ar, Kr, and Xe), as well as some higher hydrocarbons and freons, will form hydrates at suitable temperatures and pressures. Clathrate hydrates are not chemical compounds as the sequestered molecules are never bonded to the lattice. The formation and decomposition of clathrate hydrates are first order phase transitions, not chemical reactions. Their detailed formation and decomposition mechanisms on a molecular level are still not well understood.



Gas hydrates usually form two crystallographic cubic structures – structure (Type) I and structure (Type) II of space groups. Sometimes, a third hexagonal structure of space group may be observed (Type H). The unit cell of Type I consists of 46 water molecules, forming two types of cages – small and large. The small cages in the unit cell are two against six large ones. The small cage has the shape of a pentagonal dodecahedron (5¹²) and the large one that of a tetradecahedron, specifically a hexagonal truncated trapezohedron (5¹²6²), together forming a Weaire-Phelan structure. Typical guests forming Type I hydrates are CO₂ in carbon dioxide clathrate and CH₄ in methane clathrate

Cages building the different gas hydrate structures.

Quantum magnetism

The MEA water devices have non-classical and geometric arrangements that are in harmony with the movement or dance of water. For example, physicists have observed a weird phenomenon called quantum magnetism, which describes the behaviour of single atoms as they act like tiny bar magnets.

Quantum magnetism is a bit different from classical magnetism because individual atoms have a quality called spin, which is quantised, or in discrete states (usually called up or down). The focus is now on atoms' spin, because that's what makes magnets magnetic with all the spins of the atoms in a bar magnet pointed the same way.

This opens possibilities for increasing the number of atoms in a lattice, and even creating two-dimensional, grid-like arrangements of atoms, and possibly triangular lattices as well.

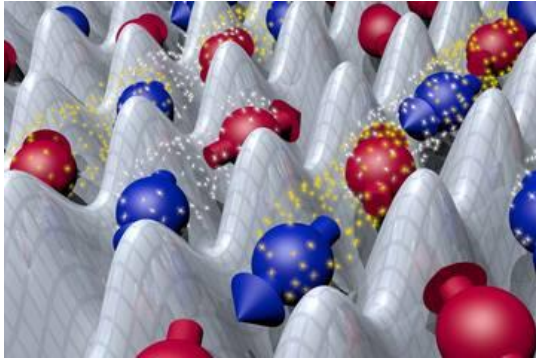


Illustration of ultra-cold fermionic atoms in an optical lattice potential. The atoms tended to tunnel into wells with others that had opposite spins and a line of atoms spontaneously organised with the spins in a non-random pattern, revealing a signature of quantum magnetism. CREDIT: *Image courtesy of Thomas Uehlinger, ETH Zurich.*

One debate among experts is whether at larger scales, the spontaneous ordering of atoms would happen in the same way. A random pattern would mean that in a block of iron atoms, for instance, one is just as likely to see a spin up or down atom in any direction. The spin states are in what is called a *spin liquid* or a mishmash of states. It could be that atoms spontaneously arrange themselves at larger scales under changed or non-classical conditions.

Such lattices could comprise configurations where the potential wells connect to three others, rather than two or four. Experiments have shown that atoms tend to jump to potential wells where the spins are opposite; but if the wells are arranged so that the atom can jump to two other atoms, it can't *choose* which well to go to because one of the two atoms will always be in the same spin state.

The question is: what happens to magnetism if the classical geometry is changed? This can happen when magnets are connected in a non-classical method (eg. like poles connect that should repel) It is no longer clear if spins should be up or down. In this quantum magnetic state, what is the effect on water structure and function?

Drinking Water Quality

Drinking water is never *chemically pure*, especially if it has been in contact with pollutants from the air and soil. Groundwater (from springs or wells) always contains ions from a wide range of mineral ions (eg. Magnesium, Calcium, Sodium, Potassium, etc.). The positive charges of these ions are often balanced by the negative ions of carbonate/bicarbonate, and occasionally some chloride and sulphate. Groundwater in some regions contain unacceptably high concentrations of naturally-occurring toxic elements such arsenic. It is very likely that natural waters in rivers, springs, etc. are chemically different based on the type and % of mineral and contaminant contents. Waters that contain the alkaline earth minerals, alkali metals along with carbonates and bicarbonates are generally better for human health as they provide most of the minerals that keep blood alkaline and therefore blood's capacity to carry a high saturation of oxygen (ie. between 100% to 98%). However, the human body requires Boron (from food and water) to metabolise most of these alkalisng minerals and alkali metals, and particularly the fixation of Calcium, Phosphorous, Magnesium, Copper, Vitamin D, etc. for bone and muscle development, and to avoid osteoporosis.

Rain and snow are rarely exempt from contamination, because when water vapour condenses out of the atmosphere it always does so on a particle of dust which releases substances into the water, and even the purest air contains carbon dioxide which dissolves to form carbonic acid. In highly polluted

atmospheres of some large cities, the impurities picked up by snow and rain are of major concern for human health. Air pollution is now the major cause of stroke in cities worldwide.

Human and Animal Structured Cell Water

The totality of structured water does not just include the hexagonal sheets of water molecules but also the water immediately surrounding them. As the hexagonal layers grow in bulk water, the protons are ejected into the nearby water. This creates electrical potential (voltage) that the structured water entrains into the surrounding cell water. The structured water stores energy, much like a battery and this energy (charge) increases to about -1.5V (bulk water charge saturation) over time.

Dr. Pollack discovered that structured water grows in charges by absorbing radiant energy. Both light waves and infrared waves, for example, charge structured water with energy. Consequently, structured water in cells is a battery that needs constant charging. Consequently, the consumption of structured water recharges the liquid battery of the cell. Similarly, when the body intakes positive charge water and foods, the body must use energy to convert the positive charge to negative charge, and in a human body this can be up to 50% of energy production per day. When the cell reaches its full charge potential, its aqueous interior is highly charged, and this allows for optimised cellular and metabolic function in addition to greater hydration and detoxification.

Most diseases are rooted in toxicity, dehydration, and improper cell function. Therefore, the consumption of negative charged, structured water will improve health in many ways. For example, experiments suggest that structured (high negative charge potential) water is responsible for optimal blood and lymph circulation in the body. When cells are in a dehydrated state, metabolic function can decrease by 2-3 fold, and this state is energy sapping and cell aging.

The human body is equipped with a detoxification system (such as the cytochrome P450, a super family of enzymes), whose intelligent design makes it possible to degrade chemicals that did not even exist at the time in the distant past that these elaborate enzyme systems evolved. This adaptation to the environment is almost as if life is pre-designed to be able to survive the burgeoning, geometrically expanding chemical onslaught of the past century.

Eventually these elaborate detoxification systems become overloaded, which naturally leads to loss cell charge and consequently the emergence of acute and chronic diseases. These are the chronic diseases that the conventional medical establishment often pretend do not have an environmental origin, and therefore are treated by suppressing the *symptoms of poisoning* with new, **patented poisons** known as pharmaceutical medications. This approach has resulted in humans becoming the sickest organism ever known to inhabit the Earth. However, it is possible that all healing in the future will be via structured water and in a form known as homeopathic healing.

Every cell in the animal and human body is designed to run at -30 to -70 millivolts (mV). The body heals by making new cells and this ideally requires -50 to -70mV. Chronic disease occurs when voltage drops below -30mV. The quality and charge in water (polarity) are therefore critical in sustaining cell integrity.

The human and animal bodies are in resonance with the *living mathematics of nature or sacred geometry* (eg. **phi** or the golden mean ration of 1:1.618). The human and animal bodies are self-regulating and self-healing systems that resonate in harmony with the vibrations (frequencies) of water. The human body is primarily water.

Most humans and animals no longer have access to water that carries a natural, negative charge or voltage. Consequently, the body's capacity for self-regulation and healing has reduced dramatically through changes in diet and lifestyle since about the 1970's; and the increasing exposure to toxins in food, water and the air. Most people are now disconnected from the natural and negative energies of the Earth and have an over exposure to the positive electron flow form radiation (eg. microwave, computers, mobile phones, etc.), AC electricity and an overload of toxic minerals (e. lead, cadmium, mercury, etc.) that can accumulate in the body. The negative charge of the Earth is generated by solar winds, our ionosphere and lightning storms. When our skin is in direct contact with the Earth we entrain and maintain the same electrical potential as our planet and release positive charge.

All environmental vibrations influence water structure and this vibration (either harmonious or disharmonious) can cause a change in the charge of the water. Water is influenced by the energy forces on the known Earth (eg. magnetism, gravity, etc.) and possibly by many other energy forces unknown to science (ie. subtle energies). This fact has important implications for the way that water can be conditioned or treated by humans to function in a particular manner, in support of life functions.

Scientific data have already confirmed the following health benefits for structured water:

- improved digestion
- eliminates cellular waste and toxins
- strengthens immune response
- reduces excess acidity in blood
- reduces cholesterol levels (prevents arteriosclerosis) Cholesterol deposits are due to free radical oxidation while skin wrinkles are caused by free radical displacement of collagen molecules, and this can be reduced with negatively charged/structured water
- helps blood circulation (prevents varicose veins). Poor circulation, high blood pressure, arterial sclerosis and cellulite from cholesterol deposits are dissolved by structured water when used for drinking and cooking
- skin becomes softer and less wrinkled
- arthritis, kidney stones and gall bladder stones are alleviated by a rebalancing of the calcium metabolism with structured water

For example, red blood cells can lose their charge and stick together. This can be a precondition for heart disease. Humans are very sensitive to energy, and are more sensitive to *negative or toxic* emotions (ie. aggression, fear, etc.) than *positive* emotions (eg. love, happiness, hope, empathy, etc.) That is, toxic thinking and behaviour can trigger toxic water (ie. low negative voltage) in the cells of body organs and systems. Many studies have shown that when people feel good, their thinking becomes more creative, integrative, flexible and open to information. Also, the sharing of positive emotions helps create and sustain social relationships among people. These meaningful and secure relationships can later be tapped into as a source of strength and this helps to build a cohesive and caring environment viewed as safe and supportive. Positive thinking is also the pathway to healing,

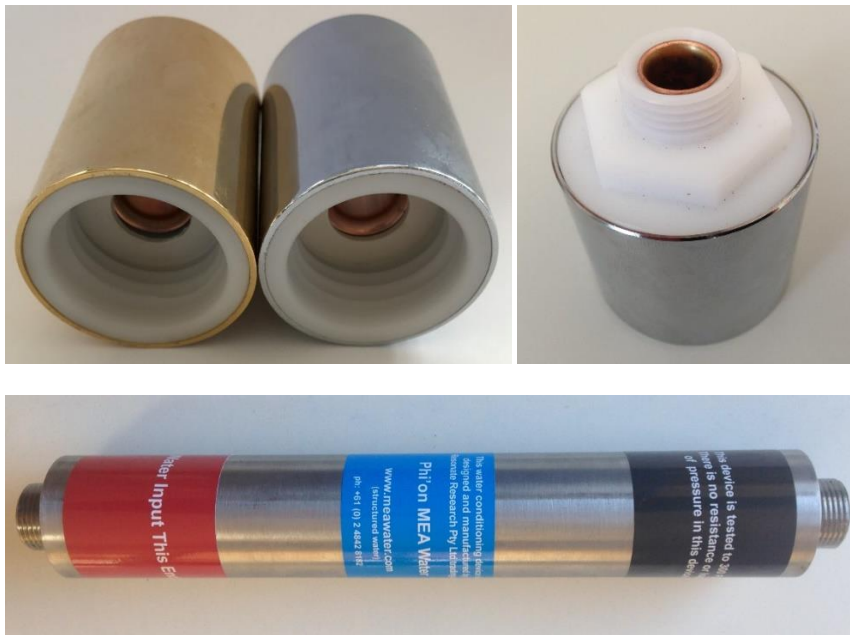
taking responsibility for your health and the health of others (duty of care), and actions that restore the health of soil, water, plants, air, animals and humans.

Devices to enable a permanent negative charge in water

Water is known to lose its negative charge in about 2.5 days (about 60 hours) after being removed from a pristine flowing state and placed in storage. Therefore, scientists and others have vigorously pursued the design of water conditioning devices since about the 1930's. Devices since this time have included a range of mechanisms using physical mechanisms to vortex water, energy transfer from existing energised spring water and magnetism.

Phi'on (Resonate Research Pty Ltd) has developed devices using magnetism to energise and activate the water into a natural structure that is aligned to the health of living cells (coherence). The devices have been designed to entrain, embed and sustain a negative (-) millivolts charge in the water passing through the device. Research and other scientific studies since about the 1930's have confirmed the beneficial effects of negatively charged water on all living systems, eg. soil, plants, animals and humans.

Examples of the devices developed by Resonate Research are illustrated below:



The devices are available in various dimensions and adapted to many applications for a range of domestic, agricultural and industrial applications.

There is one view that magnetism enables a reversal of electron flow in water. Electron flow induced into water by virtue of motion is likely a function of speed and volume. In tests these two interesting factors become varied by the physical dynamics imposed by the device design, including metal materials in casings, magnetic configurations and spacing, along with capacitance.

There is the dispersion of electrons by the conductive film of the water boundary at the surface and the energy generating capacity of the materials. The sum of these variables brings into question: the result of the physical resistance pressure and the free electron discharge capability along its

preferred flow direction. Each device takes on a positive and negative end and a negative charge can only be achieved from one input end only that needs to be determined from a unique voltage testing process developed by Phi'on.

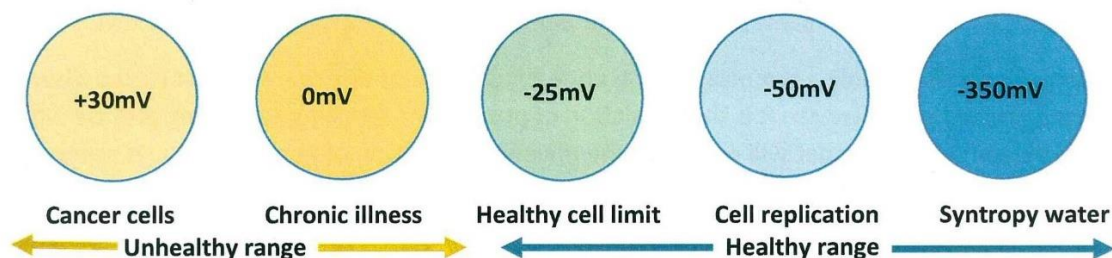
If the escape capacity of electrons along this flow falls short (perhaps due to environmental influences), then the system accumulates a critical charge and then fires it back in the reverse direction until the system attains a new equilibrium and stability (coherence). This coherence would be rapid due to the instantaneous capacitance discharge.

A critical factor in the understanding of water consciousness is that **water knows how to vortex**. Therefore, water restructuring devices do not need internal mechanisms to create vortices in the water. In the case of a **Phi'on** devices the water-restructuring and the creation of a permanent negative charge is primarily a function of the **uniquely designed magnetic energy interface with the water flow**.

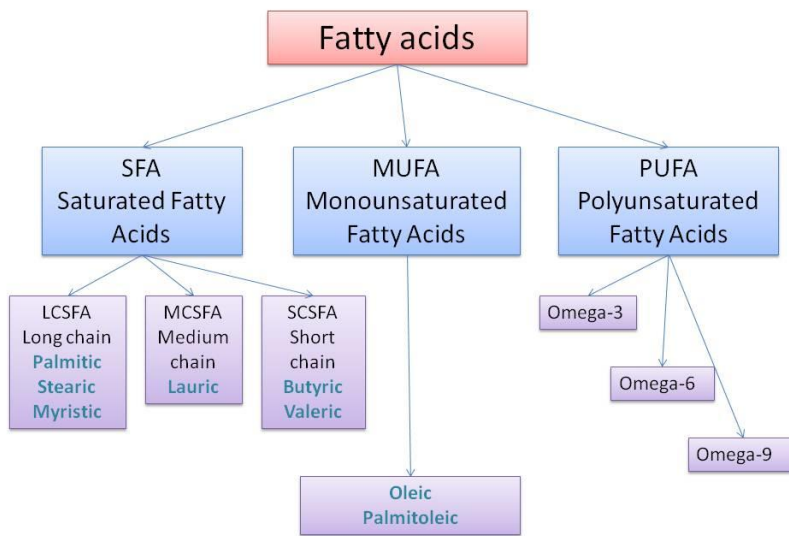
Copper is the best metal to utilise in the casings due to its high electrical conductivity and high thermal conductivity. This is because resistivity to electron transport in metals at room temperature originates primarily from scattering of electrons on thermal vibrations of the lattice, which are relatively weak in a soft metal like copper. Also, copper does not react with water. However, alloys by their tendency to *manifest as couples* will always add their own *dance to the party*. Test results show a special relationship between negatively charged water in the presence of copper and biology. *In many ways, copper is the opposite of iron and steel (the metals commonly used for agriculture and gardening). Iron is magnetic, copper is conductive. While iron tools can disturb the soil magnetism, copper assists the flow of Earth energies to nourish the plants.*

Structured Water in Cell Function

When a human being has a fever (*higher protons and lower pH*), the metabolic rate increases for every degree the temperature rises. Heat seems to favour H⁺ in mitochondria and this seems to increase biochemistry of the matrix in mitochondria. Also, leptin resistance (linked to insulin resistance), means inflammatory levels are raised. In the case of leptin resistance cell water moves from LDW to HDW because the cell membranes and tissues are lacking electrons and photons from sunlight. When the cell's structured water (*syntropy*) losses electrons (ie. changes polarity towards positive + or *entropy*) it sets up the situation where lipids can be oxidised by peroxidases.

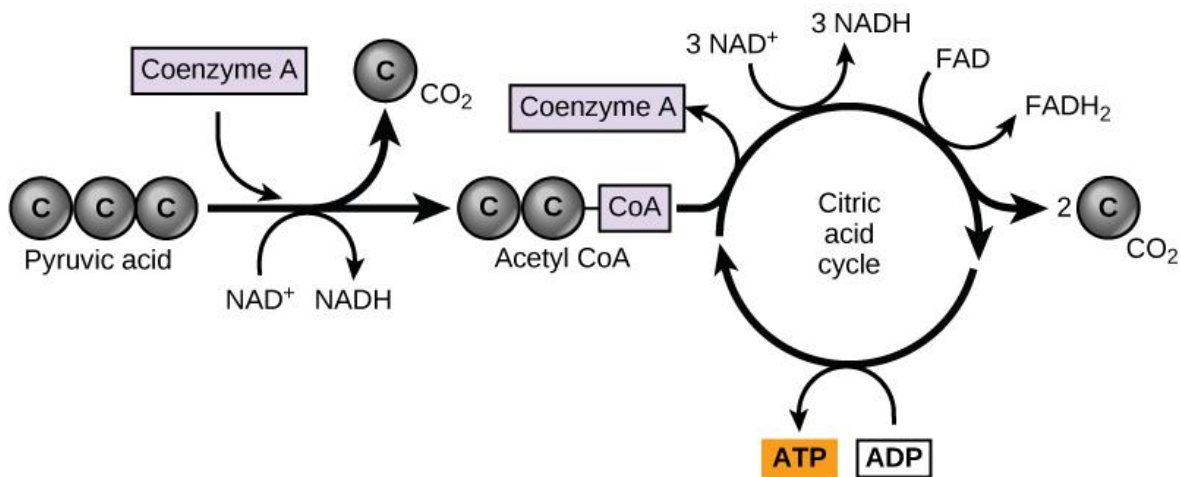


When this occurs, more deuterium (2H) is liberated from these **Polyunsaturated Fatty Acids** (PUFA's: eg. Omega 3, 6, and 9). See diagram on page 16.



The deuterium can support cycling within the citric acid cycle (CAC), also known as the TCA cycle (tricarboxylic acid cycle) or the Krebs cycle, because of changes in hydrogen bonds in anions in the CAC. The citric acid cycle in eukaryotic cells takes place in the **matrix of the mitochondria**.

The pyruvate molecules produced at the end of glycolysis are transported into mitochondria, which are sites of cellular respiration. If **oxygen** is available, aerobic respiration will go forward. Pyruvate will be transformed into a two-carbon acetyl group (by removing a molecule of carbon dioxide) that will be picked up by a carrier compound called coenzyme A (CoA), which is made from vitamin B₅. The resulting compound is called acetyl CoA (see image below). Acetyl CoA can be used in a variety of ways by the cell, but its major function is to deliver the acetyl group derived from pyruvate to the next pathway in glucose catabolism.



Acetyl CoA is broken down into **hydrogen, oxygen and carbon**. The **hydrogen** ions are transported to the mitochondria of the cells, which then uses the **hydrogen** to create ATP.

Mitochondria need oxygen and electrons in their inner mitochondrial membrane. **Structured water is a repository of energy and information.** Water is designed to work seamlessly with the sun, but its abilities can be usurped by man-made EMF's (ie. radiations). **In a blue-lit microwaved world of mobile phones and computers, structured water is the ultimate Faraday cage for mitochondria in a cell provided it is made from H⁺ bonding.**

The photoelectric effect of the sun will enlarge the charge in cell water, and along with grounding to Earth your cell requirement for structured, negative charge water will begin to approach your aquatic ancestors and your brain will repair and re-grow faster. This is quite important in preventing diseases like autism (beginning in the womb) and Alzheimer's disease.

In a German study, by Franz Volhard Clinical Research Centre, Michael Boschmann MD tracked energy expenditures in men and women who were healthy. After drinking 500ml of natural water the patient's **metabolic rates increased.** The water came from mountain melt runoff that would have been high in minerals and deuterium. The metabolic rate increase began ten minutes after drinking and reached a maximum level at 30 to 40 minutes after drinking. However, **rates did differ in men and women.** In men, they burned more fat after drinking this water, while in women tended to break down carbohydrate substrates better with water ingestion. In fact, it also appears the cooler this water was, the better the effect for women. These implications should make a lot of sense in respect of the role of hydrogen and leptin in women's epigenetics (environment).

Thirst should never dictate water consumption because it lags the real effect. Your cell water requirements can be calculated by multiplying body weight by 30 (eg. 70kg x 30 = 2100 ml or 2.1L of water per day). This calculation will tell you how much structured water your cells need for regulation and healing. Total body water is a function of metabolic rate and state of the mitochondrial matrix. When thirst kicks in, your serum osmolarity is already impaired. **Dehydration is a major cause of daytime fatigue,** and dehydration slows your metabolism by up to 3-fold. As time goes on this imbalance can steepen dramatically in a person in an altered environment. In fact, just a 2-fold drop in total body water consumption can cause neurologic changes in cells.

In 2002, the Journal of Epidemiology found drinking more than 5 glasses of water a day reduced fatal heart attack in both sexes. Therefore, if you increase your water consumption to 1.5-2 litres a day you will burn calories and lose weight, and significantly improve wellbeing and longevity.