

# "Frequency and Coherence in Water and Living Systems"

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## **Abstract**

The concept of frequency and coherence is applied to water and living systems to account for phenomena such as “memory” for frequencies, the frequency signatures of chemicals, the presence of endogenous frequencies on acupuncture meridians and chakras. Frequency entrainment by environmental frequencies, by chemical signatures and by the frequencies in homoeopathic potencies provides a *formal link between acupuncture and homoeopathy*. It is suggested that the water “memory effect” involves line-splitting in the far-infrared rotational spectrum of water and that the multiple-frequency property of a coherent system translates this to other parts of the spectrum.

## **1. Some Definitions**

Following the adage of Mark Twain, “Get the facts right first, distort them any way you like afterwards!” the following definitions are an attempt to set down in simple language the concepts underlying frequency and coherence which will be applied, possibly with some distortion, to living systems and water.

**Waves** - Regular or periodic variations or pulsations in space and/or time; their shape is the waveform (e.g. sinusoidal, rectangular, triangular, pulse).

**Frequency** - The number of cycles of regular or periodic variations per second of some parameter. An oscillator is a generator of frequency.

### **1.1 Properties Associated with Waves and Frequency**

**Period** - The time between two adjacent corresponding points on a waveform, the reciprocal of the frequency is the period.

**Wavelength** - The distance in space between two adjacent corresponding points on a waveform.

**Amplitude** - The maximum, zero-to-peak, value of the oscillating parameter. Amplitude squared is the intensity and is proportional to power. The root-mean-squared (r.m.s.) value is  $1/\sqrt{2}$  of the peak value, it delivers the same power as a steady current or voltage having numerically the r.m.s. value.

**Phase** - The fraction of a complete cycle measured in degrees or radians (1 cycle =  $360^\circ$  or  $2\pi$  radians).

**Velocity of a wave** - Velocity equals frequency times wavelength (metres/sec = cycles/sec  $\times$  metres/cycle).

**Coherence** - An expression of the degree of constancy of phase, as for example between two oscillators or waves of nominally the same frequency, is a measure of the extent to which perfect coherence is achieved in a practical situation.

**Coherence Length** - The distance over which the coherence is maintained.

**Coherence Time** - The time for which the coherence persists.

## 1.2 Electric Charges and Electromagnetic Waves

Electrostatics describes the properties of electric charges (e.g. electrons or ions) at rest. These charges arise from the structure of matter and the chemical bonds by which matter is condensed from gas to form a solid or liquid. The force on a given charge due to other nearby charges is the measure of the *electric field* in which it is situated. The work done by this force if the charge moves is its *electric potential*. Magnetic fields have an analogous set of parameters, they occur when electric charge is in steady motion. If electric charge is accelerated or decelerated, the changes in the associated fields travel out into space at the velocity of light, this is *electromagnetic radiation*. If these changes are periodic at some frequency, a wave of oscillations at this frequency travels out into space with the separation between cycles being the *wavelength*.

**Energy in an Electromagnetic Wave** - The energy per unit volume of the space occupied by electric and magnetic fields is proportional to the square of the field strength. The power density is that power (energy/sec) crossing one square metre, it is called the "Poynting Vector" and is proportional to the product of the electric and magnetic fields. This applies to most technological oscillations, and it is these electric and magnetic fields which give rise to mechanical effects (electric motor) and thermal effects (electric kettle, microwave cooker). There is a critical volume of a field above which it will contain enough energy to overcome thermal perturbations and create a stable situation.

## 1.3 "Quantum Effects"

**Heisenberg's Uncertainty Principle** - Just as any material object cannot be sub-divided indefinitely since one must eventually come to its constituent molecules and atoms, energy ultimately is packaged into so-called quanta. For a single quantum of energy, the product of its position and momentum or, the product of its energy and time, both have a fundamental uncertainty associated with them. These products must be at least be equal to Planck's

Constant ( $h = 6.6 \times 10^{-34}$  joule-sec) divided by  $4\pi$ . They can only be determined with limited accuracy. The quantum can be in more than one place or energy state at the same time! It has a certain probability associated with being found in each condition. This representation of time and position unites and constrains microscopic and macroscopic phenomena within the limits of the *uncertainty* and opens a vista of novel and unexpected effects in coherent systems.

These effects involve small probabilities which may become significant if the frequency is very high, the distances are very small, or perturbing random fields from thermal vibrations are made very weak by extreme cooling. The energy of the quantum is proportional to its frequency (energy = frequency times Planck's constant). If a system is sensitive to a single quantum of energy, then it may also be sensitive to a single quantum of magnetic flux (approx.  $2 \times 10^{-15}$  Wb) and also to the magnetic vector potential component of the magnetic field (which cannot be shielded by iron), and have the 'Josephson Effect' available; this offers the possibility of an inter-conversion at 500 MHz/ $\mu$ V. All these can give rise to so-called "non-thermal" effects.

## 2. Summary of Research

**Since 1974** – The writer has been involved since 1974 in research on the 'Interactions of Electromagnetic Fields with Bio-Materials and Living Systems'. He cooperated in this with the late Professor Herbert Fröhlich. An early conclusion of this work was that there were anomalous magnetic field effects in water and living biological systems and that these were only explicable in terms of coherence phenomena.

**Since 1982** The writer first became involved in the diagnosis and therapy of patients 'Hypersensitive to their Electromagnetic Environment' in 1982 at the request of Dr. Jean Monro. Work with these electrically hypersensitive patients has given an insight into the extremes of sensitivity of which living systems are capable as evidenced when their regulatory control mechanisms fail.

These patients have a history of existing hypersensitivity to many chemicals, and/or foods and particulates. The autonomic nervous system appears to be the first body system to become involved. Patients may react in seconds to something in their environment, they can readily distinguish *verum* from *placebo*. The frequency and its coherence (precision) is the clinically important parameter. There is a threshold for the intensity or amplitude of the field at the patient for the onset of any effects but, once this is exceeded its value matters little until the onset of thermal effects; it is the frequency which is important. The effects of frequencies are unique to each individual. Some frequencies are therapeutic and these usually alternate with stressful frequencies. This alternation of the stimulatory-depressive effect of frequencies is a general phenomenon with few exceptions. The clinically effective frequencies range from below 1 milliHertz (1000 sec/cycle) to far above 1 GigaHertz ( $10^9$  Hz). Identical reactions can be triggered in a patient by chemical means and neutralised electrically, or triggered electrically and neutralised chemically. The clinical effects of environmental frequencies or chemicals can be reproduced by water contained in sealed glass ampoules after its exposure to coherent frequencies of an alternating magnetic field *without any chemical contact*. The unexposed water produces no clinical effects.

Chemical toxicity in these patients and also in cells cultured *in vitro* is manifest through the appearance of the chemicals' frequency signatures in the living systems. It has been possible to re-program the frequency imprints of a cell culture and have these frequencies transmitted correctly to cultured daughter cells. This demonstrates the lasting effects possible with homoeopathic therapy. The presence of frequencies which fluctuate to a limited extent over time is a sign of a normal healthy biological system. Chemical contamination restricts this activity by imprinting a chemical signature frequency. After a patient has been chemically detoxified, a "memory" of the toxin may remain in the body and this needs to be removed electrically or homoeopathically.

### 3. "Water Memory"

Clinically significant information can be imprinted into a vial of water by succussion in contact with a chemical or a homoeopathic "mother tincture". It is this *succussion* or sharp banging process of homoeopathic remedy preparation that creates a *potency*. Information from the patient can be collected if the patient holds and succusses a vial of water. This now contains an imprint of body frequencies and can then be wrapped in aluminium foil and mailed away for measurement. The information thus imprinted in water and homoeopathic potencies appears to be retained indefinitely unless it is heated to  $>70\text{ C}$  or, the geomagnetic field (nominally  $50\mu\text{T}$ ) is reduced by magnetic steel shielding to a little less than  $400\text{ nT}$ . An "Erased" potency is a useful "Control" or "Placebo" since it is chemically still the same material.

In general, water is like a blank sheet of paper, it can take up many frequencies successively imprinted by succussion. However, certain imprinting methods will only imprint a single frequency and erase all previous imprints in the process.

#### 3.1 Techniques for Writing Frequencies into Water

**Contact** through the glass of a vial of water immersed in a liquid containing the required frequencies; the high frequencies potentise quickly, the low frequencies may take hours or even days to imprint.

**Proximity** to a source of the frequencies (e.g. a chemical, "mother tincture", or potency) and mechanical succussion or, the application of a magnetic field from a strong permanent magnet will imprint the frequencies into the water.

**Toroid** Placing a (ferrite) toroid between the source of frequencies and the water will expose it to the frequencies with their stimulatory and depressive effects interchanged. Using a second toroid gives a second reversal and hence makes an exact copy of the frequencies. The water can be succussed to effect an imprint but, strangely enough this will also happen if a toroid is succussed. There is something going on in time and space which is not understood.

**Electric Pulses** A sequence of 7-unidirectional electric pulses will copy a potency to a water ampoule inside a metal beaker. Reversing the polarity of the pulses reverses the phase of the effect. Because of the need for the beaker, this seems to be an electric potential effect rather

than an electric field effect. An experiment using the very high electric field at a sharp metal point did not imprint water.

**Magnetic Fields** This requires an alternating current in a coil at the required frequency giving sufficient alternating magnetic field. If a toroidal coil is used, an additional magnetic field or succussion is also required. The toroid contains the magnetic field within itself but radiates the magnetic vector potential which appears as a chemical potential in the wave function.

**Window for Imprinting** There seem to be some very narrow windows of electric and magnetic field and radiation through which the frequency of an alternating field of that strength is imprinted into water with a latency period of about 5 seconds while at the same time erasing all previous imprints. This suggests that a Fröhlich resonance with a Bose Condensation of all frequency modes into a single giant mode is involved.

### 3.2 Techniques for Reading a Water Imprint

This presents a very great measurement problem because the coherent frequencies in living systems may be anywhere in the spectrum from below milliHertz to GigaHertz and beyond and do not seem to be classical electric or magnetic fields but rather quantum fields which for measurement must be converted to the former. Available techniques include:

1. Homoeopathic “Proving-Symptoms” and clinical results for electrically sensitive patients.
2. Dowsing (radiesthesia) detection of resonances in water and homoeopathic potencies excited by a coherent alternating magnetic field or potential. Imprinted frequencies are correctly detected. Characteristic coherent frequency signatures can be measured in most chemicals containing traces of water. These disappear after thorough drying but return when traces of water are added. No chemical signatures were found in the case of 100% halogen saturated molecules which have no H-bonds available to couple to the water.
3. Electrodes immersed in frequency imprinted water and connected to the input of a very sensitive, low-noise and narrow band amplifier can be made to detect the imprinted frequencies in the kilohertz region when the water is excited by that frequency. This technique is very difficult to implement consistently although imprinted frequencies have been correctly detected. The possible physical mechanism is one whereby charges entering coherent water domains must do so as pairs; this depletes the charge density at the water electrode interface resulting in an increased electrical resistance which in turn is converted to an input voltage by the small input current of the head amplifier.

## 4. Coherent Frequencies and Allergy Patients

In 1982, the possibility of producing a clinical effect from previously inactive water (or saline or alcohol) in a sealed glass ampoule by exposing it to an external magnetic field of a patient specific frequency was the first direct evidence that the scientific basis of homoeopathy must be sought in physics and not through chemistry. Each successive dilution and succussion of a potency generally introduces more frequencies.

In one case, involving an electrically hypersensitive patient, the frequencies of a prescribed homoeopathic potency were exactly those frequencies that the writer independently found the patient needed to have stimulated. In this case, the patient needed stimulation at: 1.5 Hz, 5.6 Hz and 1.6 kHz. The homoeopathic potency Calc. Carb. 10M had been prescribed by a homoeopath. Measurements showed that only the 10M potency of Calc. Carb. contained exactly these frequencies.

As another example, the following Table 4.1 shows the coherent frequencies imprinted into water by a patient having problems with *Candida albicans*. The frequencies of *Candida albicans* in serial dilutions #2, #3, and #4 (made as fivefold dilutions [1+4] by syringe) are compared. It is seen that only #3 contains frequencies that the patient needed to have stimulated and this was the clinically acceptable dilution.

**Table 4.1 Coherent Frequencies and *Candida albicans* Dilutions**

Frequencies are in Hz and the dilution # were made fivefold (1+4) by syringe

<u>Patient Imprinted Frequencies</u>	<u>Serial Dilutions of <i>Candida albicans</i></u>		
	#2	#3	#4
<b>0.13</b>		0.13	0.14
0.17			
<b>0.23</b>		0.23	
0.35	0.32		
0.56	0.52		
<b>0.62</b>	0.62	0.62	0.62
<b>0.71</b>		0.71	
0.76			0.75
0.86			
0.94	0.92		
<b>0.99</b>		0.99	0.99
1.1			
3.7			
3.4			
4.3			
<b>4.7</b>		4.7	
5.3			
<b>6.2</b>		6.2	
6.4			
6.6	6.6		6.9
7.6			
<b>7.9</b>		7.9	7.8
8.2			<u>8.4</u>
8.8			
9.3			
9.9			
<b>10.4</b>		<u>10.4</u>	
22			
32			
46			
52			
<u>63</u>			

## 5. Coherent Frequencies in Acupuncture and Homoeopathy

### 5.1 Endogenous Coherent Frequencies on Acupuncture Points

The acupuncture meridians are envisaged as communication paths or lines along which there are coherent endogenous frequencies. These may originate from coherence established as the organism develops from the embryo where the ectoderm, endoderm and mesoderm are in close proximity. Meridians of coherence could persist and grow as the organism develops until they link the acupuncture points to the target organs in the mature organism.

Frequency is the common factor linking acupuncture and homoeopathy. It was first observed that certain specific and highly coherent frequencies would stimulate the chakras; these are listed in Table 5.1.

**Table 5.1 Range of Frequencies Stimulating Chakras**

<u>Chakras</u>		Hz	to	Hz	Hz	$\pm$ Hz
Top of Head	Sahasrara	0.245	-	0.265	12.3M	$\pm 0.2$ M
Forehead	Ajna	2.88	-	3.04	148M	$\pm 2$ M
Thyroid	Vishudda	79.9	-	82.4	3.9G	$\pm 0.1$ G
Heart	Anahata	7.68	-	7.92	384M	$\pm 2$ M
Urbilical	Manipura	21.8	-	24.4	1.13G	$\pm 0.01$ G
Pubic	Svadhithara	79.9	-	82.4	3.9G	$\pm 0.1$ G
Base of Spine (coccyx)	Maladhara	79.9	-	82.4	3.9G	$\pm 0.1$ G

Mean High Band/Low Band Frequency Ratio:  $48.76 \pm 0.74 \times 10^6 (\pm 1.5\%)$

Mean Low Band Sensitivity Window:  $2.5 \pm 1.8 \%$

Mean High Band Sensitivity Window:  $1.7 \pm 0.9 \%$

The Ting acupuncture points on the hands and feet as used in electroacupuncture are listed in Table 5.2. The frequencies which stimulate these points were measured on the writer, by the writer and are listed in Table 5.3. Closely similar endogenous frequencies seem to be present on these acupuncture points, and these are also listed for comparison with the stimulating frequencies. Table 5.4 compares the frequencies on the all the Ting points for two persons. The statistics of these four Tables are more like those expected of physics than biology or medicine. There also is a surprising degree of interaction with external frequencies.

### 5.3 Entrainment of Environmental Frequencies

Although the bandwidth of a frequency on a meridian is only about  $\pm 2\%$  of its mean frequency the latter can be 'entrained' or 'pulled' by an external oscillation such as from an electrical oscillator or environmental source of radiation such as a computer, TV, mobile phone, etc. This entrainment may be up to  $\pm 30\%$  before the acupuncture point frequency jumps back to its normal endogenous value. Table 5.5 shows this effect at the heart acupuncture meridian (He9) for which the endogenous frequencies were 7.768 Hz and 382 MHz, these are shown at the top. Exposure was made at the high frequency band only by having the subject sitting in front of the output loop of a microwave oscillator for 3 minutes, after which the frequencies on acupuncture point He9 were immediately imprinted into water and measured. The microwave power density at the subject was estimated to be of the order of  $\text{mW/m}^2$ . The frequency measurements took about 5 minutes following the exposure by which time the acupuncture point frequency had reverted to the unexposed value. Table 5.5 shows that at 260 MHz and at 500 MHz there was no entrainment. From 270 MHz to 480 MHz, the frequencies measured on He9 had entrained to the exposure frequency and the low band frequencies had also shifted in proportion.

Table 5.6 lists the ranges of entrainment for the high and low frequency bands at all the Ting acupuncture points. The frequencies on the St45 points differed by a factor of about ten between the left and right foot. This effect is also to be seen in previous Tables.

### 5.4 Frequency Entrainment at the Du Mai Meridian - GV14

The acupuncture point GV14 is at the back of the neck, below the spinous process of the vertebra prominens. It reflects the status of the cerebro-spinal fluid and appears to be very sensitive to environmental frequencies. The natural or endogenous frequencies measured at GV14 were 4.301 Hz and 148.5 MHz. However, the range of frequency entrainment is enormous. Entrainment of the high frequency band extended downwards from 140 MHz to 10 Hz. The entrainment stops just before the lower endogenous frequency band is reached at 4.3 Hz. This forces the lower frequency band down from 4.080 Hz to 0.1760 mHz. Entrainment persists at least to the highest frequency tested namely 2 GHz, where the low frequency band had moved to 10.65 Hz. It was confirmed that GV14 would entrain mobile phone frequencies from an actual handset. However, GV14 will only entrain a single frequency; if two frequencies are presented by the environment, only the stronger signal is entrained. This suggests that a Bose Condensation is involved in the entrainment process whereby all the Fröhlich modes condense to a single giant mode.

Table 5.7 lists the frequencies measured in the vicinity of a TV and computer (486DX, 33MHz clock frequency). Those Ting acupuncture points which could be entrained by these frequencies are also listed. Whichever of all these frequencies was the strongest would have been entrained by GV14.

**Table 5.2 Ting Acupuncture Points (after Voll)**

These points are located on the skin at either corner of the nail bed

<b><u>Hands</u></b>	<b><u>Target Organs</u></b>	<b><u>Acupuncture Point</u></b>
<b><u>Thumb</u></b>		
Outside	Lymphatic tissue, Lungs	Ly1
Inside	Lungs	Lu1
<b><u>Index Finger</u></b>		
Outside	Large intestine	LI1
Inside	Nerve degeneration	ND1
<b><u>3<sup>rd</sup>. Finger</u></b>		
Outside	Circulation, Pericardium	Ci9
Inside	Allergy	AD1
<b><u>4<sup>th</sup>. Finger</u></b>		
Inside	Organ degeneration	Or1
Outside	Triple Warmer, Endocrine	TW1
<b><u>Little Finger</u></b>		
Inside	Heart	He9
Outside	Small intestine	SI1
<b><u>Points on Feet</u></b>		
<b><u>Big Toe</u></b>		
Inside	Spleen, Pancreas	Pn1
Outside	Liver	Liv1
<b><u>2<sup>nd</sup>. Toe</u></b>		
Inside	Joint degeneration	JD1
Outside	Stomach	St45
<b><u>3<sup>rd</sup>. Toe</u></b>		
Inside	Fibroid degeneration	FibD1
Outside	Skin degeneration	Sk1
<b><u>4<sup>th</sup>. Toe</u></b>		
Inside	Fatty degeneration	FatD1
Outside	Gall bladder	GB44
<b><u>Little toe</u></b>		
Inside	Kidney	Ki1
Outside	Bladder (urinary)	BL67

**Table 5.3 Comparison of Stimulating and Measured Frequencies**

<u>Acupuncture Points</u>	<u>Stimulating Frequencies</u>			<u>Measured Frequencies</u>	
	<u>Hands</u>	Hz	Hz	Hz	Hz
Lymphatic tissue, Lungs	Ly1	6.00E-02	2.95E+06	6.071E-02	2.920E+06
Lungs	Lu1	4.80E-01	2.36E+07	4.680E-01	2.120E+07
Large intestine	LI1	5.50E-02	2.70E+06	5.550E-02	2.750E+06
Nerve degeneration	ND1	5.50E-04	2.70E+04	5.524E-04	2.758E+04
Circulation, Pericardium	Ci9	5.00E-02	2.46E+06	5.230E-02	2.480E+06
Allergy	AD1	2.00E+00	9.84E+07	2.050E+00	9.400E+07
Organ degeneration	Or1	7.80E-02	3.85E+06	7.625E-02	3.800E+06
Triple Warmer, Endocrine	TW1	6.00E+03	* 2.95E+11	6.020E+03	>>
Heart	He9	7.80E+00	3.84E+08	7.770E+00	3.830E+08
Small intestine	SI1	2.50E-02	1.23E+06	2.507E-02	1.220E+06
	<u>Feet</u>				
Bladder (urinary)	BL67	5.50E+00	2.71E+08	5.538E+00	2.700E+08
Kidney	Ki1	9.50E-04	4.67E+04	9.502E-04	4.701E+04
Gall bladder	GB44	5.00E-02	2.46E+06	5.104E-02	2.430E+06
Fatty degeneration	FatD1	7.40E-01	3.64E+07	7.450E-01	3.620E+07
Skin degeneration	Sk1	3.50E-03	1.72E+05	3.582E-03	1.730E+05
Fibroid degeneration	FibD1	8.00E+02	** 3.94E+10	8.103E+02	>>
Stomach (right foot)	St45	4.40E-02	2.16E+07	4.425E-02	2.220E+07
Stomach (left foot)	St45	4.40E-01	2.20E+06	4.454E-01	2.250E+06
Joint degeneration	JD1	3.00E-01	1.48E+07	2.824E-01	1.450E+07
Liver	Liv1	4.80E+00	2.36E+08	4.648E+00	2.250E+08
Spleen, Pancreas	Pn1	5.50E-02	2.70E+06	5.606E-02	2.760E+06
Mean High Band/Low Band Frequency Ratio:		49.185 ±0.075 x10E6 (±0.15%)		48.61 ±1.47 x10E6 (±3.0%)	

\* Frequency calculated from wavelength of stimulating resonator = 1.02 mm

\*\* Frequency calculated from wavelength of stimulating resonator = 7.6 mm

Coefficient of Correlation Stimulated to Measured, Low Band: 0.99999920

Coefficient of Correlation Stimulated to Measured, High Band: 0.99977634

**Table 5.4 Comparison of two persons' acupuncture points frequencies**

<u>Person</u>		<u>CWS</u>	<u>EDS</u>	<u>CWS</u>	<u>EDS</u>
<u>Meridian</u>	<u>Hands</u>	<u>Hz</u>	<u>Hz</u>	<u>Hz</u>	<u>Hz</u>
Lymphatic tissue, Lungs	Ly1	6.071E-02	5.831E-02	2.920E+06	2.700E+06
Lungs	Lu1	4.680E-01	4.246E-01	2.120E+07	1.820E+07
Large intestine	LI1	5.550E-02	5.204E-02	2.750E+06	2.450E+06
Nerve degeneration	ND1	5.524E-04	5.272E-04	2.758E+04	2.400E+04
Circulation, pericardium	Ci9	5.230E-02	5.302E-02	2.480E+06	2.650E+06
Allergy	AD1	2.050E+00	1.972E+00	9.400E+07	9.200E+07
Organ degeneration	Or1	7.625E-02	7.303E-02	3.800E+06	3.600E+06
Triple Warmer, endocrine	TW1	6.020E+03	5.872E+03	>>	>>
Heart	He9	7.770E+00	7.705E+00	3.830E+08	3.740E+08
Small intestine	SI1	2.507E-02	2.442E-02	1.220E+06	9.900E+05
	<u>Feet</u>				
Bladder (urinary)	BL67	5.538E+00	5.330E+00	2.700E+08	2.570E+08
Kidney	Ki1	9.502E-04	9.205E-04	4.701E+04	4.565E+04
Gall Bladder	GB44	5.104E-02	4.950E-02	2.430E+06	2.040E+06
Fatty Degeneration	FatD1	7.450E-01	7.504E-01	3.620E+07	3.700E+07
Skin Degeneration	Sk1	3.582E-03	3.603E-03	1.730E+05	1.800E+05
Fibroid Degeneration	FibD1	8.103E+02	8.020E+02	>>	>>
Stomach (right foot)	St45	4.454E-02	4.302E-02	2.220E+07	2.020E+07
Stomach (left foot)	St45	4.454E-01	4.412E-01	2.250E+06	2.100E+06
Joint Degeneration	JD1	2.824E-01	2.543E-01	1.450E+07	1.340E+07
Liver	Liv1	4.648E+00	4.410E+00	2.250E+08	2.170E+08
Spleen, Pancreas	Pn1	5.606E-02	5.520E-02	2.760E+06	2.530E+06

CWS: Mean High Band/Low Band Frequency Ratio:  $48.54 \pm 1.46 \times 10^6$  ( $\pm 3.0\%$ )

EDS: Mean High Band/Low Band Frequency Ratio:  $47.22 \pm 3.28 \times 10^6$  ( $\pm 6.9\%$ )

CWS/EDS Low Band Correlation Coefficient: 0.99999806

CWS/EDS High Band Correlation Coefficient: 0.99989970

**Table 5.5 Effect of Environmental Exposure on Frequencies at He9**

Exposure Frequency Hz	He9 Low Frequency Hz	He9 High Frequency Hz
None	7.768E+00	3.820E+08
2.600E+08	7.718E+00	3.820E+08
<b>2.700E+08</b>	5.245E+00	<b>2.700E+08</b>
<b>3.700E+08</b>	7.652E+00	<b>3.700E+08</b>
<b>3.900E+08</b>	7.864E+00	<b>3.900E+08</b>
<b>4.000E+08</b>	7.933E+00	<b>4.000E+08</b>
<b>4.500E+08</b>	9.830E+00	<b>4.500E+08</b>
<b>4.800E+08</b>	9.657E+00	<b>4.800E+08</b>
5.000E+08	7.660E+00	3.820E+08

**Table 5.6 Range of Frequency Entrainment at Acupuncture Points**

<u>Acupuncture Points</u>		<u>Entraining Frequency Ranges</u>		<u>Entraining Frequency Ranges</u>	
		<u>Hands</u>	Hz to Hz	Hz to Hz	Hz
Lymphatic tissue, Lungs	Ly1	3.20E-02	8.50E-02	2.30E+06	3.70E+06
Lungs	Lu1	2.50E-01	7.50E-01	1.40E+07	3.30E+07
Large intestine	LI1	3.80E-02	7.00E-02	1.85E+06	3.60E+06
Nerve degeneration	ND1	4.20E-04	7.00E-04	8.00E+03	6.60E+04
Circulation, Pericardium	Ci9	3.20E-02	7.20E-02	1.30E+06	3.40E+06
Allergy	AD1	8.00E-01	3.80E+00	6.40E+07	1.58E+08
Organ degeneration	Or1	5.50E-02	1.50E-01	2.85E+06	5.50E+06
Triple Warmer, Endocrine	TW1	2.20E+03	1.50E+04	>>	>>
Heart	He9	4.50E+00	1.20E+01	2.60E+08	5.00E+08
Small intestine	SI1	5.00E-03	6.00E-02	7.90E+05	1.78E+06
	<u>Feet</u>				
Bladder (urinary)	BL67	3.00E+00	8.50E+00	1.20E+08	3.65E+08
Kidney	Ki1	7.40E-04	1.20E-03	1.80E+04	8.20E+04
Gall bladder	GB44	3.00E-02	7.00E-02	1.25E+06	5.00E+06
Fatty degeneration	FatD1	6.00E-01	9.00E-01	2.20E+07	6.00E+07
Skin degeneration	Sk1	2.00E-03	5.00E-03	6.50E+04	3.30E+05
Fibroid degeneration	FibD1	6.50E+02	9.50E+02	>>	>>
Stomach (right foot)	St45	1.00E-03	8.00E-01	1.00E+06	1.05E+08
Stomach (left foot)	St45	1.00E-02	1.50E+01	1.00E+05	2.65E+07
Joint degeneration	JD1	1.50E-01	4.50E-01	1.00E+07	2.00E+07
Liver	Liv1	1.50E+00	9.00E+00	1.50E+08	3.00E+08
Spleen, Pancreas	Pn1	1.00E-02	1.50E-01	1.56E+06	4.00E+07

Frequencies represent the limits of entrainment possible once an acupuncture point has been synchronized to an external oscillator.

**Table 5.7 Computer & TV Frequencies Capable of Stimulating Acupuncture Points**

Computer Frequencies	TV Frequencies	Acupuncture Points Stimulated
Hz	Hz	
	2.50E+01	
5.00E+01	5.00E+01	
7.00E+01	7.50E+01	
1.00E+02	1.00E+02	
1.50E+02		
2.00E+02		
2.50E+02		
3.00E+02		
3.50E+02		
4.00E+02		
4.50E+02		
5.00E+02		FibD 1
1.85E+03		
6.00E+03		TW 1
1.20E+04		
1.80E+04	1.60E+04	
1.00E+05		
1.50E+05		Sk 1
2.25E+05		
3.00E+05	3.20E+04	ND 1, Ki 1
4.50E+05		
5.00E+05		
6.00E+05		
1.00E+06		SI 1
1.50E+06		
2.00E+06		
2.50E+06		LI 1, Ci 1, GB 1, Pn 1
3.00E+06		Ly 1
3.50E+06		Or 1
4.00E+06	5.00E+06	Or 1
1.00E+07		JD 1
2.00E+07	2.25E+07	St45, Lu 1, JD 1
2.50E+07		Lu 1
3.00E+07		
3.30E+07	4.50E+07	FatD 1
6.60E+07		

**Table 5.8 Effect of Chemical Signatures on Acupuncture Points**

Acupuncture Point	Initial Freq. of A/Pt.	Freq. of NaCl	Freq. Holding NaCl	Freq. Holding “Hidden” NaCl	Freq. Holding “Recovered” NaCl
	MHz	MHz	MHz	MHz	MHz
SI1, small intestine	1.23	1.24	1.24	1.23	1.24
Or1, organ degeneration	3.80	5.1	5.1	3.85	5.1
FatD1, fatty degeneration	36.5	40	40	36.5	40

#### 5.4 Entrainment of Frequency Signatures of Chemicals

The frequency signatures of chemicals in contact with the body are as effective in producing frequency entrainment at an acupuncture point as those from an external oscillator should they happen to come within the entrainment range. Holding a glass bottle containing a chemical for just one minute is sufficient to entrain an acupuncture point from a nearby frequency to that of the chemical; it takes about 10 minutes for the point to relax back to its endogenous frequency.

The writer's personal sensitivity threshold for detecting the chemical frequency signature of sodium chloride as its solution is successively diluted comes at a concentration of about 0.3 ppm by weight using the dowsing method of measurement.

The first column of Table 5.8 lists the acupuncture points within the entrainment range of the chemical frequency signatures of sodium chloride as listed in the third column. The second column lists the endogenous frequencies at those acupuncture points. When holding a tube containing sodium chloride solution the frequencies on these meridians entrained to those for sodium chloride as shown in column three.

It is possible to “hide” the chemical frequency signature of a dilute solution so that it no longer entrains (Column 4). This is done by succussing it on one side (depending on the relative direction of the geomagnetic field) of an oscillator output coil at a particular frequency. One such frequency having this property is 1.42 GHz, this is the 21cm resonance of the hydrogen molecule. Succussion at the other side of the coil “recovers” the frequency signature and entrainment effects return (Column 5). Since this effect only happens with dilute solutions, it is possible that the sodium chloride molecules move inside the coherence domains where they would be screened from external fields.

## 5.5 Effect of Homoeopathic Potencies on Acupuncture Point Frequencies

Having found that both oscillator frequencies and chemicals can entrain the frequencies of the acupuncture points, that the next step was to use the frequency imprints of a homoeopathic potency instead of that of a chemical to see whether the body responded in a similar manner using the same protocol.

Three homoeopathic remedies all in the 6X (D6) potency were selected using Boericke's Repertory to find remedies relating to symptoms corresponding to target organs for the Ting acupuncture points. These were:

Kali Bichromicum: for which 'The special affinities of this are the mucous membranes of stomach, and air passages, bones and fibrous tissues. Kidneys, heart and liver are also affected.'

Vanadium: which is 'A remedy in degenerative conditions of the liver and arteries. Anorexia and symptoms of gastro-intestinal irritation...'

Petroleum: which is for '...catarrhal conditions of the mucous membranes, gastric acidity and cutaneous eruptions. Very marked skin symptoms, acting on sweat and oil glands ... chronic diarrhoea.'

The first column of Table 5.9 lists the frequencies found for each potency. The second column lists those acupuncture points having a stimulating frequency (Column 3) within their entrainment range. There seemed to be a single frequency in each potency which did not correspond to any Ting Point and there was no entrainment by this frequency. All the points selected were checked for entrainment while holding the potency.

These measurements were made by placing the tip of a water filled pipette against the appropriate acupuncture point on the right hand and imprinting the water by bringing a strong permanent magnet close up. The first measurement (Column 4) was made to check the state of the meridian and to confirm that no effect remained from previous measurements; the correlation between Columns 3 and 4 is very good. The second measurement (Column 5) was then made with the tablet of the potency inside a glass vial which was clasped in the palm of the left hand. This was repeated down the list of acupuncture points. The potency was only held for long enough to be able to make a frequency imprint into water at the acupuncture point. There was negligible bio-information retention and the following measurement could be made as soon as the experimenter was ready.

Comparing Columns 1 and 5, it is seen that the acupuncture point frequency moved quickly from its initial value to that of the potency being held. *This is evidence that the formal link between acupuncture and homoeopathy is in the commonality of the frequencies and changes in frequency involved in the potencies and the meridians.* It is necessary now to find out what these frequencies do and what they control in health and disease, and how they do it. Their coherence is quite remarkable.

**Table 5.9**  
**Effect of Homoeopathic Potencies on Acupuncture Point Frequencies**

Column 1	Column 2	Column 3	Column 4	Column 5
<b><u>Kali Bichromicum</u></b>				
Measured Frequencies Hz	Acupuncture Point	Stimulating Frequency Hz	Initial Frequency Hz	Frequency holding potency Hz
2.40E+00	AD1	2.00E+00	2.236E+00	2.406E+00
1.60E+05	Sk1	1.72E+05	1.720E+05	1.610E+05
2.80E+05				
1.30E+07	JD1	1.48E+07	1.480E+07	1.300E+07
9.60E+07	AD1	9.84E+07	9.850E+07	9.600E+07
<b><u>Vanadium</u></b>				
Measured Frequencies Hz	Acupuncture Point	Stimulating Frequency Hz	Initial Frequency Hz	Frequency holding potency Hz
2.23E-02	S11	2.50E-02	2.516E-02	2.282E-02
4.80E+00	Liv1	4.80E+00	4.780E+00	4.802E+00
"	BL67	5.50E+00	5.520E+00	4.802E+00
5.40E+05				
1.24E+06	S11	1.23E+06	1.230E+06	1.240E+06
3.30E+06	Ly1	2.95E+06	2.940E+06	3.300E+06
"	L11	2.70E+06	2.700E+06	3.300E+06
"	Ci9	2.46E+06	2.440E+06	3.300E+06
"	GB44	2.46E+06	2.460E+06	3.300E+06
"	Or1	3.85E+06	3.850E+06	3.300E+06
"	Pn1	2.70E+06	2.720E+06	3.300E+06
<b><u>Petroleum</u></b>				
Measured Frequencies Hz	Acupuncture Point	Stimulating Frequency Hz	Initial Frequency Hz	Frequency holding potency Hz
4.24E-03	Sk1	3.50E-03	3.532E-03	4.617E-03
4.70E-02	St45	4.40E-02	4.450E-02	4.820E-02
"	GB44	5.00E-02	5.006E-02	4.704E-02
"	L11	5.50E-02	5.530E-02	4.734E-02
4.80E+00	Liv1	4.80E+00	4.805E+00	4.780E+00
"	BL67	5.50E+00	5.484E+00	4.780E+00
2.95E+02				
6.04E+03	TW1	6.00E+03	6.014E+03	5.902E+03
1.75E+06	S11	1.23E+06	1.230E+06	1.720E+06
3.60E+07	FatD1	3.64E+07	3.640E+07	3.580E+07

Correlation Coefficients:

Col. 3 & 4 = 0.99999989; Col. 1 & 5 = :0.99999814

## 6. Theory of Coherence in Water

Coherence must be involved in the “memory” of water for coherent frequencies. Del Giudice and Preparata have considered the quantum field interactions of endogenous ultraviolet radiation (12.06 eV, 103 nm) in liquid water. They were able to show that a permanent coherence can become established and give rise to a long-range-order within domains 75 nm in size. This coherence is in the ground (unexcited) energy state of water. It is a fundamental property of liquid water; unlike the laser no energy pumping is required to establish this coherence.

At 300K, water is seen as a mixture of 28% coherent water in its 75 nm domains interspersed with the remaining 72% as incoherent or vapour-like water. It is the coherent water that has the “memory” properties. The incoherent water is responsible for the normal thermodynamic properties of water. The correct latent heat of evaporation and the correct low frequency dielectric constant are calculated only from this theory.

External radiation will interact with an entire coherence domain, not individual molecules. In a coherent system, the coherence length is constant, the velocity is proportional to the frequency. Imprinting coherent frequencies must result in coherent velocities being set up.

In a quantum system, memory effects would be de-localised in space and this of course is appropriate for a liquid medium. The domains of coherence can have a spin. Thus, they can align relative to the geomagnetic field, parallel or anti-parallel. This creates a two-quantum energy states system that could form the basic memory element for a quantum computer (known as a “qubit”). If the spin of a water domain gives the unit of quantum computation in water, this can be in both the ‘0’ and ‘1’ states simultaneously and in varying proportions. As mentioned in Section 3.1, it takes a train of seven electric pulses to copy a potency, this suggests a 3-qubit system (binary 000 to 111) or an octal-qubit system (0-7) is involved.

In a rotating system, frequency is inversely proportional to the moment of inertia. For rotating 75 nm domains, the observed ratio  $\text{Hz}_{\text{FIR}}/\text{Hz}_{\text{ELF}}$  would be given by a 50  $\mu\text{m}$  disk shaped domain comprised of coherent 75 nm domains. Other domain-of-domains shapes and sizes are of course possible.

This alignment of spins may require the geomagnetic field to stabilise it against thermal agitation and this may explain why the information imprinted into water and homoeopathic remedies is permanently erased by shielding the geomagnetic field (nominally 50 $\mu\text{T}$ ) so as to reduce it below about 400 nT.

### 6.1 Trace Water in n-Alkanes Points to Water Memory Mechanism

In 1991, the writer had to close his university laboratory following retirement. Before this, he measured the chemical signature frequencies of all the chemicals in stock. In the course of

this, ELF resonances were found in the n-alkanes when there was a trace of water present. In the n-alkanes, the resonances disappeared below about 14ppm of trace water.

If there are interactions involving the spectra of coherence domains in water and the characteristic molecular spectra of n-alkanes, these must be in the far-infra-red (FIR) rotational spectrum; n-hexane is widely used as a solvent in spectroscopy because of its clean spectrum over a wide range.

There needed to be some arbitrary restriction on the hundreds of rotational water lines which might otherwise have had to be considered. It was noted that the water lines at 28  $\mu\text{m}$  ( $357\text{ cm}^{-1}$ ), 47  $\mu\text{m}$  ( $213\text{ cm}^{-1}$ ) and 78  $\mu\text{m}$  ( $128\text{ cm}^{-1}$ ) can become coherent enough for use in a water vapour laser and hence should provide the necessary coherence for water “memory”.

The wave numbers of the above three spectral lines for water and those for the tabulated FIR spectra for the n-alkanes were considered. It was postulated that the energy gap for the observed water resonances might be related to their differences. These were compared to the measured ELF resonances in n-pentane and n-hexane as shown in Table 6.1. The mean of the FIR/ELF ratios given at the bottom of this Table is remarkably constant.

**Table 6.1**

**Relation Between Far-Infra-Red Spectra and ELF Resonances for Trace Water in n-alkanes**

<u>Wave Numbers from Spectral Tables</u>				<u>Measured Values for Resonances</u>			
<u>Pentane</u>	<u>Water-Laser</u>	Differences		FIR	ELF	ELF	Hi/Lo Ratio
				(1999)	(1991)	(1999)	(1991)
$\text{cm}^{-1}$	$\text{cm}^{-1}$	$\text{cm}^{-1}$			Hz		$\text{Hz}_{\text{FIR}}/\text{Hz}_{\text{ELF}}$
385	357	28			19.4		$1.70 \times 10^{11}$
385	213	172			29		$1.78 \times 10^{11}$
<u>Hexane</u>	$\text{cm}^{-1}$	$\text{cm}^{-1}$	$\mu\text{m}$	$\mu\text{m}$	Hz	Hz	$\text{Hz}_{\text{FIR}}/\text{Hz}_{\text{ELF}}$
385	357	28	357	358	4.2	4.141	$2.00 \times 10^{11}$
403	357	46	217	218	6.8	6.793	$2.03 \times 10^{11}$
450	357	93	107	108	13	13.11	$2.15 \times 10^{11}$
485	357	128	78	80	19.4	19.16	$1.98 \times 10^{11}$
403	213	190	53	52	26	26.51	$2.19 \times 10^{11}$
485	213	272	37	38	42	42.52	$1.94 \times 10^{11}$

**Mean Ratio:**  $1.97 \times 10^{11} \pm 0.16 \text{ Hz}_{\text{FIR}}/\text{Hz}_{\text{ELF}}$  or  $6.57 \text{ cm}^{-1}$  per  $\text{Hz}_{\text{ELF}}$

The measurements of frequencies at the acupuncture points and chakras given in Tables 5.1-5.4 also gave two branches of frequencies. The branch in the ELF is interpreted as corresponding to the velocity of coherence propagation. The measured value for coherence propagation along the human leg was 6 m/s. The other branch, in the RF, is interpreted as corresponding to propagation at the velocity of light *in vacuo*  $3 \times 10^8$  m/s. Both these frequencies and velocities are in the same ratio  $50 \times 10^6$  which is consistent with a coherent system where the coherence length is constant and velocity is proportional to frequency.

The ratio between the two frequency bands in Table 6.1 is  $1.97 \times 10^{11} \pm 0.16$ . The measured velocity of coherence propagation in bulk water ('Volvic' mineral water) is 2.6 m/s. This would put the velocity of FIR coherence propagation at about  $5 \times 10^{11}$  m/s, far greater than the velocity of light in free space. However, there is no *a priori* reason why such velocities should not occur within a system which is already coherent.

To get a definite reference velocity, a higher (RF) band of frequencies corresponding to those in Tables 5.1-5.4 was looked for in n-hexane. This was found as shown in Table 6.2. From the RF/ELF ratio and assuming the velocity of light, the velocity of propagation of coherence in trace water in n-hexane is estimated to be 5.82 m/s. This is twice the measured value for bulk water.

**Table 6.2**

**Relation Between RF and ELF Resonances for Trace Water in n-Hexane**

<u>ELF</u>	<u>RF</u>	<u>RF/ELF Ratio</u>
Hz	MHz	
4.141	220	$55.54 \times 10^6$
6.793	311	$45.78 \times 10^6$
13.11	615	$46.91 \times 10^6$
19.16	1070	$54.59 \times 10^6$
26.51	1250	$47.15 \times 10^6$
42.52	2440	$57.38 \times 10^6$
68.05	3640	$53.49 \times 10^6$

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$$\text{Mean RF/ELF Ratio} = 51.55 \pm 4.78 \times 10^6$$

$$\begin{aligned} \text{Calculated velocity of propagation of coherence through trace water in n-hexane} \\ &= 3 \times 10^8 / 51.55 \times 10^6 \\ &= 5.82 \text{ m/s} \end{aligned}$$

### 6.3 Coherent Systems and Velocities Greater than Light

The above results raise the question as to whether the theoretical FIR resonance frequencies for n-hexane do actually propagate within the coherent system at a velocity greater than the velocity of light in free space. Table 6.3 shows the frequencies, coherence lengths and velocities of propagation for the three frequency regions involved. The critical test for a velocity greater than that of light is whether or not the critical angle of refraction appears on the air side of the interface rather than on the water side. Preliminary measurements have found this does happen.

It appears that imprinting a frequency by any of the several methods described fixes the coherence length in the water. It corresponds to the imprinted frequency and one of the appropriate velocities. The other velocities determine the remaining resonance frequencies corresponding to this coherence length. The possibility of being able to imprint water by succession with a seemingly unlimited number of frequencies implies that a multiplicity of coherence lengths are possible.

**Table 6.3.**

#### **Frequencies and Coherence Lengths for Trace Water in n-Hexane**

<u>ELF</u>	<u>Coherence Length</u>	<u>RF</u>	<u>Coherence Length</u>	<u>FIR</u>	<u>Coherence Length</u>	<u>Mean Coherence Length</u>
Hz	m	MHz	m	THz	m	m
4.141	1.141	220	1.36	0.77	1.47	1.23
6.793	0.86	311	0.96	1.38	0.83	0.88
13.11	0.44	615	0.49	2.78	0.41	0.45
19.16	0.30	1070	0.28	3.75	0.30	0.29
26.51	0.22	1250	0.24	5.77	0.20	0.22
42.52	0.14	2440	0.12	7.89	0.14	0.13
68.05	0.09	3640	0.08	13.6	0.08	0.08

#### **Corresponding Coherence velocities:**

<u>ELF</u>	5.82 m/s	<u>RF</u>	$3 \times 10^8$ m/s	<u>FIR</u>	$1.14 \times 10^{12}$ m/s
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External radiation will interact with an entire coherence domain, not with the individual water molecules except where these are a part of the incoherent water. In a coherent system, the coherence length is constant, the velocity is proportional to the frequency. Many velocities and corresponding frequencies are possible in principle. There is no *a priori* limit to the upper velocity within a coherent system which is exchanging virtual photons if no mass or energy transfer is involved. An incoming wave interacts with the entire coherence domain; it will have a very low velocity for its propagation of coherence because of the large mass of each

domain. A second wave not interacting with the domains or individual molecules will propagate with the free space velocity of light at a proportionately higher frequency.

#### 6.4 Frequencies and Velocities in Bulk Water

The above relates to effects in trace water in n-alkanes. The next question is whether the same arguments can be applied to bulk water and by implication to the interaction between a homoeopathic “mother tincture” and water.

To investigate this, water was imprinted at frequencies between 0.001 Hz and 0.01 Hz (chosen for reasons of available frequency coverage). This water also showed corresponding resonances between 200 MHz and 2GHz giving a mean frequency ratio =  $1.98 \pm 0.07 \times 10^{11}$  Hz<sub>FIR</sub>/Hz<sub>ELF</sub>.

For the converse experiment, water was imprinted at frequencies between 200 MHz and 2GHz. This showed resonances between 0.001 Hz and 0.01 Hz with a mean frequency ratio =  $2.09 \pm 0.43 \times 10^{11}$  Hz<sub>FIR</sub>/Hz<sub>ELF</sub>. The worse standard deviation reflects the greater difficulties associated with the measurement of very low frequencies. There must be a phase comparison taking place since a measurement takes less than a single cycle of oscillations having periods between 1000 sec/cycle and 100 sec/cycle.

#### 6.5 The Mechanism of “Water Memory”

The crucial question is whether there are any measurable frequencies corresponding to differences between the FIR water lines alone and in the absence of the chemical spectra of n-hexane. The likely frequencies to look for were calculated as follows:

The difference between the water laser lines,  $357 \text{ cm}^{-1} - 231 \text{ cm}^{-1} = 144 \text{ cm}^{-1}$  (69  $\mu\text{m}$ ).  
Dividing this by the ratio  $6.57 \text{ cm}^{-1}/\text{Hz}_{\text{ELF}}$  gives: **22.6 Hz**.

Likewise, the difference  $213 \text{ cm}^{-1} - 128 \text{ cm}^{-1} = 85 \text{ cm}^{-1}$  (117  $\mu\text{m}$ )  
Dividing this by the ratio  $6.57 \text{ cm}^{-1}/\text{Hz}_{\text{ELF}}$  gives: **13.3 Hz**.

Also  $357 \text{ cm}^{-1} - 128 \text{ cm}^{-1} = 229 \text{ cm}^{-1}$  (44 $\mu\text{m}$ ) gives: **34.8 Hz**.

**Table 6.4****Resonances Measured in Water\***

<u>Frequencies</u>	<u>Interpretation</u>
21.97 Hz and 13.66 Hz	- interaction with the entire coherence domain
2.65 GHz and 1.42 GHz	- no domain interaction, free space velocity.
<u>Wavelength (Wave Number)</u>	<u>Interpretation</u>
68 $\mu\text{m}$ ( $\sim 147 \text{ cm}^{-1}$ )	- the fundamental molecular resonances as energy differences between FIR water lines.
116 $\mu\text{m}$ ( $\sim 86 \text{ cm}^{-1}$ )	

\*boiled, filtered tap water which had been “erased” in a mumetal box

The values in Table 6.4 are in good agreement with those calculated above. The mean ELF/RF frequency ratio =  $1.123 \times 10^8$  and this gives a coherence velocity for the water used = 2.49 m/s. The measured velocity in ‘Volvic’ mineral water was 2.6 m/s. Note that 1.42 GHz corresponds to the 21 cm spectral line molecular hydrogen.

The next experiment was to determine what happened to all these frequencies if an ELF was imprinted into the water by succussion. When water was imprinted by succussion with 10 Hz the frequencies in Table 6.4 were replaced by those shown in Table 6.5. where it is seen that imprinting at ELF splits the water line energy differences in the ELF, the RF and FIR. For this to happen, the FIR lines must be extremely coherent. In this case, the mean RF/ELF frequencies ratio =  $0.991 \pm 0.016 \times 10^8$  gives a coherence velocity in the imprinted water of 3.03 m/s.

The limited accuracy of measurements in the FIR makes it difficult to assign wave numbers. The measured  $364 \text{ cm}^{-1}$  is probably the  $357 \text{ cm}^{-1}$  line and the measured  $239 \text{ cm}^{-1}$  is probably the  $213 \text{ cm}^{-1}$  line. If the imprint frequency was greater than the endogenous frequency, only the sum frequency was detected.

**Table 6.5****Effect of Imprinting Frequencies by Succussion**

Frequency Imprinted	10 Hz
Frequencies Measured	32.15 Hz and 12.78 Hz = $22.6 \pm 10$ Hz 22.21 Hz and 3.196 Hz = $13.3 \pm 10$ Hz
	3.215 GHz and 1.25 GHz = $2.23 \pm 0.98$ GHz 2.17 GHz and 0.322 GHz = $1.25 \pm 0.92$ GHz
FIR Resonances Measured	
	24 $\mu\text{m}$ ( $416 \text{ cm}^{-1}$ ) and 32 $\mu\text{m}$ ( $312 \text{ cm}^{-1}$ ) = $364 \pm 52 \text{ cm}^{-1}$ 32 $\mu\text{m}$ ( $312 \text{ cm}^{-1}$ ) and 60 $\mu\text{m}$ ( $166 \text{ cm}^{-1}$ ) = $239 \pm 73 \text{ cm}^{-1}$

**6.6 The Synthesis of a Potency with Frequencies**

Water was potentised by succussion adjacent to a coil connected to an oscillator set to the frequencies previously determined for thyroxin D15. It was subsequently further potentised by serial dilution and succussion as far as D20. The frequencies measured for each potency from D15 to D20 were exactly the same as those measured for those potencies previously prepared from a “mother tincture” by Dr. P.C. Endler of the Ludwig Boltzmann Institute for Homoeopathy in Graz, according to conventional homoeopathic procedures.

**6.7 The Frequency Effects of Dilution and Succussion**

Water was imprinted by succussion at the simple basic frequency of 1 Hz. It was then serially diluted tenfold (1+9). The 1 Hz remained. When it was then succussed the 1 Hz disappeared and was replaced by 10 Hz. This happened for the other frequencies and dilutions tested. In general: the original 1 Hz disappeared and was replaced after succussion by a frequency = 1 Hz  $\times$  the dilution factor.

In allergy therapy, potentisation is done with a syringe. In this case, effective succussion as detected by a change in frequency only took place when the dilution was sucked up through the needle ready for the next dilution. This must be where and when the vortex succussion process is taking effect.

If potentisation is a quantum phenomenon, it is not likely to be a linear process. To determine whether the potentising effect is linear or discontinuous, water was imprinted by succussion at 1 Hz. Then, 10 ml aliquots were diluted in 10% steps and succussed individually.

The result was that the imprinted frequency remained at 1 Hz until  $4 \times 1$ ml had been added to the original 10ml representing a dilution ratio of 1.4. When the dilution was increased to 10 ml +  $5 \times 1$  ml (dilution ratio 1.5) the frequency jumped to 1.5 Hz. For dilutions from here to

10 ml + 9 × 1ml (dilution ratio 1.9) the frequency remained at 1.5 Hz. At 10 ml + 10 x 1ml (dilution 2.0) the frequency jumped to 2 Hz.

This was the general pattern at other dilution ratios. There were some exceptions. Although the 6-fold dilution which gave 6 Hz so did 7-fold dilution, the 9-fold dilution gave 8 Hz. The 11-fold, 13-fold, 19-fold dilutions did not imprint any frequency at all. The 20-23-fold dilutions all gave 20 Hz; the 24-29-fold dilutions all gave 24 Hz, the 30-fold dilution gave 30 Hz. There were similar results for dilution ratios of 10, 100 and 1000 with similar exceptions at 70-, 90-, 700-, 900-fold dilutions. This emphasises how accurately homeopathic dilutions must be carried out for making X(D), C and M potencies; nothing approaching 9-fold, nor 11-fold, will do.

## 7. Conclusions

1. Water and homeopathic potencies must be involved with macroscopic quantum systems because of: the memory effects; discontinuous or non-linear behaviour; non-localised effects; multiple-frequencies, sensitivity to the quantum of magnetic flux and sensitivity to magnetic vector potential.
2. The precision of the water “memory” for frequencies requires a very high coherence in water.
3. The difficulty in objective instrumentation for measurements of frequencies imprinted into water and the frequencies of homeopathic potencies lies in the conversion of the information from a quantum wave function to a time-varying classical voltage or current without involving liquid helium temperature (superconducting) apparatus. Its practical realisations must somehow make use of the coherence properties of water.
4. In a coherent system, coherence length is the constant parameter, many velocities and frequencies are possible which satisfy this condition. Frequency becomes proportional to the velocity and this gives the low-frequency band with the coherence wave propagating slowly through the medium at velocities of the order of metres per second; this is due to the large mass of each coherence domain.
5. Radiation passing through a coherent medium will interact with the coherent part of the system as a whole and not with individual molecules so, there is unity refractive index and the velocity of propagation is that of the radiation in free space, this gives the observed high-frequency band of resonances.
6. It is possible that the frequency information is stored through the alignment of the spins of the coherence domains which is stabilised against thermal agitation by the geomagnetic field. Imprinting a frequency into water results in a splitting of highly coherent water lines in the far-infra-red which is down-converted to other regions of the spectrum because of the coherence.
7. Water “Memory” is seen as a consequence of coherence. It appears to involve at least three coherence waves, one with velocity of the order of metres per second and representing interaction of the incoming radiation or magnetic vector potential with the entire coherence domain, the next travels with the velocity of light free space and will not interact with the

coherence domain but will acquire its frequency through the coherence length established in the coherent medium. The third wave appears to be related to the FIR energy levels and able to travel within the coherent system at more than the velocity of light. There may be yet another wave at optical frequencies. There is no *a priori* limit to the upper velocity within a coherent system which is exchanging virtual photons if no mass or energy transfer is involved. The critical test for a velocity greater than that of light is whether or not the critical angle of refraction appears on the air side of the interface rather than on the water side. Preliminary measurements have found such an effect.

8. For each of the Ting acupuncture points and chakras, there were frequencies in two bands. The means of the frequency ratios were precise to within a few percent and equal the ratio of the velocity of light in free space ( $2.998 \times 10^8$  metres/sec) to a velocity of about 6 m/s. This is of the correct order of magnitude for the coherence waves first reported and measured in the 1930's by Wüst and more recently measured by the writer, who found 5 m/s in normal-saline and 6 m/s in a leg.

9. The electromagnetic individuality of the patient and the homoeopathic remedy are manifest throughout. Any health risks from environmental frequencies are likely to arise through adaptation to chronic exposure to a coherent frequency almost irrespective of its power level, until thermal effects can occur. The important parameters are the frequency, the spectral power density (Watts per cycle of bandwidth) and the volume exposed to the field.

10. This work provides evidence that the formal link between acupuncture and homoeopathy is through the commonality of the frequencies, and changes in frequency, involved in the homoeopathic potencies and on the acupuncture meridians.

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