

Earth Generated Water



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This paper examines the evidence for the presence of primary water or Earth generated water as a major source of water supply for the future needs of humans and animals. There is a major issue with perceptions held by some public scientists, bureaucrats, environmentalists and sceptics that primary water (as a continuous supply of water from the Earth's crust) is unproven. Dogma says that our water exclusively originates from the hydrological cycle, but this begs the question: how did the Earth kick-start the hydrosphere and this cycle?

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Introduction

There is a looming global water crisis, particularly for urban areas. Rural areas in most countries are also under pressure because they do not have access to the large surface water storages of major cities and regional towns. While some irrigation areas will manage on limited supplies, many dryland farmers have had their groundwater supplies cut, and this water is often the main source of water for their enterprise. Most people rely heavily on surface water supplies that will always be limited, and perhaps become increasingly polluted.

Undoubtedly, nations must become more efficient at water use and minimise water wastage. Also, there is a pressing need to make more water potable (drinkable) and therefore make existing water supplies more sustainable and useable. These strategies alone will not secure the water reserves that the economies need for nation building. However, there is a new source of water that is available for all and yet is not part of the national plans.

About 4 billion people globally, depend on groundwater for drinking and food production. However, this shallow groundwater water is being depleted or contaminated at an unprecedented rate. The world is on the edge of a huge, and little understood, catastrophe.

There is a need for a new perspective and understanding about the water resources on the Earth and methods to tap into water resources that are currently not been used. These untapped resources are potentially greater than the ocean volume and confined with the Earth's mantle. Importantly, there are Earth mapping data sources from satellites (radar and reflectance) and airborne sensing (magnetic, gravity, radiometric/gamma-ray) that provide a means to locate

deep-seated groundwater sources that are currently rarely used to supplement water supply systems.

A 2005 book (*A Voyage of Discovery*) by Emeritus Professor Lance Endersbee AO (former Dean of Engineering and Pro-Vice Chancellor of Monash University, Victoria, Australia) provides an impressive outline of Earth Generated water science, and the misconceptions in current water science about the origins of water on Earth.

A New Perspective on Earth Water Resources

Firstly, we must ask, how was water first produced within and on Earth, and in such great quantities, and does this production system still exist today?

Most people would not have thought about the source of water on Earth. Most scientists do not have a clue. So, where did this water come from to cover 71% of the Earth surface as Ocean (96.5% of surface waters) and up to 9 Km deep in some places. The fundamental question is: was this water present on the Earth on day 1 and did the land develop out of the water, or did the water form from the Earth or land mass? It is very unlikely that water arrived from outer space, or suddenly the Earth created a hydrological cycle and this capacity expanded to create rain that provided the surface water. The origin of water on and within the Earth needs to be coupled with the theory of the expanding Earth, albeit that the theory is controversial among academics and particularly geologists who largely follow the *continental drift theories by plate tectonics, along with a theory of a static Earth mass.*

However, there seems to be general acceptance that the universe is expanding or accumulating, so why isn't the Earth expanding or accumulating in unison with the universe, or is the Earth an anomaly? In 1929 Edwin Hubble, working at the Carnegie Observatories in Pasadena, California, measured the redshifts of several distant galaxies. He also measured their relative distances by measuring the apparent brightness of a class of variable stars called Cepheids in each galaxy. When he plotted redshift against relative distance, he found that the redshift of distant galaxies increased as a linear function of their distance. The only explanation for this observation is that the universe was expanding.

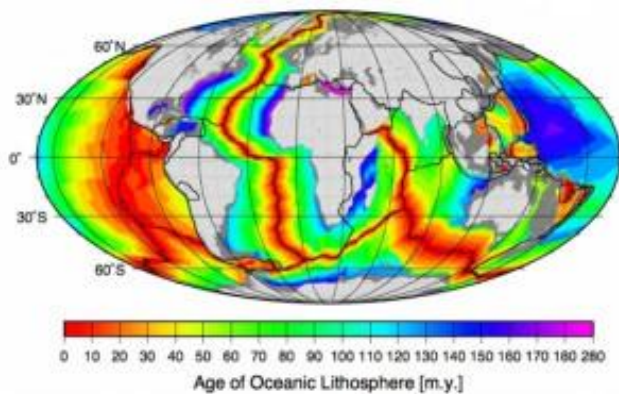
Once scientists understood that the universe was expanding, they immediately realised that it would have been smaller in the past. At some point in the past, the entire universe would have been a single point, and perhaps there was no Big Bang. The expanding universe is finite in both time (as we know it) and space. The reason that the universe did not collapse, as Newton's and Einstein's equations said it might, is that it had been expanding from the moment of its creation. The universe is in a constant state of change. The expanding universe, a new idea based on modern physics, laid to rest the paradoxes that troubled astronomers from ancient times until the early 20th Century.

However, ideas about an expanding universe have been around for some time. Interestingly, Genesis 1: 9-10 had an expansion theory in this respect (ie. ⁹ *And God said, Let the water under the sky be gathered to one place, and let dry ground appear. And it was so.* ¹⁰ *God called the dry ground land, and the gathered waters he called seas. And God saw that it was good).* On the other hand, the domain of natural sciences has different belief systems and consequently

different agendas for explanation about how the universe and Earth functions. However, if we take the ideas about natural self-organisation, where the energy field matter forms mass, then it is highly probable that the Earth is expanding and the water volume within and on the Earth is expanding.

In geology, a supercontinent is the assembly of the Earth's continental blocks or cratons to form a single large landmass. Supercontinents have assembled and dispersed multiple times in the geologic past. However, what would happen if the Earth grows or expands?

Seafloor spreading is a geologic process in which tectonic plates (large slabs of Earth's lithosphere) split apart from each other. This occurs at divergent plate boundaries as tectonic plates slowly move away from each other. Eventually, the crust cracks, and hot magma fueled by mantle convection bubbles up to fill these fractures and spills onto the crust. This bubbled-up magma is cooled by frigid seawater to form igneous rock. This rock (basalt) becomes a new part of Earth's crust.



New material has extruded out as part of **seafloor spreading** in what are now the middle of the oceans (red expansion joints in the image to the left). Oceanic crust underlies most of the two-thirds of the Earth's surface which is covered by the oceans. The ocean floor is the most dynamic part of the Earth's surface. As a result, no part of the oceanic crust existing today is more than 200 million years old, which is less than 5% of the age of the Earth itself.

Expanding Earth Theory and Water Generation

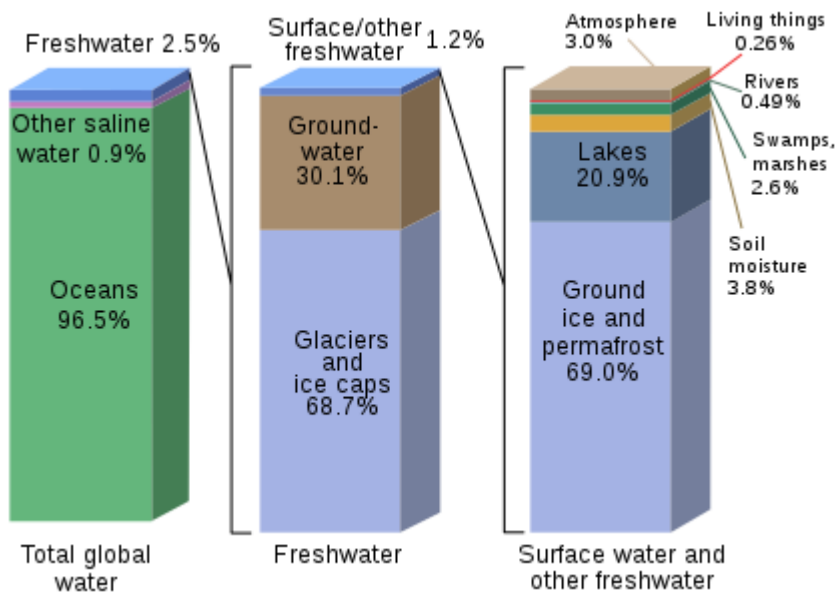
Growing Earth (Expanding Earth hypothesis) suggest that instead of the supercontinents theory the planet has expanded from its original supercontinent that was the whole Earth's surface or fitted together on a planet with a smaller volume, about 40% less mass than present.

Over the centuries there have been a lot of theories about a hollow earth and an expanding Earth and how or what processes could cause a planet to grow. There is a theory that water is generated within the Earth's crust or mantle and is often called primary or proton water and based on claims by Leonardo Da Vinci, Adolf Nodenskjold, Frank W. Clark, Svante Arrhenius, William Rubey, Stephen Riess, Michael H Salzman, Lance Endersbee and many others.

This water can be deep, often more than 300m to 3km underground in a never-ending source, as is the main water supply to Beirut from a bore in the adjoining mountains. Scientists probing the Earth's interior have found a large reservoir of water equal to the volume of the Arctic Ocean beneath eastern Asia. This seismic anomaly is under the Asia plate and within the mantle. Other such Earth generated water reservoirs exist within the Earth's crust and mantle.

Given that the Earth's oceans make up just 0.02 percent of the planet's total mass, this means the vast lower mantle could contain many times more water than floats on the planet's surface.

The water distribution on the Earth is as follows:



However, as discussed above, the potential volume of water within the Earth's mantle is missing from the calculations in the diagram above, yet its **volume is potentially massively greater than that of the ocean; and most of it is fresh water.**

If our planet did not have the ability to store oxygen in the deep reaches of its mantle there would probably be no life on its surface. This is the conclusion reached by scientists at the University of Bonn who have subjected the mineral Majorite to close laboratory examination. Majorite normally occurs only at a depth of several hundred kilometres under very high pressures and temperatures. The Bonn researchers have now succeeded in demonstrating that under these conditions Majorite stores oxygen and performs an important function as an oxygen reservoir. Near the Earth's surface the structure breaks down, releasing oxygen, which then binds with hydrogen from the earth's interior to form water. Without this mechanism our Blue Planet might well be as dry and inhospitable as Mars is today. The findings of the Bonn-based scientists have been published in the journal *Nature* ([doi:10.1038/nature06183](https://doi.org/10.1038/nature06183)).

Also, Japanese researchers say Molten rocks deep in the Earth's interior may be surprisingly wet. From laboratory experiments, they have concluded there may be more H₂O deep underground than in all oceans, lakes, and rivers combined. The scientists first heated mineral cocktails to a white-hot 1600 degrees Celsius (2900 degrees Fahrenheit) and squeezed them until the pressure reached more than three million pounds per square inch (200,000 kilograms per square centimetres). Then they cooked the samples for an hour. The experiments replicated the environment and conditions deep in the Earth. Based on what they witnessed in their laboratory, the researchers concluded that more water probably exists deep within the Earth than is present on Earth's surface: as much as five times more. *Our results suggest that the lower mantle can potentially store considerable amounts of water, said Motohiko Murakami of the Tokyo Institute*

of Technology, where the experiments were conducted. The presence of water in the crystal structure of [deep-Earth] minerals would be expected to soften the minerals and change their flow behaviour, he added. That, in turn, could affect how the innards of the planet mix and shift over time, and could indirectly affect conditions and forces near the surface, such as plate tectonics.

Research undertaken by Stephen Riess in 1934 showed enormous quantities of virgin (primary) water could be obtained from crystalline rocks. This involved a combination of geothermal heat and a process known as triboluminescence, a glow which electrons in the rocks discharge because of friction or violent pressure, that can release oxygen and hydrogen gases in certain ore-bearing rocks. This process, called cold oxidation, can form virgin or Earth generated water. Riess was able to tap straight into formations of hard desert rock of the right composition and produce as much as 8,000 litres per minute.

The Australian Academy of Science defines groundwater as the water that exists underground. While it can be present as underground lakes beneath the Earth's surface, it's more commonly the water that lies in the tiny spaces between grains of sand or bits of fractured rock. It's a bit like the effect you'd get if you poured water into a jar of sand or pebbles – the water wouldn't float to the top, but instead would settle in the spaces between grains, filling the spaces between sands or stones. That is, groundwater is considered by the Academy to be all water below the surface of the land. The problem with this definition is that soil water processes (say within metres of the surface) are quite different to water confined with a crystalline rock structure that might be 300-500m below the land surface.

Water on the Earth can be defined as follows:

- Atmospheric water is water vapour that comprises about 60% of atmospheric gasses.
- Seawater is water confined to the oceans or seas and represents the major component of water on the Earth surface.
- Land surface water is tied up in ice, dams, rivers or creeks, wetlands, ponds, etc, and often the most readily available water for drinking or reservoir storage. This water is a major part of run-off to surface reservoirs or flows and evaporation to the atmosphere.
- Soil water is all water within the soil system and confined between the upper most layer of soil (ie. the A horizon) and by either the uppermost clay layer (ie. soil C horizon) or rock strata. Most soil water is either transpired by plants or finds its way through lateral flows to the surface reservoirs or flows, eg. ponds, wells, creeks and rivers, etc. About 2% of soil water finds its way to the groundwater. Soil water is also the main salt transport system associated with salinity and this process is driven by soil health degradation (see papers at http://www.eric.com.au/html/papers_salinity.php)
- Groundwater is mainly water confined below the soil water between clay layers (aquitards in depositional systems) or rock strata in aquifers or fissures. This water can include buried rivers (paleo-channels, often at 100m deep) and unconfined aquifers that express water at the surface (ie. springs). Groundwater is the major source of water for bores. Groundwater is not the source of salinity as promoted by public science agencies.
- Earth generated water is created within the Earth's crust or mantle and found in the crystalline rock system often at depths greater than 300 metres (about 1,000 feet). This

water is the source of all water on the Earth and eventually reaches the groundwater, soil water and surface through vents and unconfined aquifers. Therefore, this water can eventually become part of the hydrological cycle once extracted or when it finds its way naturally to the surface. Earth generated water is also known as primary water, juvenile water and proton water.

The hydrological cycle primarily involves atmospheric, surface and soil waters. Groundwater is replenished mainly from Earth generated water (a variable rate based on flows within fissures, pressures, depth from surface, bore extractions, etc.) and 2% from surface or soil waters. The amount of Earth generated water available is unknown and not part of any public water accounting system, or public science theories. However, this Earth generated water source is potentially massive and significant in water access and usage terms.

Anyone involved in groundwater exploration knows that in rural areas divining or dowsing finds most groundwater and Earth generated water. The success rate of divining is high compared with traditional hydro-geological techniques that rely on geological structures to target locations. I have personally found that the combination of geophysical mapping, field observation and divining is the most reliable approach to groundwater and Earth generated water exploration.

Earth generated water supplies are providing huge volumes to many urban areas around the world and these sources continue to flow at the same rates over centuries/decades, eg. Beirut's water supply comes from bores in the mountains of Lebanon and similarly water is provided to Damascus through continuously flowing bores.

Earth generated water as fractured rock water is potentially the greatest source of sustainable water supply. However, this does not suggest that this water can be pumped at higher rates than can be sustained by pressure that moderates the flow rates. All groundwater or Earth generated water bores need to be assessed for sustainable flow rates (a rate that has no draw down, or the draw down level is recovered prior to further pumping).

The shallow groundwater system, along with surface supplies from rivers/ dams, etc. is at greatest threat from over exploitation. However, this water should not be accounted in the same manner as Earth generated water that is infinitely greater in volume and a major source of supply to the shallow groundwater system where most bores access these waters. Earth generated water is the least of all fresh waters sources that are exploited for human and animal consumption.

Water from the atmosphere (13,000 cubic km) is another major source of water that can be used as new water.

Earth Generated Water Theories

The key theory is that Earth generated water is formed deep inside the crystalline rock strata of the Earth's crust or mantle.

One view is that this water may be formed as a residue from volcanoes under the Earth's surface. These eruptions create gas that either escape to the surface as gas or turn into Earth generated water. That is, these gases are electrically and chemically fired into the rock itself and the rock fuses the water out.

Organisms within the crystalline rock structure may also be involved in an electrical and chemical reaction (remembering that marine organisms have been around for about 3 billion years or more and organisms within the rock system may have been around for much longer)

The modern-day theories on Earth generated water were first postulated by Adolf Nordenskiöld in the nineteenth century and raised in the book *A Journey to the Earth's Interior* by M.B. Gardner (1913). Nordenskiöld wrote an essay about Earth generated water which resulted in him being nominated for the Nobel Prize in physics.

In the 1930's, Stephan Riess, Bavarian-born mining engineer and geologist had a theory that Earth generated water was generated in the rock strata when the right temperature and pressure were present. This water is then forced into fractures/fissures in the rock where it transverse over 100's of km. Some of this water is sometimes expressed as springs and can be either hot (thermal) or cool (17 C). This water is always moving and therefore can be detected by dowsing.

The first experience with Earth generated water for Riess was an unexpected gush of water while working in a mine shaft. The temperature, chemistry and purity suggested to Riess that it must have a completely different origin than ordinary ground water considered part of the hydrologic cycle. Following further independent research, and building on the work of other eminent geologists, he concluded that in various rock strata, deep in the earth, water was continually generated under conditions of temperature and pressure and forced up in rock fissures where it could be drilled for and tapped.

Toward a New Hydrology

Conventional hydrology speaks of a static supply of water created once early in the Earth's history being constantly recycled. Stephan Riess saw new additions of water flowing vertically, from beneath the surface adding to the hydrologic cycle. This water in turn, becomes bound up on the surface partially in plants, sediments and subduction zones on its way back to the Earth's mantle.

These new additions occur frequently where there is faulted, igneous and metamorphic rock and can be intercepted to replace contaminated supplies and provide new sources of water in arid areas. Riess' concept of Earth-generated water adds a new dynamic to the science of hydrology.

Water from the Trinity Springs of the Idaho (USA) batholiths rises under its own pressure from an isolated, ancient source through the faulted granite quartz formations. The spring water spends time inside the Earth at temperatures exceeding 300F and surfaces at its source at 140F after travelling from a depth of many kilometres underground.

Ongoing research on the Trinity Springs water has revealed an interesting geochemistry and remarkable recharge/discharge and travel mechanisms for these thermal waters unlike any other water source in the region. The scientific investigation continues in laboratories specially equipped for high pressure experiments and with new techniques for isotope analysis.

Stephan Riess, through his study of mine flooding, developed a science of locating flows of Earth-generated water. These waters which often deposit minerals and flood out mines occur worldwide as spectacular springs and are even more accessible by drilling into hidden rock

structure. The Riess Institute's scientific application of petrology, mineralogy, structural geology, aerial reconnaissance and remotely sensed data, offers *new water* for a thirsty world.

Several active Riess wells today are:

1. Escondido, California: Riess and his successor, Morad Eghbal, each located several wells in the late 1970's on private property both for the personal use of the owner as well as for the commercial water development for surrounding towns that needed to purchase water. These wells are in operation and producing today.
2. Cottonwood, Idaho: The city of Cottonwood was running out of water and the traditional, professional geologists the city had hired to find water declared that there was no hope of success. The city then turned to Stephan Riess who immediately located two wells for them. The first generated more than 600 litres per minute. The second well produced over 1,200 litres per minute. At the city's request, Riess returned to locate a third well for Cottonwood's future expansion. This well produced over 1,200 litres per minute. All three wells continue to supply the city of Cottonwood today.

Conventional water locators pick a spot to drill, looking for an aquifer or saturated zone in the overburden. Recently, with sophisticated airborne geophysical and satellite data groundwater and Earth generated water can be in rock using a technique called fracture trace analysis. Large fractures are identified through analysis of the airborne and satellite data for exploratory drilling. An example of this technique can be viewed at

http://www.eric.com.au/docs/products/assessments/eric_ground_water.pdf

The Riess method uses mineralogy, petrology and structural geology precisely to locate high pressure/low temperature hydrothermal systems that have previously been encountered randomly by engineers in mine and tunnel flooding incidents.

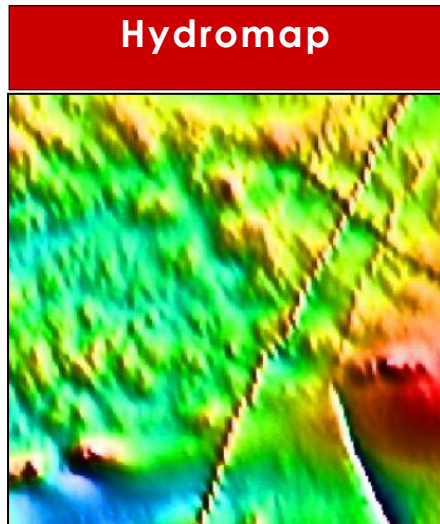
Historically, all water is believed to come only from the hydrologic cycle. Yet, a growing body of evidence suggests that water might be generated deep within the Earth in great quantity. The Riess Institute at its Totten Field Laboratory, over the last decade, has drilled, collected and tested waters captured from great depths in several bore holes. Totten well 3, at 2,000 metres, is known to be the deepest 10cm cored water research well in the continental US. Results from Totten 3 now indicate some waters there may not be part of the hydrologic cycle at all, but rather from deep-seated geologic interaction within the Earth's interior.

The Riess Institute identifies the dynamics of new water generation deep within the Earth's interior, which, after rising to the surface, is added to the Earth's hydrosphere. This vertical component of our model is linked to the horizontal components of water distribution (i.e. hydrologic cycle and theories of watersheds). As such, the Institute can obtain specific water signatures which identify sources of waters originating from deep within the Earth.

Mapping Earth Generated Water

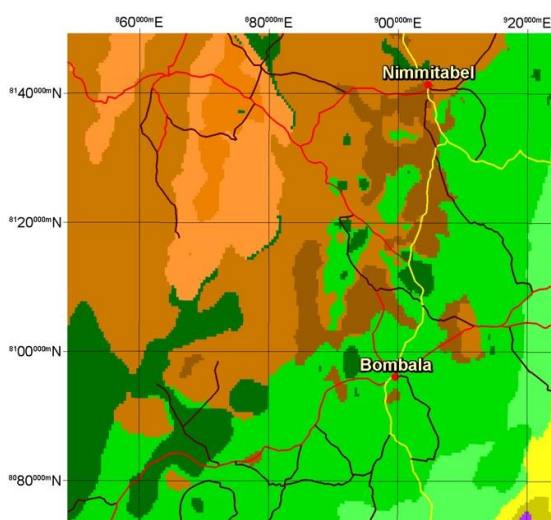
During the period from 1992-2003 Environmental Research and Information Consortium Pty Ltd (ERIC: www.eric.com.au) researched, developed and applied new techniques in mapping deep Earth generated water sources.

ERIC uses a wide range of digital data sources including magnetic, gravity, gamma-ray (radiometric), satellite reflectance, satellite thermal, satellite radar, digital elevation models (DEM). These data sets can be integrated in a classification process to produce composite data sets that reveal spectral and spatial coherent patterns that would not otherwise arise in a single data set. Other mapped data can be incorporated for map overlay (ed. Cadastre, DEM, existing groundwater bore sites and capacities, etc.)



The image on the left is an example of an ERIC map derived from digital magnetic data that highlights the underlying rock fracture system. This fractured system is possibly a deep groundwater source along with areas in the blue colours.

Below is a map derived from the integration of digital magnetic and gravity to determine potential areas for deep groundwater exploration, usually on the boundaries of patterns and along major fracture systems (ie, a NE to SW trending fracture dividing the major patterns in the image below).



The precise location for drilling a bore hole can be confirmed through a process of expert dowsing or divining.

Restructuring Drinking Water

Access to water is one global issue and equally, access to pure (unadulterated) water is another issue. About 99.9% of water that people are drinking globally, is de-structured, lifeless water that does not properly support cell regulation and healing. There are two types of water;

1. Structured water: water from pristine, flowing (moving) sources. This is the water that our ancestors drank directly from flowing water systems. This water is in a six-sided crystalline structure and carries a negative charge (mV)
2. De-structured water: water that is held in man-made structures (tanks, dams, pipes, etc.) is often contaminated and adulterated with fluoridation and chlorination, and carries a five-sided crystalline structure and has either a neutral or positive charge. Structured water can revert to de-structured water within 60 hours of removal from its pristine and flowing form.

Consequently, all water for drinking and food production needs to be supplied in a structured form to support life to its fullest potential.

Robert Gourlay developed the unique Magnetised, Energised and Activated (MEA) water devices. Robert is the Chief Scientist of Resonate Research Pty Ltd that has been granted 4 Innovation patents from the Australian Government for the MEA devices. These patents cover the capacity of the devices to produce water that permanently holds a natural negative charge (natural structured water), eliminates pathogenic microbes (eg. E. coli in raw milk and water), activates electrical capacity of microbes (eg. in soil and water) and can permanently hold and transfer to water natural healing frequencies.

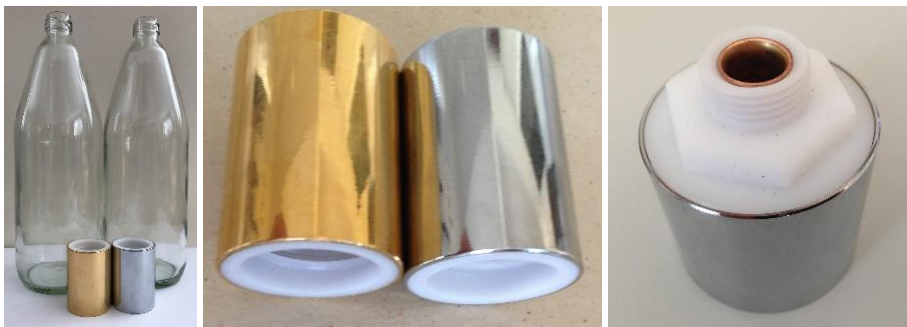
Structured water is water that has been activated or energised to permanently hold a negative voltage (- millivolts). Water structuring occurs in nature when water moves in a natural flow of vortexes (left and right turning or anti-clockwise and clockwise turning). Most wild (pristine) rivers and some springs produce structured water in the presence of sunlight energy and natural biological conditions. Electrical stormwater is in an energised, negative voltage form before it hits the ground, air particles (eg, smog) or a surface. Some spring waters are also energised through contact with magnetic forces in the groundwater rock strata.

Most water that humans and domestic animals now utilise is toxic. This toxic water includes rainwater that is exposed to air pollution, soil water contamination (soil water for plants), and water held in dams, tanks and pipes. The limited availability of clean, structured water is now a major limitation to a healthy life.

Phión (www.phion.com.au) has patented water devices (www.meawater.com.au) to produce a permanent negative charge in water. Daily consumption of this negative charge or structured water activates cell negative charge due to a higher rate of cell hydration (ie. the smaller cluster of water molecules in structured water enables water entry through the cell membrane). All life has cells that operate at their highest potential when the cell charge is negative (usually about - 50mV or above). That is, cell capacity for regulation, healing and renewal is at its fullest potential (anti-aging).

The Phión water technologies restore and energise water and enable water to dance a vortex frequency that frees or neutralises the water of its past, vibrational memory (ie. from exposure to human made toxins in the soil, water bodies and air) and reorganise the molecular structure of the toxins into life giving molecules or elements. That is, the water returns to its natural, structured state where it is free of its toxic load. Water in human-made structures, such as dams, tanks, pipes, ponds, etc. can be restructured and energised through Phión technology that replicates water cycling (vortex) processes in nature.

All disease starts when the cell charge of all living species changes polarity to a positive charge. This is the cell state when it loses its protection and integrity. That is, it has lost its life-force energy (syntropy force) and the decaying forces (entropy) are in full flight.



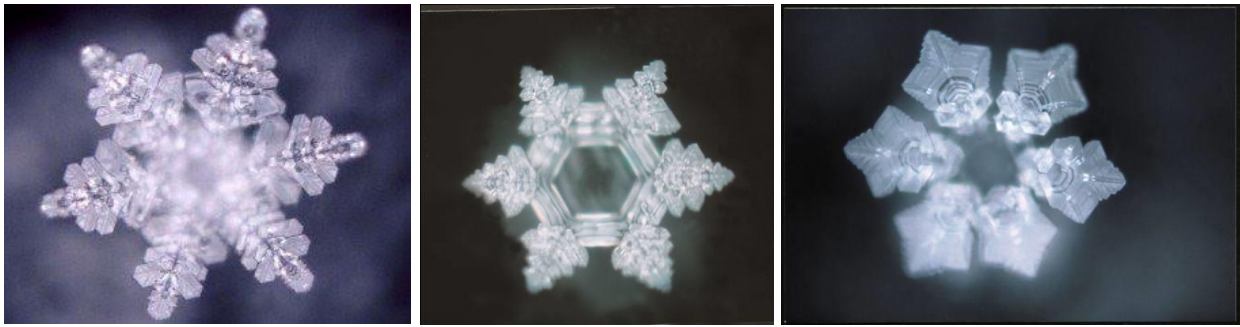
Left: Bottle top and under-sink, shower and outdoor tap and sprinkler devices.



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

The MEA water website at www.meawater.com.au provides over 20 essays written by Robert Gourlay (Chief Scientists of Phión) about structured water and the experiments undertaken by Phión's research companies to prove MEA water devices will permanently restructure water and hold a permanent negative charge (-mV).

While public research on water structure commenced in the 19th century, many of the unique properties of water are still unanswered. There is already an understanding that water molecules form an infinite dynamic hydrogen-bonded network with localised and structured clustering. The network of this bonding can be in millions of angles and connecting points to form a crystal and therefore crystals are dynamic, distinct and unique. When water freezes to ice it forms a solid-state, comprising a six-sided, hexagonal, crystalline structure (see images on page 12). These structures also form in crystal water (structured water).



The experimental results outlined below demonstrate the following major differences between the **Phi'ón Syntropy Water** and other commercial forms of structured water.

Phi'ón Syntropy Water	Other commercial forms of structured water
Holds a permanent negative (-mV) charge	Not claimed
Sustains increased surface tension	Not claimed or claims a low surface tension
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 beneficial microbial species in food production	Not claimed (albeit possibly demonstrated in some cases)

*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.*

Conclusion

Public science has ignored the concept and evidence of the presence of Earth generated water (deep groundwater) and failed to account for this water as a new water production source. The understanding, location and exploitation of this water has occurred outside of the public science system for centuries and is perhaps destined to remain that way unless public monies are expended in the assessment of this new water production source.

The public science consensus is that Earth generated water (primary water) does not exist and that all groundwater is part of the hydrological cycle and exploitation of groundwater reduces surface water supplies (ie flows in rivers). This science is wrong and must be challenged through the evidence.

Ultimately, governments worldwide will have to access Earth generated water to sustain water production for human and animal consumption, as this water along with atmospheric water are the only remaining new sources for thirsty populations. This is not to say that efforts to conserve water use should not be paramount in government planning. However, the utilisation of Earth generated water that is located within 100m to several kilometres of consumption areas (ie. urban and industrial centres) is more energy efficient to deliver than water piped over 10-100km to consumers.

It can be expected that during the current global water supply crisis, public scientists will promote a policy that groundwater is a *sacred cow* and should be left where it is. However, governments and organisations that control water resources will have to make alternative decisions and take risks to explore for deep groundwater resources before the crisis cripples economies (particularly in the Middle East, Africa and Asia).

The discussion in this paper provides one approach to integrate the theories of Earth generated water with solid mapping science and water restructuring science to provide potable quality water.