

Red Mud Experiment



Report prepared

by

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Introduction

Red mud is the waste in Bauxite tailings and created during the production of aluminum oxide. The material is called red mud due to its red color. Industry experts believe that billions of tons of the substance are produced globally each year.

For example, more than a ton of red mud is produced for every ton of extracted alumina. Bauxite processors recycle the caustic soda and pump the residual red sludge into huge settling ponds. While water can be removed from the mud, and the mud can be chemically treated to lower the pH and then covered with vegetation, management of this huge amount of waste is one of the biggest challenges facing the aluminum industry.

Aims of the experimental trial

Resonate Research Pty Ltd undertook research to test the use of Phi'on, MEA water conditioning technology to test the ability of the technology to separate the solids from the water. There were a number of aims to this research, ie:

1. Determine whether initial laboratory trials would indicate that this process could transform red mud as a commercial waste into a less toxic or even benign material for reuse or disposal as a non-toxic material.
2. Determine if these laboratory trials provided positive results; could a larger scale trial be developed that if successful, be initiated in a commercial setting. These would include the extensive numbers of settlement ponds connected to Bauxite mines in Australia and around the world.
3. Determine whether this process would provide a pathway towards a commercial application of this technology (in this setting and beyond) that is viable, relatively inexpensive, and attractive to investors. This evaluation would include the potential uses for a non-toxic red mud.
4. Create an evidence-based case study; that not only highlighted its technical, but also its commercial success. That the creation of such case studies in many areas was crucial to the commercial uptake of such a technology because the theories behind this technology (and thus the technology itself) are best explained in the science of quantum physics and not in conventional science theory.

Resonate Research used 20kg of red mud from Alcoa's only Bauxite mine in Western Australia. This mud was tested for its chemical make-up before the test commenced and after the experimental test was completed. The comparison between the results is discussed in this report with a view to determining if an efficient and effective solution can be implemented to treat, reuse, or dispose of the red mud waste.

Summary of the process

The primary objective of this experiment was to: determine if the addition to the red mud of structured water (with a permanent negative charge) and a balanced formulation of beneficial microbes would induce changes to the water and mud to provide confidence that this treatment could produce a significantly **benign water and red mud** for reuse.

Staged process

The experiment comprised 2 primary stages:

1. Measurements of the mixed red mud and de-structured water before treatment with an MEA water device. This initial stage is described as the **CONTROL**.
2. Measurement of the red mud and water in MEA treated (structured, negative charge) water. Samples of the topwater and mud were taken as separate measurements and described as the **TREATMENT** stage.

The measurements were divided in to two parts:

1. A range of basic chemical measurements by the Phi'on laboratory for the **topwater only (Attachment B, Table 1, and Chart 1)**
2. A more complex range of measurements by Australian Laboratory Services for **both the topwater and red mud sludge (Sydney)**. These **topwater results** are described in **Attachment B, Table 2, Table 3, Charts 3-5**, and the **sludge results** are in Table 3 and Chart 6.

Summary of the experiment methodology

The basis of the experiment is to test whether a patented Phi'on, Magnetised, Energised and Activated (MEA) water conditioning device, that produces a permanent negative (-mV) charge in a liquid, would cause a charge (+/-) separation in a liquid red mud and produce:

1. A separation of materials, ie. minerals and other compounds from the water
2. Transform a range of minerals and compounds into less toxic or harmful materials (ie. minerals and compounds)

This experiment and the preparation of the measurement results at Phi'on were undertaken by Dr. Milada Zemanova, Assistant Scientist to Robert Gourlay, Chief Scientist of Resonate Research Pty Ltd. This report has been prepared by Robert Gourlay.

A detailed description of the Phi'on MEA device is at **Attachment A**.

A detailed description of the experiment process and results are at **Attachment B**.

A discussion of the red mud environmental and commercial issues is at **Attachment C**.

A discussion on the principles entrainment and transmutation is at **Attachment D**.

The key features of the experiment are:

- The red mud sample (20kgs) was mixed with untreated water (200L) and stirred in a stainless steel mixing bowl for 3 hours and a sample taken of the top water and the

sludge, and these samples were then tested at Australian Laboratory Services (Sydney) for a range of chemical analyses (see **Attachment B**)

- 2L of the Phi'on soil conditioner formulation (Catalyst) was added to the red mud solution and the mixture was then run through the MEA water device (Described in attachment A) for a total period over 3 sessions from 9 September 2020 to 28 September 2020. A sample of the top water and red mud sludge was taken, and then tested at Australian Laboratory Services (Sydney) for a range of chemical analyses (see **Attachment B** for comparison of before and after results)

Experiment conditions

The conditions of the red mud experiment are significantly different from the treatment of the red mud in a natural environment, and this fact needs to be considered in evaluation of the experiment results and possible future, extended experiments.

In the case of the experiment, it was conducted under the following experiment conditions:

- The mud and the water were held in a stainless-steel container (mixing bowl)
- Microbes were added to the water to simulate the natural environment conditions
- The water was structured through a 2" inside diameter, MEA water device to simulate pristine flowing water over the red mud.

In contrast, if the experiment is conducted in a natural environment, then the following conditions could apply

- The mud would be in **physical and energetic contact with the earth** (ie. in an earth pond) that is by nature, negatively charged
- The water in the pond would be activated with **photons of sunlight**, provided the water was structured (ie. permanent, negative charge through a Phi'on MEA water device)
- Additional beneficial microbes would be added to the water to provide **a natural microbial balancing** situation (ie. using the Phi'on *Catalyst*, biological formulation)
- The **range of weather and climate conditions** would impact on the water (eg. rainfall and temperature)
- The treatment would be over a **larger surface area and period of time**.

All experiments outside of the influence of the natural conditions of the environment produce results that are not entirely consistent with the forces of nature, as outlined above.

Results

Topwater measurements

The most notable and relevant changes for the **topwater** during the experiment (comparison of the before and after water chemistry) are:

- pH reduced by **0.7%** or **8.2-fold** (ie. a pH change from 11.33 to 10.33 is a 10-fold reduction in pH as it is a logarithmic scale).
- Oxidation Reduction Potential (ORP) reduced by **55%**
- The rH value decreased by **8%**

The measurement of **pH, ORP and rH** are used by Phi'on in experiments to evaluate the change in water conditions (due to the permanent negative charge and presence of beneficial microbes) over time through the natural recalibration of the water to a more coherent or energetic form. This natural process (charge separation, structured water, entrainment, and transmutation) is further outlined in the discussion below.

The measurements from Australian Laboratory Services (ALS) for a range of compounds and elements for the topwater (see Table 3) confirms that there has been significant change in the chemical composition of the water. Also, measured factors underwent change except Calcium and Magnesium. However, the major changes were:

- CaCo₃ (Bicarbonate) with **448,900%**
- Biochemical Oxygen Demand (BOD) with **4,950%**
- Potassium with **1,700%**
- Ionic Balance with **196%** (ie. increase in anions or -mV charge)
- Chemical Oxygen Demand (COD) with **144%**
- Bicarbonate with **-100%**

All other changes were part of the water rebalancing or recalibrating process that is influenced by the multiple factors or interactions of **charge separation, the negative charge in the structured water, entrainment, and transmutation**. There is no single factor that causes a change.

These changes are further represented in Charts 2, 3, 4 and 5 at **Attachment B**.

Red mud sludge measurements

The chemical changes in the red mud sludge are at Table 4 and Chart 6, **Attachment B**. All measured factors showed a change (- and +). The major changes are:

- SO₄²⁻ (Sulphate) with **-75%**
- Potassium with **70%**
- Iron with **-41%**
- Chloride with **-33%**
- Moisture content with **20%**
- Sodium with **-13%**
- Calcium with **12%**
- Magnesium with **11%**
- Aluminum with **-9%**

Again, all other changes were part of the water and red mud rebalancing or recalibrating process that is influenced by the multiple factors or interactions of **charge separation, the negative charge in the structured water, entrainment, transmutation, and transformation**. There is no single factor that causes a change.



The other significant change was in the visual appearance of the topwater over time. It was observed that the **water became significantly clearer** (ie. from a deep red to a very light yellow), and this process is continuing. On the left is a photo of the topwater 2 weeks after treatment through the MEA device ceased and the water was allowed to settle out. The white disc on the right of the image is a round, stainless-steel centre-piece in the bottom of the mixing bowl. The rH value of this water will be measured over the next 2 months to evaluate the water quality changes, and to observe whether **the rH value reaches the ideal value of between 21-24** (currently **28.6 in Chart 1, Attachment B**) as the pH and ORP values naturally realign, ie. pH becomes more acidic (eg. < 7) and ORP more positive (+).



The photo on the left was taken in July 2021, 10 months after the initial treatment. The water has become relatively clear, and all mud sediments held in suspension have fallen out, and only minor elements (eg. iron) are held in a colloidal form. The mud at this stage has divided into a fine-grained mud at the bottom and near clear water on top.

Discussion of Results

As outlined above, the conditions for the experiment were less than ideal. For practical reasons the experiment process had to be conducted under controlled conditions and indoors. However, these conditions were adequate to test the experiment objective.

The primary objective of this experiment was to: determine if the entrainment to the red mud a permanent negative (-mV) charge (ie. restructuring the mud water) with a MEA water conditioner and a balanced formulation of beneficial microbes would induce changes to the water and mud to provide confidence that this treatment could produce a significantly **benign water and red mud** for reuse.

The results described above do validate the objective of the experiment and provide a pathway to extending the experiment into a nature environment of ponds where the top water of the red mud is recycled into another pond with microbial balancing to continue its rebalancing process.

Conclusions and Recommendation

If this experiment is to progress beyond this initial phase, then the experiment needs to be located outdoors (in-field) and using a series of natural, earth bottom ponds. Also, the MEA device would need to a 4" device to achieve the volume of water flow between ponds, of about 1000 L per minute. A diagram of this 4" device is below.



This 4", inside diameter, MEA water device has been tested to produce a flow rate of at least 1,000L per minute, and entrain a permanent negative (-mV) charge into the water. If required, 6" and 8" devices can be made available.

While the full design for an in-field experiment has not been finalised, it is expected that a process similar to the following could be used:

- The red mud is mixed with structured (-mV) water (ratio of 1:10 water) into an agitator (like a concrete mixer) and mixed for at least 20 minutes and then pumped out through a 4" MEA water device into an earth pond/dam
- This process is continued until the required volume of red mud and structured water (-mv charge) reaches the desired height of the pond or dam.
- The top water from this pond is pumped through a 4" MEA water conditioner device into an adjoining pond and allowed to settle out and become clear. This water would be measured for chemical changes over time and then recycled when the water is declared safe for recycling.

- The red mud pond will be eventually dehydrated, once chemical measurements of the mud confirm that the mud is benign enough (low toxicity) and recovered for reuse, further processing, or disposal (see **Attachment C**)

There are a wide range of options that could be considered during this in-field experiment, for example:

1. Fresh groundwater could be added to the topwater pond (s) once the groundwater is passed through an MEA water device for restructuring, to increase the rate of water recalibration and lessen the time to reuse
2. The final red mud could be incorporated in compost material, along with microbes, as a clay binder (using the negative charge of the clay to bind cation minerals into the clay), as occurs naturally in a soil. Alternatively, compost could be added to the top of the red mud pond, along with a balanced biological formation for soil (eg. the Phi'on Catalyst formulation). In this situation the microbes will further digest and transform the red mud minerals and compounds, and thereby improve the useability of the red mud.

There are many other options for consideration in the design, including mineral and biological additions to the red mud and topwater during the processing time.

Attachment A: MEA water conditioner device description

Introduction

This paper summarises the known capabilities of the MEA (Magnetised, Energised and Activated) water conditioning device developed by Robert Gourlay, Chief Scientist of Research Resonate Pty Ltd.

Phi'on MEA water device innovation patents and certification

The detailed descriptions of the MEA water devices, the science of structured water and the results from the testing of the MEA water devices can be obtained as papers from **Phi'on** (www.meawater.com) has designed water restructuring devices for a bottle top (portable), and in-line devices for under-sink, shower, whole house system, industrial and agricultural uses. These **Phi'on** inline devices require no maintenance and will perform indefinitely. The devices are unique to the market and have been awarded 4 Australian Innovation Patents in 2016, covering:

1. Patent Number 2016100017 for **restoring water to a permanent negative (-mV) charge**
2. Patent Number 2016100592 **for significant increase in food production and integrity when the negatively charged water is combined with a formulation of diverse and abundant microbial species.** Microbes have a unique association with subtle energies to sustain life. Early single celled microbes would have used light and water energies to sustain life, and this capacity became the basis of all life. All plants, animals and humans sustain life through the electrical wiring of microbes in our digestive system, blood, etc. For example, microbes use the subtle energies of negatively charged water and photons of light in blood, to sustain the vortex within blood to spiral around the 100,000 km of blood delivering arteries, veins, and capillaries of the human body
3. Patent Number 2016100637 for **removing pathogenic microbes from liquids such as wastewater and raw milk.** In the case of raw milk, it does not have to be pasteurised or homogenised, as the pathogenic microbes (eg. E. coli) are eliminated and the milk's fats and oils are fully integrated and not separated
4. Patent Number 2016102046 for the **capacity of a MEA water device to hold and sustain a natural energy wave** (known as Quantum Code Technology: QCT), and when the QCT frequency water is consumed by humans it reduces stress levels to a normal range.



Phi'on was granted a WaterMark Certification in 2020. This WaterMark indicates that the device is certified as safe for installation, and has met industry standards for design, engineering, and documentation requirements for installation by a plumber, etc.



Left: Bottle top and under-sink, shower and outdoor tap and sprinkler devices.



Left: an inline device with ½", ¾", 1", 1 and ¼", 2" and 4" inner diameters.

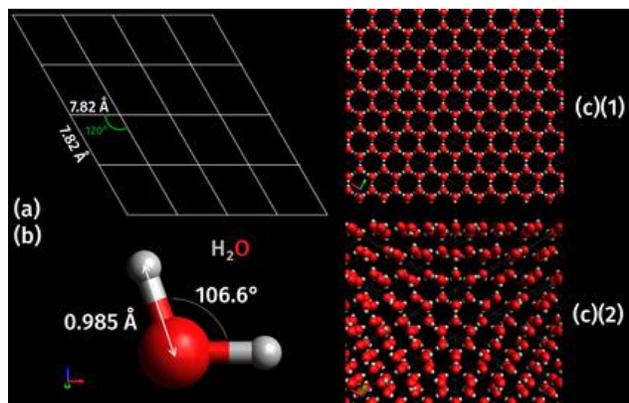
These devices can be adapted for installation in any water flow applications or other liquids, including water dispensers, kitchen and laundry devices or equipment, small and large-scale industrial water or wastewater treatment, conditioning of wine and milk in the bottling process, etc.

Crystalline form in structured water

Life on Earth depends on the structure and anomalous nature of liquid water, often called **liquid crystal**. Organisms consist mostly of liquid water, ie. 99% of molecules in the human body are water molecules in a gel form. This gel form of water has a negative charge and performs many functions. This water form can never be considered simply as an inert diluent: it receives, stores, and holds information, transports (including 82% of blood), lubricates, reacts, stabilises, signals, structures, and partitions into a cellular process of regulation and healing. The living world is a complex interaction between microbes, light, and water.

While public research on water structure commenced in the 19th century, many of the unique properties of water are still unknown or not fully explained. There is already an understanding that water molecules form an infinite dynamic hydrogen-bonded network with localised and structured clustering. The middling strength of the connecting hydrogen bonds seems ideally suited to life processes, as they are easily formed and not too difficult to break. An important concept, often overlooked, is that liquid water is not homogeneous at the nanoscopic level.

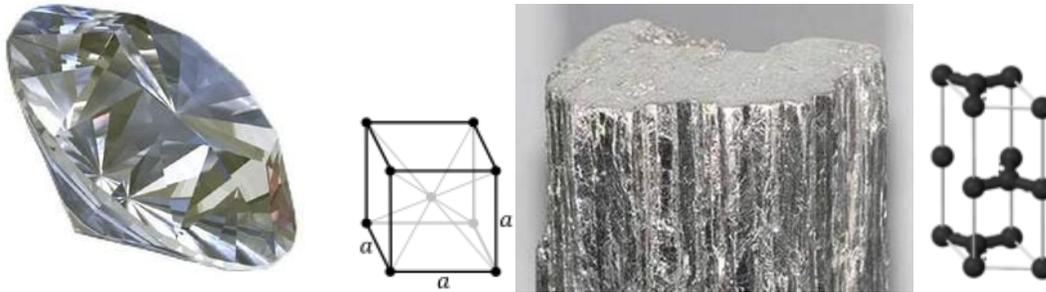
When water freezes to ice it forms a solid-state, comprising a six-sided, hexagonal, crystalline structure (see images below and a diagram on the next page 3).



The (3-D) crystal structure of H₂O ice Ih (c) consists of bases of H₂O ice molecules (b) located on lattice points within the (2-D) hexagonal space lattice (a). The values for the H–O–H angle and O–H distance have come from Physics of Ice with uncertainties of $\pm 1.5^\circ$ and ± 0.005 , respectively. The white box in (c) is the unit cell defined by Bernal and Fowler.

The arrangement of the water's patterns is in response to environmental stimuli (eg. the orchestra of sounds, individual energy signals from minerals in the water, other subtle energies such as magnetism, etc.) Water can do this because of its unique ability as a **liquid crystal**. Liquid crystals are flexible and can rearrange instantly with new information from some stimuli (ie. by energy entrainment to the pattern).

Energy is always information and information can persist, and is encoded in patterns, ie. energy exists within patterns (structure). For example, a diamond and graphite are all made of carbon. The difference is in the crystalline structure. However, coal lacks a crystalline structure, and it is organic (the carbon content of coal ranges from 40% for low ranked coal, ie. lignite to about 98% for Anthracite Coal).



Similarly, water can appear in different crystalline structures. For example, pristine flowing (vortexing) water (including seawater) will be in a six-sided crystalline structure, while water that is not flowing (eg. in a tank, pond, reservoir, etc.) will be in a five-sided crystalline (pentagonal) structure.

It is the dynamics of energy that determines the degree of order or disorder in patterns. This energy is usually described as either entropy (entropic structure) or non-entropy (non-entropic or syntropic structures). **Entropy** defines something that, left on its own over time, will gradually decline into **disorder**. This is the case when structured water is taken from a pristine, flowing stream and is stored in a container: it converts from a six-sided crystalline structure into a five-sided crystalline form (unstructured). Consequently, the urban water (and most other fluids) that most human's drink on Earth is unstructured (entropy) water. **Syntropy** (non- or negative entropy) describes something which does not decay or decline, however when left on its own over time will progress or change into a state of higher function or **order**. The concept of **syntropy** postulates the existence of the opposite force, *a force which causes living things to reach higher and higher levels of organisation, order, and dynamic harmony (Vargiu, 1977)*. Therefore, a solid crystal (including a diamond) will persist without decay.

Evidence of syntropy in Phión water

The information that follows describes examples of evidence that Phión has produced to demonstrate that a MEA water device will create syntropy in water, or what is commonly known as structured water (six-sided crystalline structures with a permanent negative (-mV) charge). Phión, at this stage of research, has not photographed the crystalline structure of the water. However, based on research by others, the Phión water behaves like structured water in every way. Also, it has the physical properties of structured water, ie. **has a negative charge (-mV), increased surface tension and natural preservative properties** (compared with the unstructured water and other fluids consumed by people and domestic animals).

The experimental results outlined below demonstrate the following major differences between the **Phión Syntropy Water** and other commercial forms of structured water:

Phi'on Devices (Syntropy Water)	Other commercial devices
Holds a permanent negative (-mV) charge	Not claimed
Sustains increased surface tension	Not claimed or claims a low
Sustains natural preservative properties	Not claimed
Sustains a permanent light blue colour	Not claimed
Progresses to a high energy status after initial processing	Not claimed
Eliminates pathogenic microbes in fluids (eg. raw milk)	Not claimed
Demonstrated synergistic relationship with microbes	Not claimed (albeit possible)

Note: In the table above, Phi'ón states a Not Claimed opinion, based on information and evidence available on the websites of companies selling structured water devices.

Sustained permanent negative charge

Phi'ón uses an in-house and proprietary-built system, comprising a voltmeter to measure the charge in the water. There is no commercially available technology for measuring water voltage, and while other companies use an Oxidation Reduction Potential (ORP) meter, such a meter only measures the potential of water to lose oxygen, and therefore the ORP meter does not measure water voltage or charge.

The structured water crystal formed within a MEA water device is unique to water usage (ie. human applications) outside of nature. MEA water has a crystalline structure that does not lose oxygen from the liquid. Albeit that liquids like raw milk will change its biological structure and form over a short period of time. However, wine that has been restructured and exposed to air will not oxidise and turn to vinegar.



*This is an example of a voltmeter reading of a Phi'ón water sample that has been processed through a Phi'ón water device. The voltage reading in this case is -1.410 Volts or -1410mV. The charge can vary depending on environmental conditions and time since the point of processing. However, the results will range from about -150mV to -1.5V. Generally, the charge will increase with time provided the water is continuously held under pressure in the device. This is a **syntropy effect**, and in some cases the charge will peak at a stable -1.3 to -1.5V. Devices that are permanently installed inline will increase water charge to a peak or stable level within 4 weeks.*

Increased surface tension

Surface tension is a measure of the strength of the water's surface film. The attraction between the water molecules creates a strong film, which among other common liquids is only surpassed by that of mercury. This surface tension permits water to hold up substances heavier

and denser than itself. A steel needle carefully placed on the surface of a glass of water will float. Some aquatic insects such as the water strider rely on surface tension to walk on water.

Phi'ón has undertaken tests to measure the surface tension of its structured water and in 100% of measurements, the Phi'ón (Syntropy) water has higher surface tension than the controlled water sample that is unstructured water (usually urban drinking water or bottled spring water)

Cohesive forces are responsible for **surface tension** and the tendency of a liquid's surface to resist rupturing when placed under tension or stress. Water molecules at the surface (at the water-air interface) will form hydrogen bonds with their neighbours, just like water molecules deeper within the liquid. However, they are exposed to air on one side, and have fewer neighbouring water molecules to bond with, therefore they will form stronger bonds with the neighbours. Surface tension causes water to form spherical droplets that allows it to support small objects, such as a scrap of paper or a needle, if they are placed carefully on its surface. This increased surface tension capacity significantly improves the ability of water to adhere to a surface when used as a spray application to deliver biology, nutrients and chemicals to the soil, plant, water, work, or domestic surfaces, etc. Increased surface tension also significantly reduces spray drift that is a major issue in the use of chemical sprays, and therefore increases the contact of the chemical onto the target.

Reports and paper on the effectiveness of structured water by other scientists, eg. Dr. Gerard Pollock, Dr Mae-Wan Ho, Dr Martin Chaplin, etc. have shown that:

- The negatively charged or structured water tastes soft and balanced
- The water has a lower viscosity (less friction or resistance on a surface) and is therefore better as a wetting agent
- The water enhances the life-force energy (biofield) of natural materials that it embodies
- The water replaces toxins in cells (enhances digestion and elimination for all living cells)
- The water changes the state of other water that it is in contact with (through **entrainment**) to a structured form (a field-force or biofield effect process)
- Plants increase photosynthesis and uptake of nutrients (often between 2-4 fold increase)
- Plant life energy is extended (ie. nutrient density/value and longer storage capacity)
- Increased resilience of vegetables and fruit to pest attack (possibly through the increased uptake of silicon as silicic acid: the bioactive form of silicon)
- Shortening the growing period to maturity for vegetables and fruit
- People who drink structured and energised water feel more energised and creative. This water will *lift the fog* on thinking.

Most of these results have been validated by Robert Gourlay in extensive testing of his MEA devices with many types of drinking waters, wine, milk and other consumable liquids, wastewater, and agricultural food production.

These devices are installed in-line on a water supply system and suitable for domestic, small to medium industrial and particularly for agricultural or other food production enterprises.



It is the effect of the negative charge in the water produced by these devices that enables biology and cells of plants, animals, and humans to function at an optimal level of regulation, healing, and longevity. For example, in the case of plant production, there is a significant increase in food production (yield) and food quality (eg. increased taste, flavours, scent, resilience to insect attack and frost).

Other MEA water device outcomes

An issue often raised by people who use the MEA device to condition urban water (ie. chlorinated and fluorinated water) is, ***why does the device not remove the toxic fluoride or chlorine?*** Firstly, the MEA device is not a filter, so it does not physically remove chlorination or fluorination. A filter can remove some matter; however, it cannot remove the toxic energy of matter. It is known that structured water acts like an ***exclusion zone*** (See Dr. Gerard Pollack's papers on EZ water) because of the smaller water clusters and tighter molecule packing of the six-sided crystalline structure. That is, water that contains *foreign* or excess particles like iron, fluoride, chlorine, carbon, etc. will be excluded over time in structured water. This time dimension depends on the nature of the input water (eg. level of contamination). For example, in a river system of structured water the volume and rate of flow will determine the time and length of river to drop out contaminates (eg. sewage). A MEA water device does change toxic energies of compounds back to their elemental (non-toxic) form.

When water goes through a MEA water device it will change the water voltage from a positive to a negative voltage, however any change in mineral composition is dependent on ***time taken for particle settling, including outgassing or exclusion of particles/gasses.***

The MEA water device does not destroy matter or energy fields. Matter (ie. a particle) is created whenever you give a field enough energy to excite it to a state containing a particle.

Matter is changed (ie. **transformed or transmuted**) whenever that energy is transferred to some other field and the field is no longer excited. The thing that cannot be created nor destroyed are the energy fields themselves. You can give or take energy from a field, but you cannot make the field itself disappear, or create a new field out of nothing. For example, you can use matter to create energy ($E=mc^2$) and you can use an energy field to create matter (consequently, the Earth has many mineral elements). However, time and space have dimensions and limitations (laws) within the universe.

The effect of the MEA water device induced charge separation and transformation

Much of the scientific context for the capacity of structured (negative charge) water to affect environmental outcomes is described in quantum physics and the so-called *laws of nature*. However, there are established laws, principles, and scientific explanations in contemporary science to provide a context to the outcomes of this experiment. For example:

- **Charge separation:** Traditionally, this phenomenon is explained in reference **photosynthesis** where pigment-protein complexes carry out the initial photochemical electron-transfer reactions of plants and photosynthetic bacteria, and in **lightning** where dust and ice particles inside a storm cloud undergo charge separation with the positively charged particles rising and the negatively charged particles sinking. However, in the case of the Phi'on MEA device a unique array of magnet configuration is used to concentrate **negative charge** (as opposed to magnetic attraction and repulsion principles) and this permanent negative charge in the water causes charge separation in mineral complexes. Electrons are most stable at their lowest energy level (ie. ground state). In this ground state, the electron in orbit has the least amount of energy. The MEA device raises the electron to a higher energy state, and this enables energy entrainment, and transmutation/transformation.
- **1st Law of Thermodynamics:** This law states that matter and energy cannot be destroyed, however they can be transformed. The MEA device is a **classic initiator of transformation in chemical/energy** composition of water (see examples in Attachment A).
- **2nd Law of Thermodynamics:** This law states that **energy changes from one form to another form, or matter moves freely, entropy (disorder) in a closed system increases unless there is a compensating syntropy energy force**. The MEA water device is a classic syntropy enforcer whereby the initial negative charge in the water increases over time to the point of charge saturation (ie. -1,500mV)
- **Structured water:** structured water has a six-sided (hexagonal) structure (see Attachment A). A key feature of structured water is its capacity to receive, store and transmit information, and exclude past information that is incoherent, toxic or lacks a natural harmonic resonance.

The table below illustrates the dynamics of water treated with a **Phi'on** MEA water device and the potential for oxidation and reduction of oxygen, and potential **transmutation** (*CL Kervran*,

Biological Transmutations) of minerals in a magnetic (energy) field (**charge separation**) in the presence of biology (photosynthetic microbes).

The table shows the comparison by **Phión** between raw (non-structured) concentrated seawater (1) and the same seawater after treatment with a MEA water device (2). The % change is shown in (3). The raw un-vortexed, concentrated seawater was treated with a 2” inner diameter MEA water device for about 2 hours. This involved pumping and continuous cycling of 1000L of the concentrated seawater through the MEA device. The seawater was in a 1000L IBC container and exposed to sunlight energy.

COMPOUND	MEA Device (2)	% change (3)	UNTREATED (1)	DEAD SEA	AVG SEAWATER
Sulfate as SO ⁴	34,000	+90.0	17,900		27,010
Chloride	217,000	+1.4	214,000	230,400	193,450
Calcium	58	-3.3	60	17,600	42
Magnesium	87,700	+0.6	87,200	45,900	12,950
Sodium	6,790	-12.6	7,770	36,600	10,752
Potassium	8,930	+3.8	8,600	7,800	3,900
Totals	354,478	+5.65	335,530	338,300	248,104

The increase of 5.65 % in the major minerals (mass gain) of seawater is significant, and specifically the 90% increase in Sulphate as SO⁴. Also, sodium has decreased by 12.6%.

These effects on seawater may be accounted for by:

1. The restructuring of the water from a pentagonal (5 sided) structure to a hexagonal (six sided) structure
2. The re-structured water (vortexed) now having a permanent negative charge
3. The effects of sunlight on the seawater during the treatment process
4. The dynamics of reduction and oxidation of oxygen in structured water
5. The dynamics of transmutation of compounds or elements.

When water goes through a **Phión** MEA water device it will change the water voltage from a positive to a negative voltage, however any change in mineral composition is dependent on ***time taken for particle settling, including outgassing or exclusion of particles/gasses***.

In another example of **transmutation**, *magnesium oil* (made by **Phión** from concentrated seawater, seawater, and other salts) was aged in an open 200L barrel for 2 years and upon analysis the calcium and strontium had increased by 20 and 21-fold respectively. Iron increased by 30-fold and all other elements measured a % increase.

The results in the Table on the next page (18) are indicative of transmutations that can occur when magnetism changes the mass space and therefore gravity (ie. less pull of gravity)

Results of a laboratory test from *Intertek, Victoria, Australia (dated 1 April 2010)* are in the table below.

Test	Units	Mg Oil (not aged)	Mg Oil (Aged for 2yrs)	% Change
Magnesium	%w/v	8.72	8.86	+1.6
Magnesium Chloride (MgCl ₂)	%w/v	34.1	34.7	+1.8
Potassium	%w/v	1.1	1.2	+9.1
Sodium	%w/v	1.3	1.4	+7.7
Aluminum	mg/L	<1	1	+10
Calcium	mg/L	135	2690	+1893 (20-fold)
Copper	mg/L	<0.5	0.5	+10
Iron	mg/L	0.4	12	+2900 (30-fold)
Lithium	mg/L	8	9	+12.5
Manganese	mg/L	8	9	+12.5
Strontium	mg/L	1	21	+2000 (21-fold)
Zinc	mg/L	<0.5	0.7	+60

This liquid was processed through a MEA device and the liquid would have contained biology from the ocean waters.

This experiment demonstrates the dynamics of subtle energy and biological interactions and element transmutations within waters. Also, it is highly likely that numerous oxidation and reduction processes were involved. Clearly, an energy field has created matter (elements and compounds). In fact, *Kervran in Biological Transmutations*, postulates that **Silica (Si, Atomic No. 14) plus Carbon (C, Atomic No. 6) = Calcium (Ca, Atomic No. 20)**. Others suggest that daily intake of silica rich foods is the key to sustaining a balanced calcium level in cells. Further, Kervran suggests that the daily intake of calcium by cows and hens is much lower than the calcium in cow's milk and calcium in hen's eggs, and that biological transmutation must be involved. The critical point here is that transmutations may only occur in the presence of structured water (eg. in a cell, pristine flowing water, or MEA structured water) and biology. The presence of structured water and light in cells may be the trigger for transmutations in living species.

Many of the chemical changes in water depend on the solutes in the water or other watery liquids (eg. seawater, wine, and milk). Also, the outcomes are dependent on whether the water is in a structured or non-structured (bulk) form. Structured water has a **higher solubility for minerals** than bulk water. Structured water also has a **decreased solubility for dissolved gases**, as experienced when wine is re-structured, and gasses leave the wine. Research by Davis and Rawls found that the North-pole magnetic energy structures water and amino acid solutions to an alkaline pH and **increases water surface tension**. South-pole magnetic energy will structure water amino acid solutions to an acid pH and decreases water surface tension. These results have been replicated by **Phiön** research.

Conclusion

It can be concluded that the key features of a MEA device are:

1. It excites (charge separation) the *energy field* of water in a beneficial manner for life
2. It produces a permanent or indefinite negative (-) charge or voltage in the water. This negatively charged water is also known as structured water
3. It destroys pathogenic (gram negative membrane) microbes in liquids
4. It will improve the integrity of water (including wastewater) in time and space
5. It will improve food production and food integrity (quality, taste, etc.) because negatively charged water has an attraction with beneficial microbes at a cellular level
6. The negative charge in the MEA water is not affected by freezing or heating.

Attachment B: Red Mud/Soil Water Conditioning – Experiment methodology

1. 08/09/2020

The mud/soil sample was dissolved in untreated water (non-MEA treated).
20 kgs mud/soil
200 litres water

2. 08/09/2020

The mixture was stirred in the stainless-steel mixing bowl for 3 hours.



3. 08/09/2020

The control samples (at the start point) for laboratory testing were collected.

Sample	Size
topwater	1 L
sludge	250 gms

4. 09/09/2020

2 litres of Phi'on Catalyst (biological soil conditioner) were added.

5. 09/09/2020

The mixture was run through the MEA Device for 1hours.



6. 10/09/2020

The mixture was run through the MEA Device for 4hours.

7. 28/09/2020

The mixture was run through the MEA Device for 6hours.

8. 29/09/2020

The control samples (at the start point) for laboratory testing were collected.

Sample	Size
topwater	1 L
sludge	250 gms

Table 1: Qualities measured at Phi'on laboratory (*Mangiri*) and % change

TOPWATER	CONTROL	TREATMENT	% Change
pH	11.3	10.5	-7
EC; mS/cm	2.8	2.8	1
TDS; ppK	1.4	1.6	10
Brix %	0.3	0.4	33
ORP; mV	42.2	18.8	-55
rH	31.1	28.6	-8

Chart 1: Top water comparison for Phi'on measurements

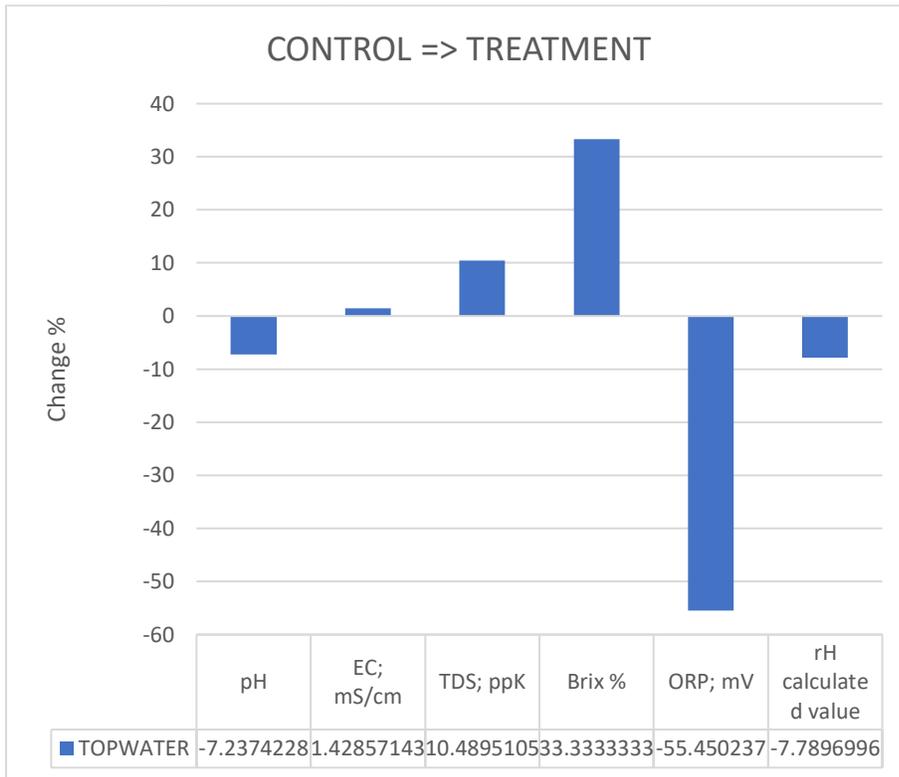


Table 2: Qualities measured by Australian Laboratory Services (ALS):

test	water sample	sludge sample
BOD Biochemical Oxygen Demand	+	NA
COD Chemical Oxygen Demand	+	NA
Sulphide S2-	+	+
Ca, Mg, Na, K, Cl, SO ₄ , Alkalinity (water)	+	+
Ca, Mg, Na, K, Cl, SO ₄ (sludge/soil)	+	+
Iron	+	+
Aluminum	+	+
Titanium	+	+

Table 3: Comparison of topwater from LALS results

TOPWATER	CONTROL	TREATMENT	Units	% Change
Carbonate Alkalinity as CaCO ₃	970	1400	mg/L	44
Bicarbonate Alkalinity as CaCO ₃	75	<1	mg/L	-100
Total Alkalinity as CaCO ₃	1040	1850	mg/L	78
Sulfate as SO ₄ - Turbidimetric	138	112	mg/L	-19
Chloride	20	38	mg/L	90
Calcium	<1	1	mg/L	0
Magnesium	<1	<1	mg/L	0
Sodium	483	596	mg/L	23
Aluminum	72.0	85.1	mg/L	18
Titanium	8.87	3.37	mg/L	-62
Iron	23.4	24.4	mg/L	4
Sulfide as S ²⁻		<0.1	mg/L	N/A
Total Anions	24.2	40.4	meq/L	67
Total Cations	21.0	26.4	meq/L	26
Ionic Balance	7.03	20.8	%	196
Chemical Oxygen Demand	172	420	mg/L	144
Hydroxide Alkalinity as CaCO ₃	<1	449	mg/L	448900
Potassium	1	18	mg/L	1700
Biochemical Oxygen Demand	2	101	mg/L	4950

Chart 2: Top water comparison of control with treated from ALS measurements

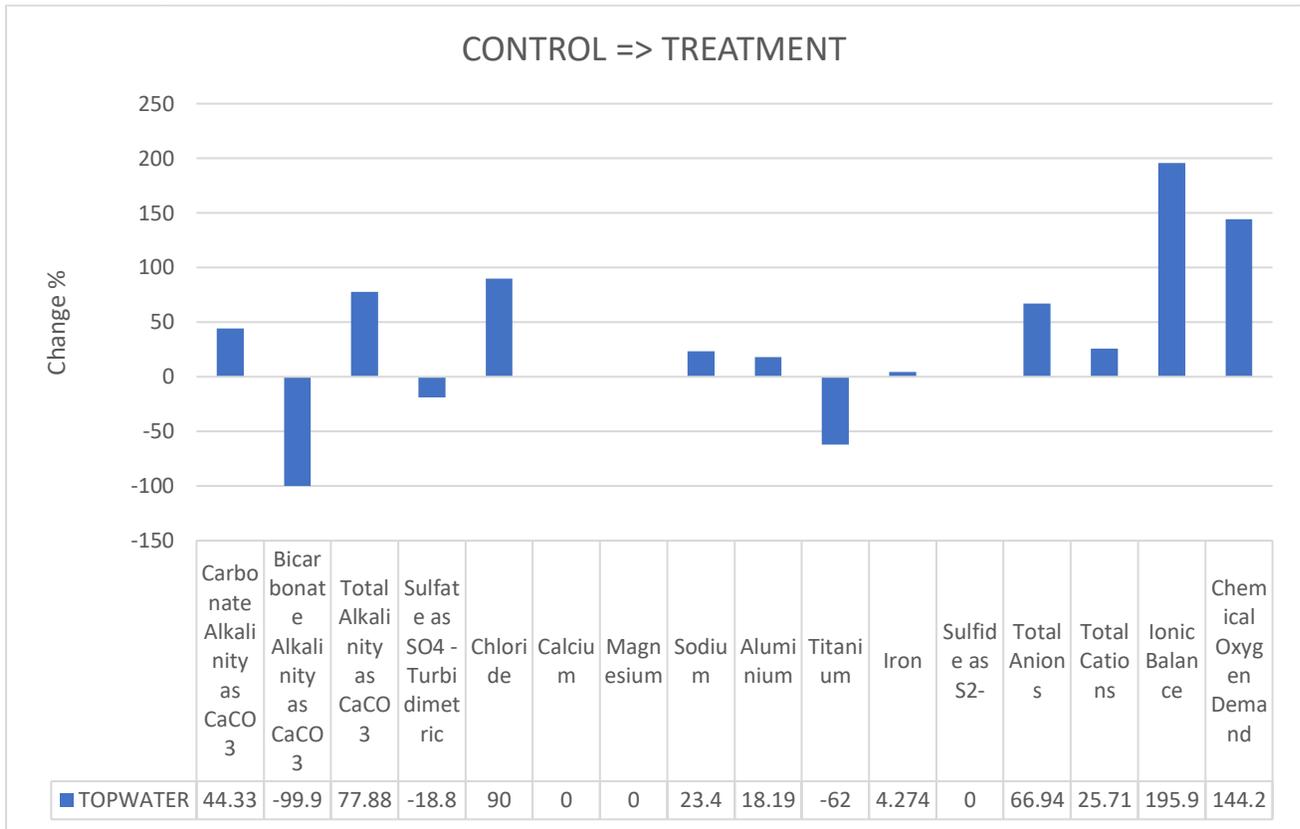


Chart 3: Topwater comparison (Control v. Treated) for Hydroxide (CaCO₃) alkalinity

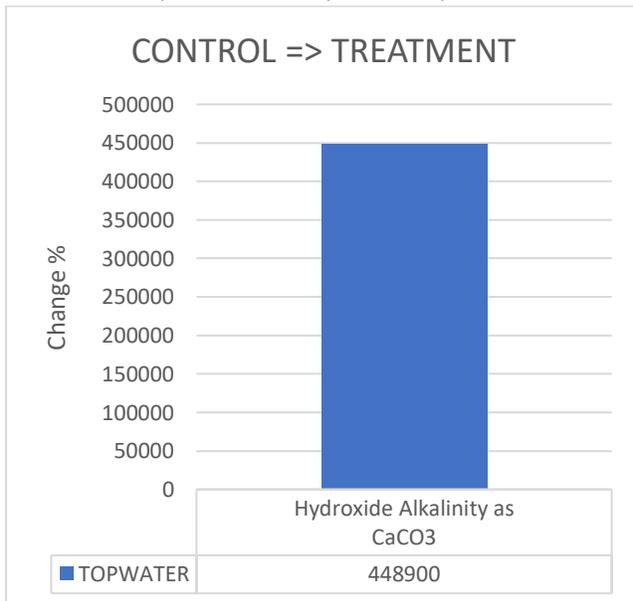


Chart 4: Topwater comparison (Control v. Treated) for Potassium

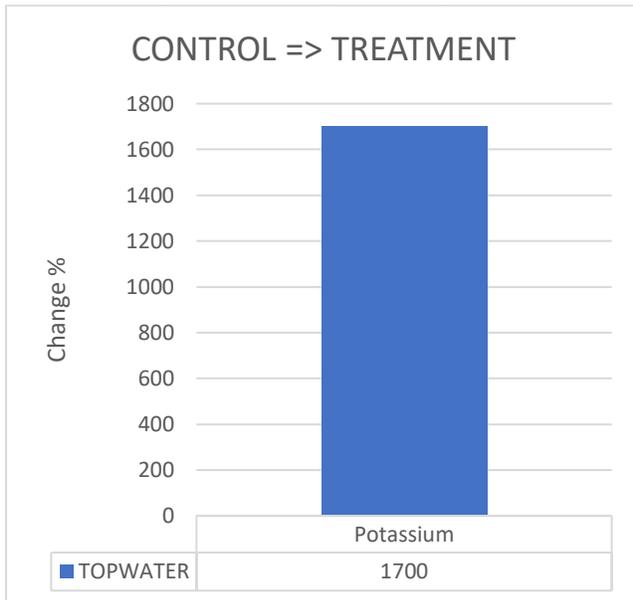


Chart 5: Topwater comparison (Control v. Treated) for Biochemical Oxygen Demand (BOD)

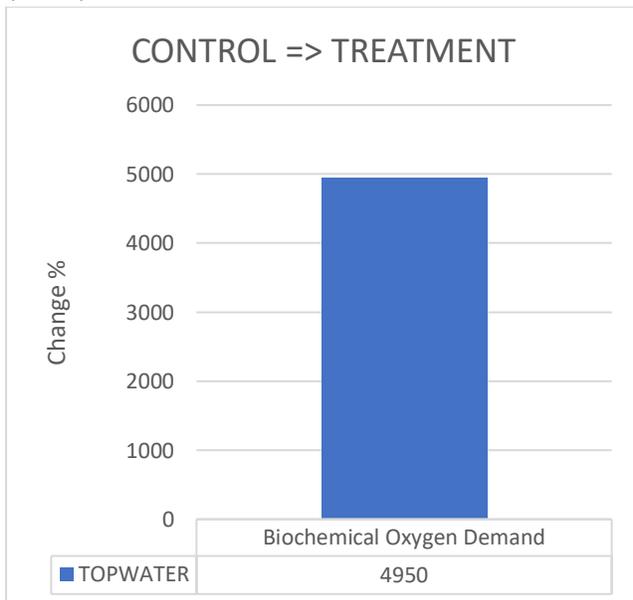
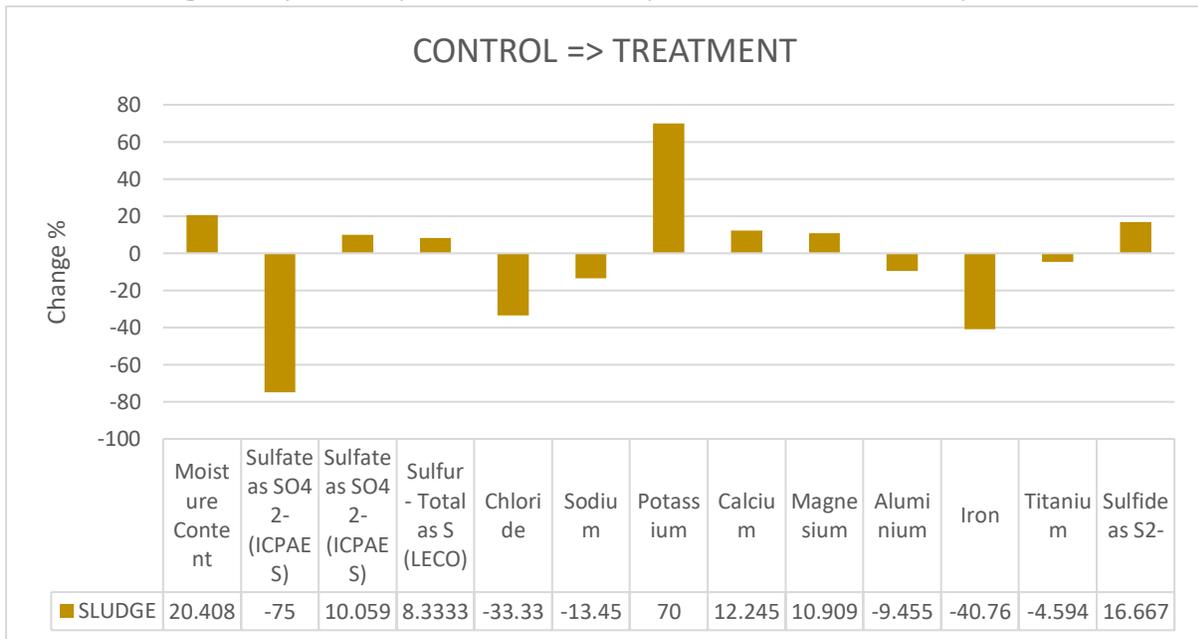


Table 4: Sludge comparison (Control v Treated) for minerals and compounds

SLUDGE	CONTROL	TREATMENT	Units	% Change
Moisture Content	24.5	29.5	%	20
Sulfate as SO4 2- (ICPAES)	360	90	mg/kg	-75
Sulfate as SO4 2- (ICPAES)	1690	1860	mg/kg	10
Sulfur - Total as S (LECO)	0.12	0.13	%	8
Chloride	30	20	mg/kg	-33
Sodium	9440	8170	mg/kg	-13
Potassium	100	170	mg/kg	70
Calcium	8820	9900	mg/kg	12
Magnesium	550	610	mg/kg	11
Aluminum	27500	24900	mg/kg	-9
Iron	211000	125000	mg/kg	-41
Titanium	5660	5400	mg/kg	-5
Sulfide as S2-	0.06	0.07	%	17

Chart 6: Sludge comparison (Control v Treated) for minerals and compounds



Explaining the Process

Water treatment context

Much of the scientific context for the capacity of structured (negative charge) water to affect environmental outcomes is described in quantum physics and the so-called *laws of nature*. However, there are established laws, principles, and scientific explanations in contemporary science to provide a context to the outcomes of this experiment. For example:

1. **Charge separation:** Traditionally, this phenomenon is explained in reference to **photosynthesis** where pigment-protein complexes carry out the initial photochemical electron-transfer reactions of plants and photosynthetic bacteria, and in **lightning** where dust and ice particles inside a storm cloud undergo charge separation with the positively charged particles rising and the negatively charged particles sinking. However, in the case of the Phi'on MEA device a unique array of magnet configuration is used to concentrate **negative charge** (as opposed to magnetic attraction and repulsion principles) and this entrained, permanent negative charge in the water causes charge separation in mineral complexes. Electrons are most stable at their lowest energy level (ie. ground state). In this ground state, the electron in orbit has the least amount of energy. The MEA device raises the electron to a higher energy state, and this enables energy entrainment, and transmutation/transformation (see 5 blow).
2. **1st Law of Thermodynamics:** This law states that matter and energy cannot be destroyed, however they can be transformed. The MEA device is a classic initiator of transformation in chemical/energy composition of water (see examples in **Attachment A**).
3. **2nd Law of Thermodynamics:** This law states that **energy changes from one form to another form, or matter moves freely, entropy (disorder) in a closed system increases unless there is a compensating syntropy energy force**. The MEA water device is a classic syntropy enforcer whereby the initial negative charge in the water increases over time to the point of charge saturation (ie. -1,500mV) in the water.
4. **Structured water:** structured water has a six-sided (hexagonal) structure (see **Attachment A**). A key feature of structured water is its capacity to receive, store and transmit information, and exclude or nullify past information that is incoherent, toxic or lacks a natural harmonic resonance.
5. **Entrainment and biological transmutation:** Entrainment is the flow or movement of energy from one source (entrainer) to another source (entrained). Biological transmutation is the change of one element into another element in living systems, and in water in the presence of microbes and sunlight (See **Attachments A and D**).

Attachment C: Description of red mud sources, treatments, and issues

Introduction

Bauxite tailings, more commonly referred to as red mud, is the waste substance which is created during the **production of aluminum oxide**. The material is called red mud due to its red color. Industry experts believe that more than 77 billion tons of the substance are produced each year. Management of this huge amount of waste is one of the biggest challenges facing the aluminum industry.

Composition of Red Mud

Research has shown that bauxite tailings are made up of a combination of metallic and solid oxides. The primary component of red mud is iron oxide which gives the substance its red color. Apart from iron oxide, other primary substances within red mud include titanium oxide, residual aluminum oxides, and silica. The quantity of the substances within the red mud depends on the quality of bauxite as well as the conditions used during the extraction process. Bauxite tailings are alkaline with a pH that ranges from 10 to 13 which is mainly due to a large number of metallic oxides in the compound. Red mud is considered toxic and dangerous to the environment mainly due to its alkalinity (ie. pH greater than 10).

Production of Red Mud

Estimates indicated that roughly 95% of the aluminum oxide produced in the world was made through the *Bayer Process*. After the bauxite ore is extracted from mines, it is taken to a plant where it is refined. The process of obtaining the aluminum oxide requires high temperature and pressure. Sodium hydroxide (**highly alkaline**) is used to extract the aluminum oxide. The process produces a solid residue which is then removed. Some of the sodium hydroxide used in the process is left within the waste which raises its alkalinity pH. The residue goes through several processes to recycle the sodium hydroxide and make the refining process as efficient as possible. Recycling the sodium hydroxide also lowers the alkalinity of the red mud which makes them safer to store and handle.

Disposal of the Red Mud

In the past, most companies dumped their red mud into lagoons and ponds some of which were created at the site of former bauxite mines. Most of the red mud that was thrown into lagoons was at a concentration of approximately 20%. Other companies constructed dams and dumped the red mud within the dams. It was also common for companies to dump the tailings into rivers and seas through pipelines. Several governments around the world made it illegal for the companies to dump the red mud in the seas which stopped the practice. Companies were forced to adopt other methods of storage such as dry stacking. Through the method, the

red mud is thickened to a point where close to 50% of it is made up of solids. The red mud is then deposited in a way that it can dry.

Uses of Red Mud

Red mud has a wide range of uses such as the production of cement and road construction. Red mud is also a significant source of iron.

Research and development into red mud uses

Many, if not all alumina producing companies have a team of people to find a way to commercialise these wastes. Extensive R&D works have been done on red mud recycling and its possible usage.

Building Material

The most common uses of red mud are as a building material. The use of red mud not only increases the compressive and tensile strength of products made by this method, but also serves as a colourant. There have always been concerns about the elevated (alkalinity) levels of pH in red mud, albeit that level of pH in cement/concrete can be up to a pH of 13.

The cement/concrete has a higher cost than the red mud while being used as a building material. Red mud is also ideally suited as an additive for alkali activated materials. The high pH of red mud helps the chemical reaction to aid adhesion and setting time.



Various uses for Red Mud as a building product are, but not limited to the follows:

1. Colourant
2. Bricks and paving slabs
3. Roof tiles
4. Block paving
5. Pipes
6. Bollards
7. Benches
8. Litter bins
9. Sea defenses
10. Central reservation dividers
11. Curbs
12. Any other cement/concrete construction as well as road and driveway bases

A further benefit from using red mud as a building product is, it eliminates a phenomenon called efflorescence. None of the samples (Images above) show any characteristics of efflorescence.

Red mud can be used as a colourant to be mixed with resins to produce products with more decorative appeal than just cement/concrete. They can be aesthetically used in kitchen worktops, bathroom shower trays, fire surrounds etc.

Elimination of Efflorescence

Efflorescence is seemingly endemic with all types of concrete paving and its presence on a recently laid patio or driveway can disappoint the homeowner. **Efflorescence** is a crystalline deposit on surfaces of masonry, stucco, or concrete. It is whitish in appearance and is sometimes referred to as whiskers.



In the photos of slabs on the previous page attempts have been made to reduce the efflorescence. A sand substitute made from industrial waste can actually eliminate efflorescence. This sand replacement costs no more than normal building sand and can be available as sharp sand for road and paving bases. Whilst this is only suitable for coloured products it eliminates the issue.

Plant base

Red mud can also be used as a base for growing plants. A piece of toilet tissue as a filter, the seed will grow quite happily on a base of red mud. Also, to make an advanced growing medium, red mud can be mixed with compost; this has the effect of neutralising each other and forms a growing medium or soil additive.

Other opportunities and limitations

Red mud has become disposal issue and looking for a place to disappear. Even when red mud remains contained, it's extremely alkaline minerals and compounds can leach out, poison groundwater, and contaminate nearby rivers and ecosystems. Such liabilities, as well as growing regulatory pressure on industry to develop sustainable practices, have catalysed global efforts to find ways to recycle and reuse red mud. Some researchers are developing ways to extract the valuable rare earth metals, whereas others turn the mud into cement or bricks.

Red mud could form the basis for other construction materials, eg. add about 10% clay and silicate minerals to red mud and bake the mixture in a furnace, they can make bricks able to withstand 80 megapascals of compressive force, 40 times more than conventional bricks. However, this process needs to scale up the technique to make everything from roofing tiles to sidewalk pavers.

Because of its chemistry, red mud can also capture and lock away carbon dioxide (CO₂), the major climate warming gas. In Australia, aluminum producer Alcoa bubbles CO₂ into red mud, creating a mild acid that reacts with the alkaline waste, forming carbonate minerals that turn the red mud into red sand that can be used to level roadbeds. The company estimates that the red mud from a single aluminum refinery can lock up 70,000 tons of CO₂ per year, equivalent to taking more than 15,000 cars off the road.

Since 1964, researchers have patented some 700 uses for red mud, including tapping it to make decorative ceramics, dyes, and even fertilizer. Yet just 3% of red mud is currently recycled.

One major reason is that many schemes propose using red mud is to make commodities that are already cheap and produced with methods that have been optimised over a century or more. In addition, red mud is not easy to handle. The iron industry has shielded away from extracting the metal from it, for example, because the caustic waste destroys key components in their smelters.

However, countries could push progress by establishing zero waste mandates for aluminum makers, or other incentives that force companies to recycle red mud instead of letting it pile up.

The European Union has considered instituting a tax on waste deposited in landfills, for example. However, it has not done so, and there appears to be little appetite elsewhere for similar ideas.

Another obstacle is international opposition to allowing hazardous materials to cross borders. As a result, it can be cumbersome and costly to move red mud that contains even trace amounts of heavy metals or radioactivity. For now, simply putting the waste into a landfill is both cheaper and far simpler.

Finally, there is the question of consumer acceptance. Even if scientists and engineers manage to come up with a suite of practical uses for red mud, consumers still have the final say in whether they will buy products with such a noxious starting point. For example, will consumer or tradesman use roofing tiles that are made with red mud?

Other Test results – from wastewater treatment

In another case of processing sewage (septic) water through the MEA device and allowing it to settle for a week or so, the Biochemical Oxygen Demand (BOD) improved by 37%, the Chemical Oxygen Demand (COD) improved by 64%, the total suspended solids improved by 89%, chromium reduced by 33%, Copper by 60%, Lead by 50% and Zinc by 78%. All other minerals had volumes less than 0.1 and therefore the change was too insignificant to measure.

It has also been proven through independent testing that the MEA water device destroys pathogenic microbes. In one test it reduced E. coli from 250 faecal coliforms (cfu/100ml) to 2 and in another test, it reduced E. coli from 2178 cfu to 1. This capability provides a significant capacity to process raw milk without the need for pasteurisation. Also, the MEA milk does not require homogenization as the milk oils and fats do not separate.

Numerous tests have been undertaken in agriculture. Test results indicate a strong *epigenetic* (environmental) influence of the negatively charged water on soil microbes (biology) and plants, especially important for microbial activity becoming multi-generational (diversity). That is, there was a significant effect of the presence of the MEA negatively charged water (ie. like thunderstorm water) on plant growth, eg. uptake of soil nutrients to the plant. Consequently, the microbes and negatively charged water are the life forces within the soil, breaking down the nutrition in the soil into forms digestible by the plants. If microbes are not flourishing in the soil, plants will not properly grow, and will become disease-prone and susceptible to viruses, fungus, and insect invasion. There is clear evidence from tests that soil health is significantly improved when negatively charged water is added to microbial formulations.

Wastewater Treatment

Septic water

Tests were conducted on the treatment of household septic water by the MEA inline device. The results in the following tables are a comparison between wastewater in a septic tank (Raw

septic water) and water after it has been processed through a Phión magnetic (MEA) water conditioner. The conditioner in this case was a 2" inner diameter pipe device (Zeus).

The purpose of the test was to measure the change in the chemical and mineral composition of the wastewater after treatment with the water conditioner device.

The water that is used for this household septic system has already been treated with a ¾" MEA water conditioner and therefore the water that is used for flushing the toilets, showering, cooking, etc. is already conditioned with a MEA device. The primary source of the water is from a bore and from rainwater, generally in a 50:50 mix.

The major differences between the source (unconditioned) water and the raw septic water are:

Description	Measure	Source water	Septic water	% Change
pH	mg/L	5.8	6.5	+12
Eh (ORP)	mV	+430	-180	-142
Chromium	mg/L	<0.01	0.03	+200
Copper	mg/L	0.07	0.05	-29
Lead	mg/L	<0.01	0.02	+100
Manganese	mg/L	<0.01	0.13	+1200
Selenium	mg/L	<0.005	<0.01	+100
Zinc	mg/L	0.06	1.1	+1733

The source water also has very low conductivity (46 us/cm), slight iron (0.04 mg/L) and comparatively low alkalinity (14 mg/l), Calcium (1.7 mg/L), Magnesium (2.2 mg/L) Potassium (0.6 mg/L) Sodium (5.0 mg/L) and Chloride (7.0 mg/L)

The method for treating the septic wastewater involved pumping 600L of septic water straight from the septic tank into a 1,000L IBC and then cycling this septic wastewater through a 2" MEA water conditioner for a period of about 60 minutes. That is, septic water was pumped from the IBC through the MEA device and returned to the IBC. After about 30 minutes of cycling a dense white gas started to emit from the top of the IBC and continued for about 15 minutes. This gas is assumed to be a range of gasses comprising methane, sulphur, nitrogen, hydrogen, etc. Further tests of this process will be undertaken to test the nature of the gas.

The organic solids from the septic water settled to the bottom of the IBC and all septic smell was eliminated from the resulting water within 30 minutes. Also, the smell was not detected after 2 hours of starting this process and no smell was evident after 3 months.

The following table describes the comparison between the raw septic water and water after treatment through the MEA (magnetic) device. The chemical and mineral tests were undertaken by Sydney Analytical Laboratories on 17 September 2014.

Description	Measure	Raw Septic Water	MEA device results	% Change	Standard Industry achievement	Comments
pH	mg/L	6.5	6.8	+ 0.7	NA	
Biochemical Oxygen Demand (BOD)	mg/L	730	460	-37	-20	Significantly better than most existing technologies
Chemical Oxygen Demand	mg/L	1310	470	-64	-20	Significantly better than most existing technologies
Total Organic Carbon	mg/L	340	265	-22		Significant change
Nitrate NO3-	mg/L	<0.01	<0.01	nil		
Nitrate NO2-	mg/L	2.9	1.1	-62		Significant change
Ammonia NH3-N	mg/L	61	69	+13		
Phosphate PO4	mg/L	69	35	-49		Significant change
Eh	mV	-180	-260	-44		
Total Suspended Solids	mg/L	800	87	-89	-50	Significantly better than most existing technologies
Arsenic	mg/L	<0.01	<0.01	nil		
Barium	mg/L	<0.1	<0.1	nil		
Cadmium	mg/L	<0.001	<0.001	nil		
Chromium	mg/L	0.03	0.02	-33		Significant change
Copper	mg/L	0.05	0.02	-60		Significant change
Lead	mg/L	0.02	<0.01	-50+		Significant change
Manganese	mg/L	0.13	0.12	-7		
Mercury	mg/L	<0.0001	<0.0001	nil		
Selenium	mg/L	<0.01	<0.01	nil		
Zinc	mg/L	1.1	0.24	-78		Significant change

In the previous table, the restructuring of the previous de-structured, septic water through a Phi'on water device (2") is a clear demonstration that structured water provides the syntropy force to revitalise the water towards its natural or balanced state (uncontaminated). This state can be expected to accumulate over time as the syntropy energy in the water accumulates and changes the vital properties of the water, eg. BOD, COD, suspended solids, and the ratio of zinc to copper, etc.)

Attachment D: Structured water and the principles of entrainment and transmutation

Introduction

The purpose of this paper is to discuss the association between structured water (negatively charged) and a principle in physics of entrainment, and the science of transmutation. While scientific papers discuss or explain these two processes, the environment in which these processes are initiated or develop in the presence of water has not been fully developed or discussed.

Entrainment

Entrainment is a principle of physics. It is defined as the synchronisation of two or more energised (electric) rhythmic cycles. The principles of entrainment appear in chemistry, neurology, biology, pharmacology, medicine, astronomy, and water. In the case of water, a negative charge (the natural state of flowing water) can move in space to entrain a water that is positively charged (or slightly negatively charged). In many respects, water is the master of entraining consciousness, intention, music, and the environment. Entrainment, in one form, a natural action of nature's rebalancing (ie. a law in nature of homeostasis or equilibrium); and in another form water can be degraded or made unstructured/unordered by an unhealthy environment of destructive thinking, skepticism, pessimism, foul language, metallic music, and the very high frequency radiation (billions of cycles per second) from microwaves and other forms of radiation.

All living cells and non-living things can entrain energy from the environment. For example, Dutch scientist Christian Huygens found in 1656 while working on the design of the pendulum clock, that if he placed two unsynchronized clocks side by side on a wall, they would slowly synchronize to each other. In fact, the synchronization was so precise not even mechanical intervention could calibrate them more accurately. Therefore, the environment that we create or choose to live in can affect the structure of water in our bodies. This determines whether we have a life-affirming experience of whether we progressively move to tired, sick and then **dis-ease**.

All living organisms produce electromagnetic fields, they encode information, and all merged electromagnetic fields exchange information. The Earth itself is a living organism that produces electromagnetic fields filled with information, and we entrain the information encoded in these fields just by living on the Earth (particularly in natural environments). For example, the Earth's natural frequency average is a low cycle of 7.83 cycles per second (called the Schumann

Resonance) and it is this low frequency that helps to retune and balance the cells of all living species. Therefore, daily time in a natural environment is life-affirming to our wellbeing and consciousness. It is these low, natural frequencies of nature that imprint our DNA and genes with energy wave patterns that support cellular regulation and healing.

Many periodic rhythms in our bodies are a function of our entrainment to the oscillations of the electromagnetic field of the Earth. Circadian rhythms are the reaction of living organisms to periodic electromagnetic fluctuations in the environment. However, when all environmental inputs are severed (by putting people in a closed living or workspace), the rhythms continue in our bodies, but in a different and interrupted manner. While cyclic rhythms are generated internally in all living organisms (eg. linked to moon or tide cycles), the periodicity or timing is shifted and synchronised to the electromagnetic fields produced by the closed space (eg. the unnatural environment of living in the *concrete jungle* of cities). A range of adverse health conditions are then induced by these oscillating external electromagnetic fields that entrain or phase-lock the natural vibration of cells so that the body that we know moves into disease.

Structured water within cells has the molecular configuration to stimulate biological activity, and this is the **essence of life**. It is this molecular arrangement that gives cells the order to encode, transmit and integrate information. The nature of this information can change the world we live in and determines whether our bodily functions are stable and preserved or positioned for degradation and disease. We all have choices to select our environment.

Transmutation

Transmutation is the process of elemental or biological change of an element into another form or condition. For example, in biology, it is the transformation of one species into another species. However, in physics it is any process in which a nuclide is transformed into a different nuclide, usually one of a different element. Elements can transmute (permanently change the nucleus) with microvolts and millivolts (and microwatts and milliwatts) in living systems through electromagnetic processes. Rutherford, the British physicist who discovered the nucleus of the atom, had shown in 1919 that you can bombard elements with alpha particles and transmute them to another element form. For example, Louis Kervran described the existence of transmutations: ie. Na transmuting to Mg, K to Ca, and Mn to Fe. Therefore, reactions occurring in living systems are not strictly chemical in nature, and consequently energetic (electrical) reactions can explain life processes. Obviously, for life to transmute elements, the living systems must be able to directly affect and influence the atomic nucleus of the cell. In some experiments, plants increased their phosphorus by 29% and their sulphur by 36% through biological transmutation.

It then follows, that metamorphosis is a form of transmutation whereby the form (and often habits) of an animal during normal development after the embryonic stage, changes to another form. Metamorphosis includes, in insects, the transformation of a maggot into an adult fly and a caterpillar into a butterfly and in amphibians, the changing of a tadpole into a frog. Clearly,

every organism has electrical structures so that each organ and system contain intelligence (independent from the other organs and systems) that can be a source of guidance for life forming processes, and for the collective potential of the organism.

Since all healthy cells in an organism are based on structured water, then the electromagnetic expression (wave energy or charge) of this water is the foundation to entrainment and transmutation processes. The nucleus of a cell (and the intelligence that it holds, eg. DNA) must respond to change to evolve and adapt, otherwise it could not stay alive and function in the first place, particularly in a changing environment. In humans, this change would be continuous cell regeneration. On the other hand, cells hold intelligence for degeneration when its environmental conditions are adversely affected, in which case healthy tissues or cells are changed to a diseased or abnormal state.

In these biological and elemental transactions, there must be an electro-magnetic carrier and, the only obvious carrier is structured water. When the state of structured water in a cell changes polarity it can become positively charged, and then a cell changes from a healthy (natural state) to a diseased state.

However, there is a question about whether entrainment and transmutation in living systems are continuously intertwined and transact concurrently, and whether these transactions are interdependent or dependent as natural processes for sustaining life. The idea pursued in this paper is that life processes are driven by the power of electrons within and outside of cells. Nested within the cells is the capacity to selective **entrain energies**, and this capacity drives life's adaptive processes like **transmutations** in a pathway to regulation and healing.

Electrons

Everything in nature is powered by electrons. Electrons are the most basic constituents of matter, are **negatively charged** and come in many forms, including the Electron, Muon, and the Tau (collectively called the Leptons). Protons (positively charged) are grouped as Quarks. While science does not fully understand the constructs of matter, it is known that electrons are points with precisely zero size and obey strange laws of quantum physics. For example, an electron can be at one point or another without being in between.

It is the negative charge of the electron as a sub-atomic particle that makes it a fundamental ingredient of entrainment and transmutations. In many respects, life as we know it does not exist with the electron role in energy pathways: its energetic signature is present in, and out of matter. For example, thoughts are an electro-magnetic frequency, however it is the salt (due to its crystalline structure, electrical potential, or conductivity) that surrounds cells that enables the frequency to transmit commands to organs, nerves, and muscles. Therefore, there is an emerging view among alternative health practitioners that the occurrence of Alzheimer's, Multiple Sclerosis (MS) and Parkinson's diseases may be linked to low negatively cellular voltage. In part this is due to the consumption of common (processed) salt (sodium chloride) rather than the use of a complex (natural) salt like Himalayan, Celtic or sea salt that has the full

range of Sodium Magnesium, Potassium and Calcium salts and the natural proportion of trace minerals (60-70). For example, it is the presence of complex salts in the inter-cellular space that stimulates the rhythm of the heart, and therefore bodily cycles.

Entrainment

Theoretically, entrainment can be observed in all systems (living and non-living) because all matter has an energetic signature. While entrainment is known and practiced in technology designs involving hydrodynamics or fluid dynamics, the observation of entrainment through negatively charged, structured water is less known. In *nature's design*, structured water entrains, or creates a flow and current as it connects with the natural environment. The challenge of having unstructured (positively charged and *dead*) water for drinking, cooking, and washing, has been an issue, until the invention of the structured water devices and systems.

Entrainment can be one fluid moving with another, pushing, or pulling within. Perhaps this can be best explained by picturing the ocean with its many currents or rivers travelling within the same overall body of water. Entrainment can also include other things, such as salt, oil, debris that are carried within the medium of water. Therefore, it is important to know about entrainment, and learning how the energy in water can be utilised in homes or businesses, in its most natural form to sustain optimal health.

Most people do not consider the immeasurable distances that water travels in straight pipelines to reach cities, businesses, and homes. The issue with this process is when water is forced into a conduit or pipe, the fluid is not able to move or twist in a vortex action. Consequently, this kind of water turns from a 6-sided crystalline, hexagonal structure, to a 5-sided crystalline, pentagonal structure that is *dead, positively charged water*.

Structured water in any system (including living plants in the soil) can lose its negative charge in 48-60 hours, and within about 4-500 metres of flowing in a straight pipe. Therefore, all urban water is missing the life force energy that it would have in a natural flowing state. In the case of a plant or fruit, once it is detached from its living support system, it will lose its structured water form in 48-60 hours. The process of restructuring water brings life back to the water, and everything it contacts (eg. soil and plants). Structured water, whether it is in the cell of a microbe, plant, animal, or human is fully open to embrace the energy of life, and to *vibrate or dance* with the processes of entrainment and transmutation.

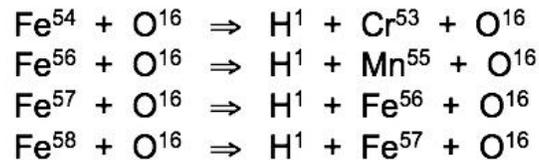
Water that has been restructured can flow its energy forward and backwards. Like a river traveling within the ocean, structured water creates an energy flow in all directions. However, the entrainment is not limited to directions of left to right or even up or down. Through years of testing, **Phión** has observed that structured water will entrain even if you shut off the original water source. For example, as water flows through a **Phión** (MEA) structured water device (www.meawater.com), it **brings permanent life energy into the water, and consequently to any other water it contacts**. This is an enormous benefit, not only to

households and business, but also to the community if the structured water is recycled for other uses.

In summary, water entrainment, while scientifically proven, seems mystical in its ability to carry an energy flow that supports life to reach its fullest potential, including the full capacity for biological transmutations.

Transmutation

As outlined above, transmutation is an adaptive process that is undertaken in the fluids of life (eg. blood) to ensure that an organism has the necessary elements (eg. Fe, Ca, etc.) to create and sustain life. However, this process requires resonate energy for the conversion of one element to another, eg. *during blood circulation, fission of iron atoms releases hydrogen atoms by phonon induction of bound oxygen atoms at 37.8°C:*



A critical part of this conversion process (eg. Chromium: Cr, Manganese: Mn) is that healthy blood requires access to light photons, oxygen, hydrogen, stable blood pH (ie. not too acidic or overly alkaline) and the necessary elements to enable the conversion. The negative charge on the oxygen is a critical factor, and therefore must be abundant in blood to sustain the electrical potential for transmutation.

In many respects, all living entities are continuously experiencing the constant change in the Earth's energies (through entrainment and adjustments in the body require transmutations). This process is an expected and normal part of the evolutionary development of the Universe. It has always been so and will continue until it is no longer necessary as a collective process. During this energy transformation, the body will know how to readjust and reorganise itself because it is naturally part of life. This process of **transformation** has been coded within the cells of the body and takes place constantly. People are learning more about what is occurring naturally with their choices, ie. through being aware of the foods they are eating, being aware of their connection to the earth, and by being aware of their life direction. The greater the awareness of this process, the greater a person's capacity to cope with the natural pace of the cellular coding within each person to sustain coherence with universal energetic transformations (ie. the essence of evolving life). In this process, the very structure of every cell in the body will endure change. The adjustments will occur in the cells as these cells undergo a gentle infusion of new electromagnetic impulses from the energy shift (eg. Schumann resonance).

The Earth is undergoing constant change in water and metal energies. The natural abundance of pure metals that are present in the Earth's atmosphere and lithosphere, appear as solid deposits and reduced particles of all sizes. Microbial and oxidative processes constantly reduce metal surfaces into nanoparticles, while geological forces liquefy and separate metals by density. Extensive interdisciplinary study has revealed that both *geological* and *biological* processes induce **low energy atomic nuclear transmutations** at specific resonant temperatures, in the presence of specific gases.

Also, the bright dancing lights of the aurora are examples of atmospheric transmutations. The collisions between electrically charged particles from the sun that enter the Earth's magnetic field. The lights are seen above the magnetic poles of the northern and southern hemispheres. They are known as *Aurora borealis* in the north and *Aurora australis* in the south. This is an example of the Earth's atmosphere rebalancing gasses.



The Northern Lights are the result of collisions between gaseous particles in the Earth's atmosphere with charged particles released from the sun's atmosphere. Variations in colour are due to the type of gas particles that are colliding. The most common auroral colour, a pale yellowish-green, is produced by oxygen molecules located about 100 kilometres above the earth. Rare, all-red auroras are produced by high-altitude oxygen, at heights of up to 300 kilometres. Nitrogen produces blue or purplish-red aurora. There is a connection between the Northern Lights and sunspot activity whereby electrons and protons from the sun

Extreme weather conditions, severe thunderstorms, tornadoes, and greater numbers of lightning strikes and auroral displays are being reported all over the world.



What exactly takes place in these electron avalanches seen as plasma formations above the Earth that are mirrored by concurrent electrical storms in the atmospheres of planets in our solar system. Is this another form of transmutation (or atmospheric gas rebalancing) involving negative electrical charge?

The broader effect of the significant net increase in atmospheric plasma formation is a more efficient cleansing of our polluted skies, through electrical chain reactions known to produce the abundance of nitric oxides (NO) and ozone (O₃) crucial to the natural rebalancing of atmospheric gases. There is yet another, more essential purification of atmospheric hydrogen

(H) that takes place in sprites (ie. large-scale electrical discharges that occur high above thunderstorm clouds), and lightning strikes relating to the elimination of deuterium (D or ^2H), also known as **heavy hydrogen**, a heavy isotope of hydrogen comprising 0.0156% of terrestrial waters. The Deuterium content in the atmospheric water vapour presents a vertical distribution gradient by gravity, with greatest concentrations of heavy water molecules near sea level, decreasing steadily with altitude.

Kervran defined resonant nuclear reactions *as reversible, and involving both fusion and fission events between gases, metals, nonmetals, and earth metals*. His simple, *in vitro* demonstration of the oxygen-dependent low energy atomic conversion of carbon into iron was reported in 1962, wherein ultrapure carbon rods were used as electrodes in an aqueous discharge system. *Sediment analysis confirmed the fusion of two carbon atoms with two oxygen atoms in the formation of iron.*

Kervran's groundbreaking studies of various other heat-induced atmospheric and lithospheric processes led to his identification of several essential nuclear transmutations, without which such processes cannot be understood. He found that *airborne pairs of nitrogen atoms readily combine to form silicon at the edge of the thermosphere*. A similar fusion event was identified in volcanic reactions where *pairs of carbon atoms merge in the formation of magnesium, while pairs of oxygen atoms merge to form sulfur*. The natural abundance of elements and the specific isotope ratios produced in thermospheric, and volcanic processes provide compelling evidence for low energy nuclear reactions, as the unified driving force of nature.

Various researchers have obtained significant evidence for biological transmutation as the origin of calcium from nuclear conversions of sodium, magnesium, potassium, and silicon in a wide range of organisms that secrete calcium from one side of a membrane to produce protective shells. Experiments showed that avian and reptilian species deprived of dietary calcium were incapable of producing solid eggshells unless provided with a dietary source of silicon that was readily converted into the calcium required for normal eggshell development. Similar experiments with crustacean species deprived of environmental calcium sources revealed their ability to supplant calcium with magnesium to facilitate normal shell development.

Kervran also determined that calcium formation during tooth enamel and bone growth processes in all vertebrate species was mitigated by the same substitutive resonant nuclear reactions of *magnesium and oxygen fusing to form calcium*, as well as another notable reaction; carbon fusing with fluorine to form phosphorus. The reversal of the latter process was identified in the bacterial digestion of bone, with *phosphorus undergoing resonant fission into carbon and fluorine daughter isotopes*. The constant emission of fluorine gas during bone decomposition is relied upon in the dating of fossil specimens, yet its genesis as a fission product of bacterial digestion remains the only viable explanation.

Soil productivity is another area that Kervran's biological transmutation research has benefited, after his unique findings concerning utilisation of copper by wheat plants for resonant conversion into manganese. Initial attempts to increase manganese levels in wheat by the addition of manganese to soil proved fatal to test plants, while extensive trials by wheat farmers in Alberta, Canada confirmed Kervran's findings that supplementing soils with bluestone copper rebalances manganese and *doubled soil productivity*. Copper also metabolises phosphorous to plants in the soil.

Kervran further applied his comprehensive findings to resolve many commonly misunderstood biomineral deficiencies in humans involving the biological transmutation of all essential elements as magnesium, calcium, manganese, iron, copper, and zinc. *In fact, it is known that calcium deficiency and resulting bone-depletion cannot be reversed by calcium intake*. Calcium is now widely supplemented with magnesium, but the underlying mechanism can only be satisfactorily explained by resonant atomic transmutation. Hard evidence for fusion of magnesium and oxygen atoms is found in measurable Ca^{44} depletions in all bone. However, calcium requires **boron** to be metabolised into bones.

An identical situation exists in dietary supplements manufactured for both iron and copper, which must be given together to achieve rebalancing of either essential element, as blood metabolism involves the resonant conversion of one element into the other. Comparative study of the three main varieties of animal blood (green, blue, and red) reveal distinct sets of nuclear reaction cascades taking place within narrow resonant temperature bands enabled by thermocline migration and thermoregulation strategies.

Cellular respiration processes in all green-blooded organisms, including ascidian, holothurian, and sponge species, exhibit an alternate transmutation of iron that closely relates to those used by red- and blue-blooded species (vertebrates, cephalopods, gastropods, and crustaceans). Fission of iron atoms forms titanium (Ti) and vanadium (V) in green blood while in red blood the fusion of iron (Fe) and oxygen (O) forms copper and in blue blood the fission of copper atoms forms oxygen, manganese (Mn) and iron. When one considers that constantly cycling cascades of nuclear reactions underlie the essential functions of all biological systems, acting as radiant biological holographic projectors, all previously inexplicable animal and plant behaviour displaying group synchrony and coherent mass communication can be understood as nonlinear biophoton field coupling effects occurring within the range of visible light.

Kervran's observations of human skin and sweat gland processes inspired laboratory experiments in 1959 that clearly demonstrated the low energy nuclear fusion of sodium and oxygen to form stable potassium, which contributes to the overall biophoton emissions observed on human skin surfaces. This surprising resonant atomic reaction was later replicated by ionizing sodium vapour in the presence of oxygen under spectrographic observation (Torii, Sakurazawa, Odagiri, 1963; Ohsawa, Kushi, 1964).

Recent investigations of the ultra-weak visible luminosity of the human body have applied direct biophoton detection by ultra-sensitive light-amplified CCD cameras that accurately

record subtle diurnal fluctuations in the distribution patterns within human biophoton fields over time. The re-emission of absorbed photons observed in living cells is identified as 'delayed luminescence' in the hours after exposure. Multiple sources comprise the perpetual and spontaneous biophoton emissions of all cells. Biophysicist, Popp and his research team have reported a remarkable series of images of the weak human glow during traditional acupuncture and moxibustion therapies (page 15), clearly revealing the left-right symmetry of the healthy body and **biorhythmic cycles of 14 days, 1 month, 3 months and 9 months**.

Evidence of concurrent, progressive, or synchronized entrainment and transmutations

Phión has undertaken many experiments where the results or outcomes defy classical science. However, while answers may lie in quantum science, the material and chemical changes that are recorded in the following examples, cannot be fully explained. Clearly, in some cases energy entrainment has occurred and minerals have undergone transmutation into other elemental forms.

Energy can be in many forms, such as electro-magnetic energy of sunlight, magnetic, gravity, etc. Observation of energy production can stimulate information; however, the mechanism of the energy formation and its sources can be a mystery.

For example, in a **Phión** experiment to make an improved form of magnesium oil in a stainless-steel container, the following and unexpected things happened; and the source of the energy to make it happen is still not solved.

Below is the image of the stainless-steel pot that contained seawater, concentrated sea water, dead sea minerals and Himalayan salt, and these ingredients were heated to 100⁰ C and left to cool to room temperature. Within 10 days the pot was transformed through a natural energy source.



The pot continued to disintegrate after 10 days with other splits forming and opening plates out in a rose like pattern. This is the 3rd pot destroyed using this technique and formulation. Has a subtle and vortex energy changed the metal integrity of the pot? Certainly, this pot contained the ingredients (an elemental soup with water and light) for energy production and perhaps the trigger for life.

While there was no known, spontaneous emergence of life from this pot, it does leave many questions to ponder: what form of energy was generated from this *elemental soup* is a fascinating potential piece of the puzzle to life's evolution, ie. entraining the energy of inanimate matter to create the form and power of life.

It is likely that water first appeared in a structured, six-sided crystalline form because the combination of light and movement created this natural form. Seawater then developed with a % composition of minerals that remains relatively constant, and with chlorine and sodium as the primary minerals (eg. NaCl), and along with Potassium (K) are fundamental to cell function.

The table below illustrates the dynamics of water treated with a **Phión** MEA water device and the potential for oxidation and reduction of oxygen, and potential transmutation (*C L Kervran, Biological Transmutations*) of minerals in a magnetic (energy) field in the presence of biology.

Modern science has not yet identified the primary source of the entrainment of photonic and acoustic energies that differentiate living and inanimate matter. Vibratory relationships observed among the atoms comprising bodies and all matter are recognised as the essential key for understanding elemental nuclear transmutations, opening the door to atomic resonance. The symphony of atoms in a crystal lattice (eg. water, salt minerals) generates the dynamic relationships that facilitate the natural low energy conversion of one element into another. The precise framework of photon resonance reveals a new class of resonant atomic re-combinations that occur at critical temperature thresholds (as observed in the structural changes in the pot, mentioned above) This reveals the underlying mechanism for precision temperature regulation in warm-blooded animals and exact temperature range requirements exhibited by the innumerable abundance of lifeforms.

Molecular entrainment

The one thing that science can generally agree on is that parts of organisms are interdependent. These parts are coordinated and have obvious interactions: otherwise, there is no life. It is now widely agreed that molecular reactions in organisms are controlled by the modification of the position of the electrons in their orbit (ie. by their energy), at the sub-atomic level, that enables reactions to occur.

The electromagnetic fields of organisms are not merely the unconscious expressions of cellular functioning. Organisms, over long evolutionary time, have learned to use these fields as a communication medium, to intentionally insert information into cells or groups of cells (organs and systems). The constantly interweaving flow of information-loaded electromagnetic fields is part of the communication dynamic of organisms within ecosystems, and an aspect of coevolutionary bonding and dependence. This concept is fundamental to the practice of **biodynamic** farming or food production, ie. the material forces are interconnected with the astral forces to energise life (as espoused by **Rudolf Steiner** 1861 –1925). A central aspect of biodynamics is that the whole farm is an organism.

Electro-magnetic fields are used not only for supporting the integrity of the organism for strengthening physical structure and healing it when damaged, but also for deterring hostile organisms (like the phytotoxins that a plant expresses when threatened). Perhaps even more importantly, these fields are used to strengthen cooperative interactions (communication) among organisms within ecosystems, as part of survival strategies.

Cells within human bodies are interwoven as *loving or nurturing bonds*, and represent the long-term intermingling of supportive, cooperative, coevolutionary electromagnetic fields that are continually embedded with complex information since the start of life in the womb. The entrainment of energies between family members is part of an ongoing connection.

Plants, like all living organisms, generate and respond to electromagnetic waves. They use many internal electromagnetic communications, just as we do, for healing and for normal physiological functioning. Plants are composed of millions upon millions of cells and have very sophisticated *central nervous* systems.

In many respects, plant electrical systems are nearly as sophisticated as a human, and in some plants, nearly as rapid in their actions. Plant systems possess synapses, and they make and use neurotransmitters that are molecularly identical to those that are found in human brains. Plants use these neurotransmitters to facilitate the function of various cellular system (eg. nervous), in the same manner as humans and animals.

Plant communication systems perform many of the same functions as humans. They help process, decipher, and coordinate external and internal impulses to maintain the functioning of the organism. A major element of this functioning is their recognition of signals, the decoding of meaning, and the crafting of responses within ecosystems.

It has been demonstrated that excitation of communication is conducted by the phloem of the vascular bundle, and that **conduction** in this tissue can be modified experimentally by the same means as it is in animal nerves. The **entrained excitation of energy** at a cellular level is fundamental to life.

Plant cell systems are also sensitive to electromagnetic fields. They use the electromagnetic energy of the sun in photosynthesis. This light **entrainment** emerged as a cellular expression specifically to work with the electromagnetic spectrum. However, the range of the sensitivity goes far beyond the spectrum of visible light. Plants can detect and respond to the broadband of electromagnetic signals, as can all organisms.

Humans, like plants, are evolutionarily designed to entrain energy fields, just as the originators of other energy fields are designed to entrain human energy. The information embedded within those fields, eg. emotions, excited cells, heart rate, hormonal cascades, pressure waves, and neurological activity.

For example, it is possible to have an over-acidic or over-alkaline blood situation due to entrainment. This occurs when a person's lifestyle entrains cell-disrupting vibrations from acid

(*heavy metal*) music, drugs and medications, life-degrading emotions, and thoughts, and holding onto these emotions and thoughts; to exhaust the body's alkaline mineral reserves (or essential acids in the case of an overly alkaline blood). In the case of an acidic blood, the blood pulls alkaline mineral salts from the body tissues and bones and creates ammonia in the blood. This ammonia can over time produce excess blood alkalinity. In these situations, it is best to alkalise the blood with the consumption of alkaline minerals (high in complex salts and fresh leafy green vegetables) so that it and the blood will return to a normal or balanced pH range (about 7.38-7.39).

The electromagnetic information imbedded in intentional emotions (eg. love or hate) that are sent outward, affect the external electromagnetic fields of any living cells (microbes, plants, animals, and humans). Through such directed communication and perception, an information exchange occurs through **entrainment between living things** and the world (in its many atomic forms).

Such interchanges are a part of what it means for us to be human, and these exchanges (entrainments) have been a part of our interaction with our environment since we emerged (as humans) out of the *living field* of this planet. However, without structured water in cells the information of these energies cannot be fully entrained.

Similarly, without the entrainment of energy in the presence of structured water, then **transmutations of elements** would not occur. The strength of the negative charge (numbers of electrons) of the **structured water determines the capacity of entrainment and transmutation**.

Examples of transmutation in seawater are described on pages 18-19 above. Also, according to Louis Kervran seawater contains far too little calcium to account for the rapid production of a shell (the calcium content of sea water is about 0.042% and a crab can form a new shell in little more than one day). If the entire body of a crab is analysed for calcium, it is found to contain only enough calcium to produce 3% of the shell (even considering the calcium carbonate stored in the hepato-pancreas just before molting). Similarly, in the experiment by Phi6n (page 19) the calcium in seawater increased by 20-fold (along with Strontium) over time. Even in water completely devoid of calcium, shellfish can still create their calcium bearing shells as shown by an experiment performed at the Maritime Laboratory of Roscoff: *A crayfish was put in a sea water basin from which calcium carbonate had been removed by precipitation; the animal made its shell anyway. (Kervran 1972, p.58)*

Structured or hexagonal water is found surrounding **healthy DNA**, whereas **unorganized, unstructured (pentagonal) water is found surrounding the DNA of diseased tissue**. Clearly, entrainment of life-affirming (syntropy) energies can only be fully realised through structured water, and when the cells are fully charged (-mV) with structured water, the processes of transmutation can be fully achieved.

There is also evidence that structured water activates enzymes to a greater degree than ordinary (unstructured) water, and this enhances metabolic efficiency. Structured water has the capacity *to perform more work* and to transfer a greater amount of energy within the body.

We know that the total amount of water within the human body decreases as we age, but it is also being shown that the amount of structured water decreases as well. That is, ***the amount of structured water in cells is directly correlated with age***. All biological molecules require structured water to perform their functions, however when biological molecules are found in unstructured water, they are *just compounds*, and have a decreased ability to perform intended functions.

Dr. Gabriel Cousens MD, coined the term *Subtle Organising Energy Field' (SOEF)* in his book *Spiritual Nutrition and The Rainbow Diet*, describes an energetic theory of nutrition which states that our physical bodies are templated on SOEF's. When balanced, organised, and functioning at its peak, the body is in a state known as **syntropy** (negative entropy) and anti-aging. However, when the organising energy falls into a state of chaos known as **entropy** (ie. loss of cell negative charge or change in polarity towards a positive charge: +mV); the cells become diseased (eg. cancer). If a SOEF is blocked or depleted, the flow of life force energy through the *energetic continuum* of life becomes deficient. However, SOEF's can be energised with structured water. Consequently, the cells of the body naturally energise through the *chakra* system, oxygen, sunlight, water, and food. However, when those sources are themselves depleted of syntropy energy, this condition can negatively impact our lives and may show up as symptoms such as pain, fatigue, and disease.

The subtle, syntropy, organising energies are the source of all frequencies, although not a frequency in themselves. These organising frequencies cannot push your body out of balance. The body takes what is needed at any moment for healing and returning the organism to balance. When cells are empowered by these organising energies, the body produces its own healing effects. The organising energies (ie. the SOEF as defined by Cousens) are simply the natural catalyst for this self-healing process. **Phi'on** has undertaken experiments using 108 natural frequencies, organising energies embodied in the Quantum Code Technology (QCT) developed by Robert Williams (US) to **entrain these subtle energies into structured water** through a **Phi'ón** bottle top device. **Phi'ón** water devices and structured water can permanently hold these 108 natural, organising energies. So, when this structured water with the entrained organising energies is either held in a hand or consumed, cellular stress returns to a balanced or normal state with 2-3 minutes.

Conclusion

The **forces of entrainment and transmutation** operate within human cells as syntropy in the organisation of regulation and healing. These energies can achieve their fullest potential when the intra-cellular and extra-cellular waters are structured in a complex form.

Structured water is highly responsive to natural energies (entrainment), and acts as an interface with the body's bio-energetic system in the translation of information to minerals (and compounds like vitamins) that are the basis of wellness. Structured water has a high solubility for minerals to enable **transmutations**. Therefore, if the diet and drinking water is high in elements that support transmutations (eg. oxygen, hydrogen, iron, chromium, manganese, silica, calcium, magnesium, etc.) then cells can establish pathways to healing. Similarly, if the human body has adequate exposure to natural light (sunlight) and the energies of the natural environment, the cells can **entrain** information to the structured water to enable perfect **transmutations**.

The more highly structured water becomes, the more organised and complex the crystalline patterns are formed in the water (dynamic in time and space). Consequently, the water moves to a higher state of syntropy or geometric integrity. When structured water is in this higher state of energy, it is open to receive the life-affirming energies of light, sound, frequency, and non-frequency (organising) energies. The so-called *healing waters* of the Earth are in this heightened state of energy. Therefore, when it comes to the water in our cells, the more syntrophic (non-entropic) the water, the more energy it contains and therefore the more information it stores to support the integrity of the cell (eg. DNA, genes, and memory functions); and cellular regulation and healing.

Unfortunately, de-structured (entropy) water has now become the default water for drinking, bathing, medications, laboratory experiments and food production. It is now time for science to embrace the energy properties of water and focus less on the physical properties of water.

There are potentially, infinite possibilities for **Phión's** structured or syntropy water to heal the Earth as an organism.

*Cells can recognise extremely subtle differences in **electric fields, noting their waveforms, amplitudes, and frequencies**. They can decode them, decide how to respond, and initiate a response. Cells also recognise other communications, other languages (waveforms) from the environment. This sensitivity to subtle communications in the electromagnetic spectrum is not limited to cells. Even enzymes and molecules recognise and process different electromagnetic frequencies. These kinds of oscillations, or wave signals, make up one of the primary languages used by all self-organising systems.*

Stephen Harrod Buhner, poet, author, and healer