

# Frequencies: Effect, functions and meaning for the living organism

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**Abstract.** – The importance of coherent frequencies in living systems was first recognised by Professor Herbert Fröhlich, FRS. The writer's work with electrically sensitive patients gave an insight into the importance of frequencies in living systems. This has led to the realization that frequency is the common factor uniting many branches of Complementary and Alternative Medicine. Frequency is endogenous on acupuncture meridians and these are related to the autonomic nervous system. Examples of such frequencies are given. They occur within a coherent system which gives them the property of being fractal. It is this which links the chemical to the technological and to the biological frequency bands. When there is stress on a target organ, its meridian frequency is found in the whole-body field. Applying acupressure to a point gives the same effect. This suggests that a Bioresonance measurement involves the change in electrical resistance at the interface arising from wave interference between the whole-body stress frequency and the meridian frequency. Evidence in support of this is presented.

## 1. Introduction

Professor Dr. Herbert Fröhlich FRS, Professor Emeritus of Theoretical Physics at Liverpool University was born at Rexingen in the Black Forest of Germany on the 9<sup>th</sup> December 1905 and died in Liverpool on the 23<sup>rd</sup> January 1991. Fröhlich belonged to the generation of the founding-fathers of theoretical physics all of whom he knew well. After a short while in the family business he became interested in physics through building his own wireless-set and taught himself enough mathematics to gain admission to Munich University. Here he studied under the great teacher, Arnold Sommerfeld who set him a problem concerning the absorption of light by metals. In just over two years, Fröhlich had produced a thesis containing a solution for which he received his Dr. phil. from Munich without ever doing a bachelors degree.

He had already considered biological problems in relation to theoretical physics in the 1930's. His friend Martin Reiss told

him that biological membranes maintain a small electric potential of a tenth of a volt, he asked its thickness, and on hearing that it was a millionth of a centimetre, realised that this corresponded to the enormous electric field of ten million volts per metre which ordinary dielectrics will sustain only when special precautions are taken. An elastic constant corresponding to the velocity of sound gave him likely resonant frequency of the order of a hundred gigahertz. Such frequencies were not available at that time.

In 1967, he was able to present his ideas to a conference on 'Theoretical Physics and Biology', arranged by the Institut de la Vie and held in Versailles, France; here he compared the collective (cooperative) behaviour biological systems with the long-range phase correlation (coherence) found in the Einstein condensation of a Bose gas to a single quantum state, such as found in superfluidity and superconductivity which occur at very low temperatures. At the

same meeting Prigogine presented his ideas about "dissipative structures". The subsequent development of Fröhlich's ideas and the work of his collaborators around the world in confirming his theoretical predictions are summarised in the two "Green Books" he edited, "Coherent Excitations in Biological Systems" (1983) and "Biological Coherence and Response to External Stimuli" (1988) which are published by Springer-Verlag.

From 1974, the writer was active in research on the 'Interactions of Electromagnetic Fields with Bio-Materials and Living Systems' in cooperation with Professor 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 giving long-range order.

In 1982, the writer became involved in the diagnosis and therapy of patients 'Hypersensitive to their Electromagnetic Environment' at the request of Dr. Jean Monro, in London. Work with her electrically hypersensitive patients and with those of Dr. W.J. Rea in Dallas, Texas, has given an insight into the extremes of sensitivity and speed of reaction that living systems are capable of when their autonomic nervous system fails to regulate.

The writer's publications on "Electrical Hypersensitivity and Water Phenomena" and some definitions of electromagnetic quantities are listed at the end of this document.

## **2. Frequencies in Electromagnetic Hypersensitivity**

Electromagnetically sensitive patients almost invariably have a history of hypersensitivities 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 within seconds to

something in their environment. They can readily distinguish *verum* from *placebo*. The frequency and its coherence seem to be 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 usually matters little until the onset of thermal effects; **it is the frequency which is important.**

The clinical effects of frequencies are unique to each individual. Some frequencies are stimulatory or therapeutic and these usually alternate with depressive or stressful frequencies. This alternation of the stimulatory-depressive effect of frequencies is a general phenomenon with few exceptions. It resembles the effects produced by the serial dilution of an allergen, higher frequencies resemble higher dilutions or potencies.

The clinically effective frequencies range from near circadian (0.4 MilliHertz, 2,500 sec/cycle or, 42 min/cycle) to above microwave frequencies (1 GigaHertz =  $10^9$  Hz) and sometimes to optical frequencies for patients hypersensitive to sunlight.

Identical reactions can be triggered in a patient by chemical means and neutralised with electrical frequencies 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 is manifest through the appearance of *frequency signatures*. These are frequencies arising from H-bonding between water and the chemical. It has been possible to re-program the frequency imprints of a cell culture and have these were transmitted correctly to cultured daughter cells which

demonstrates that lasting effects are possible. The presence of frequencies which fluctuate to a limited extent (a few percent) 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.

### **3. Entrainment of Environmental Frequencies**

There is a surprising degree of interaction between living systems and external frequencies. Although the frequency bandwidth on a meridian is only about  $\pm 2\%$  of its mean frequency the latter can be 'entrained' or 'pulled' by external oscillations such as from an electrical oscillator or an environmental source of radiation such as a computer, TV, mobile phone, or the frequency signature of a chemical. This entrainment may be up to  $\pm 30\%$  before the acupuncture meridian frequency jumps back to its normal endogenous value. Table 1 shows this entrainment at the heart acupuncture meridian (He9). The endogenous frequencies were 7.768 Hz and 382 MHz. It should be noted that the 7.8 Hz endogenous frequency of the acupuncture point He9 (also the heart chakra) is exactly 6-times the heart-beat frequency 78/min; it is also one of the frequency bands in the Schumann Radiation from the upper atmosphere.

**Table 1**

**Entrainment by Environmental Frequencies (shown in red/shaded)**

Frequency MHz	He9 High Band MHz	He9 Low Band Hz
No Exposure	382	7.768
260	382	7.718
270	270	5.245
370	370	7.652
390	390	7.864
400	400	7.933
450	450	9.830
480	480	7.657
500	382	7.660

The subject was exposed to the high frequency only by 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 in a pipette and measured. The pipette tip was placed on the point and a magnet brought close to imprint. The microwave power density at the subject was estimated to be of the order of  $\text{mW}/\text{m}^2$ . The frequency measurements took about 5 minutes following the exposure by which time the acupuncture point frequency had relaxed to its unexposed value so another measurement was possible. Table 1 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 become entrained to the exposure frequency and the low band frequencies had also shifted in proportion. The frequencies where entrainment has occurred are shown red. Within entrainment, the high-band to low band frequency ratio is:  $50.8 \pm 4.7 \times 10^6$  (S.D.  $\pm 9\%$ ).

**Table 2**

**Spectrum of Mercury Imprinted into Water –  
Showing Multiple Frequencies Fractal Effect**

Hg spectrum	Optical freq.		Microwave freq.		ELF freq.
nm	Hz		Hz		Hz
	$\times 10^{15}$		$\times 10^6$		$\times 1$
185	1.62		935		19.31
254	1.18		680		14.38
365/6	0.820		472		9.843
405	0.740		425		8.925
436	0.688		396		8.358
492/6	0.607		347		7.235
546	0.549		315		6.633
577/9	0.519		298		6.262
615	0.488		280		5.832
623	0.482		276		5.832
		<b>Optical/MW</b>		<b>MW/ELF</b>	
<b>Ratio</b>		$1.7340 \times 10^6$		$47.70 \times 10^6$	
<b>Std. Dev.</b>		$\pm 0.34\%$		$\pm 0.75\%$	

This is an example of the “Multiple Frequency Effect” which is a **characteristic of a coherent system** where the constant parameter becomes the coherence length and this determines the wavelength. It makes frequency proportional to the velocity with which the coherence travels. Any velocity that the system will support has is corresponding frequency, this makes frequency a **fractal** quantity. Coherence propagates by diffusion like heat up the handle of a saucepan; heat is disorder – coherence is order.

Table 2 shows this fractal effect for the optical spectrum of mercury imprinted into water. Additional bands of frequencies occur in the microwave region and at low frequencies. It is fractality which couples the electromagnetic effects of environmental chemicals, microwave radiation to the endogenous frequencies of living systems.

#### **4. Frequency Measurements on Patients**

The procedures adopted for testing patients for electrical sensitivities are described in papers cited in the References. When we started patient testing, we did not know what to expect. It was sufficient for the patient to sit in the same room as a set of electrical oscillators which were tuned slowly over a wide range of frequencies and the clinician noted the frequencies at which symptoms occurred and at which they were neutralised. Subsequently, patients came in who were so sensitive that they could not tolerate an oscillator being switched on anywhere in the building. For these, it was necessary to have the patient hold a vial of water held in the fist and succuss it on a wooden surface. This imprinted the body fields and frequencies into the water which could then be measured in the absence of the patient.

It is just possible to measure such frequencies by instrumentation in the kilohertz region with electrodes or by heats of mixing (V. Elia, M. Niccoli, "Thermodynamics of extremely dilutes aqueous solutions", *Ann NY Acad Sci* 1999; **879**:241-8). These methods are only useful for validation. The only practical method for clinical purposes is the dowsing technique (Smith, 2004). Thus, allergists like civil and mining engineers may have to learn dowsing.

We found that about 10% of patients with chemical, nutritional or particulate sensitivities had acquired electromagnetic sensitivities. The frequencies measured for triggering the reactions or neutralising them covered a wide range but showed little recognisable pattern until it was realised that 7.8 Hz often appeared. This frequency is used in some therapeutic or protective devices to stimulate the heart meridian. Measurements quickly revealed that each acupuncture meridian (also the chakras) had a characteristic endogenous frequency (see Tables 3 & 4) and that many of the frequencies measured from these patients were those of the acupuncture meridians. Such measurements show those acupuncture meridians which are under stress and those which need stimulation.

Figure 1 summarises the frequency imprinting by 12 electrically hypersensitive patients who during the course of their therapy had imprinted a total of 57 tubes of water with a total of 726 frequencies. Of these, 167 would have been capable of synchronisation at a Ting acupuncture point, and 655 would have been capable of entrainment. Many patients had more than one frequency capable of entraining St45, hence the >100% values. There were only 49/726 frequencies outside any entrainment range. Ten patients who lived in the EU had imprinted 19/54 tubes with the 50 Hz power supply frequency. Two patients who lived in N. America had imprinted 3/5 tubes with their 60 Hz power

supply frequency (nothing at 50 Hz). It appears that adaptation and entrainment to the power supply frequency is quite common among such patients.

Acupuncture Meridians may originate with coherence between embryonic ectoderm and endoderm cells persisting as the organism develops with the ectoderm forming the acupuncture points, the endoderm and mesoderm the target organs (see Figure 2).

The endogenous frequencies on acupuncture points and meridians can be followed right through to the target organ tissue itself. Frequencies were measured in histological microscope slides of the acupuncture target organ tissues where these were available. The paired-values correlation coefficients for classical points vs. target organs were:

Low frequency band:	0.9999
High frequency band:	0.9771

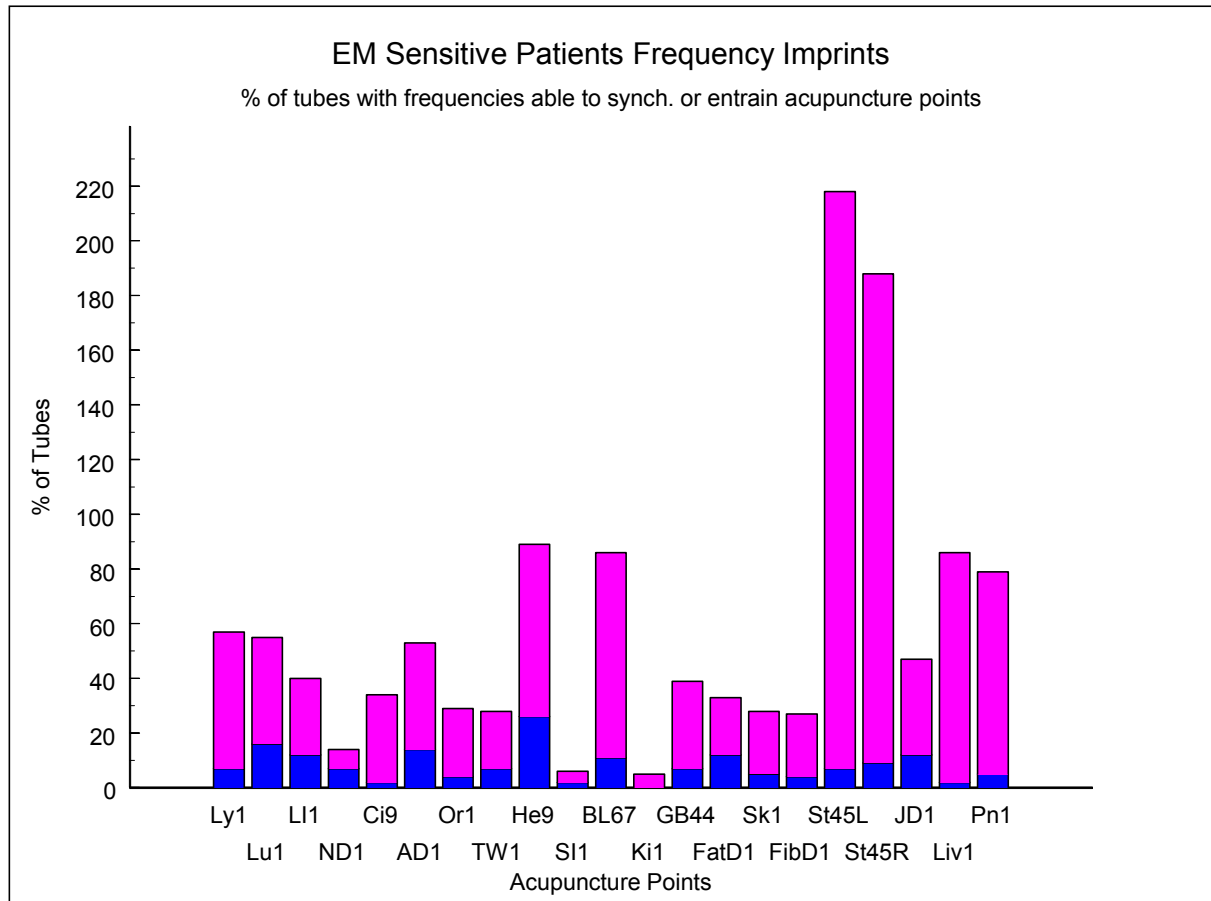
The acupuncture meridians can be stimulated through the eye by looking at a flashing light. A light-emitting-diode was connected to an oscillator and was viewed towards its lens and at a comfortable brightness which did not give any noticeable after-image. The chakra and acupuncture points were checked for reactions when this was viewed at the frequency known to stimulate the particular chakra or meridian. All the reactions measured were of stress with both eyes open. There was only a reaction of awareness when viewing with either eye alone. With both eyes closed there was no response. All the chakra points could be stimulated. The acupuncture meridians found to be so affected were: ND, AD, Or, TW, He, BL, FibD, Liv, Ren, GV, Pe (see Table 3). There is also a link from acupuncture points around the eye to the pituitary, hypothalamus and hippocampus. Sound frequencies may also stimulate meridians.

The endogenous frequencies on an acupuncture meridian are very precise. For 31 TW1 frequencies from 22 patients, the

mean was 6.0178 kHz (S.D.  $\pm$  0.20%) and for 53 He9 frequencies from 38 patients, the mean was 7.7877 Hz (S.D.  $\pm$  0.92%).

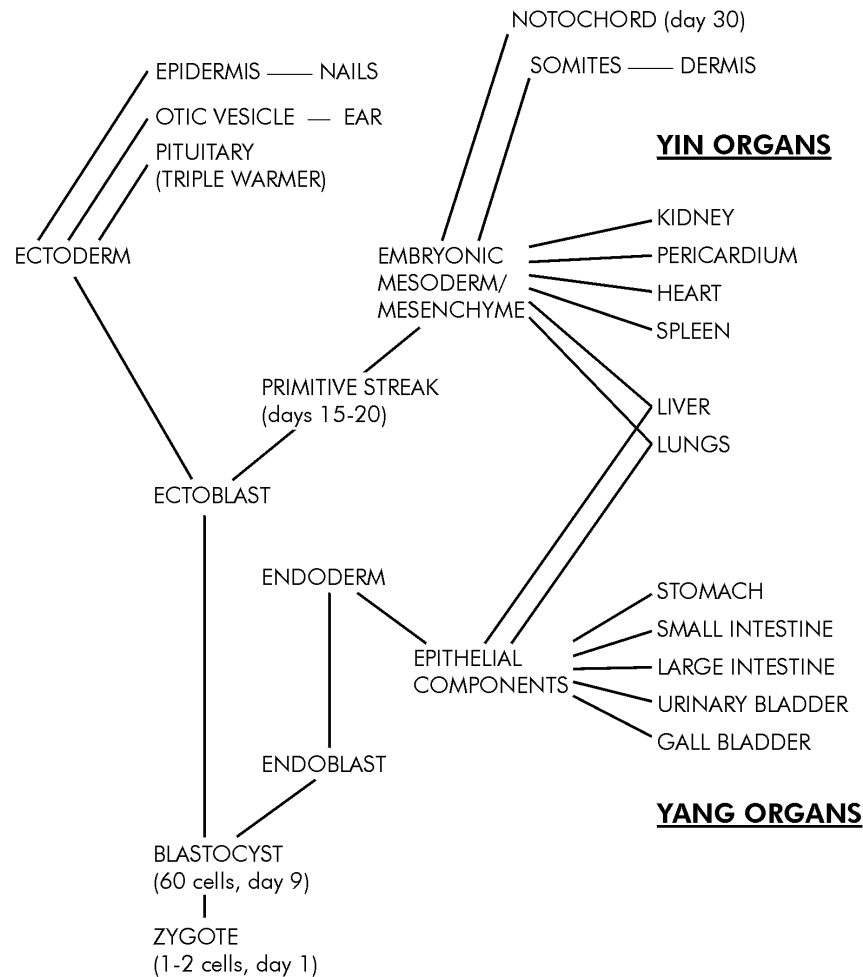
**Figure 1**

## EM Sensitive Patients' Body Frequency Imprints into Water

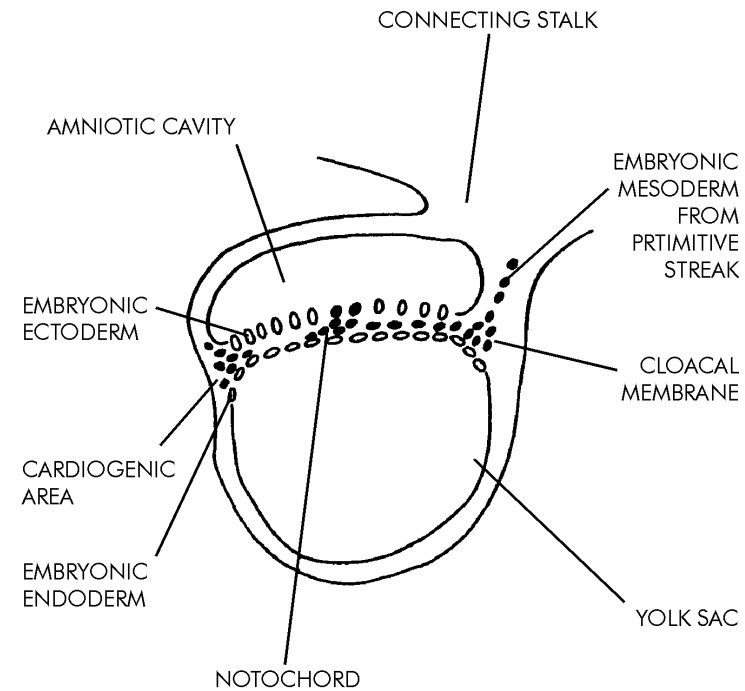


**(Entrainment in grey. Synchronization in black)**

**Figure 2: Possible Origin of the Acupuncture Meridians**



(A) POSSIBLE RELATIONSHIPS BETWEEN EMBRYO GERM CELL LAYERS AND THE ACUPUNCTURE MERIDIANS



(B) DIAGRAMMATIC REPRESENTATION OF A PRESOMITE EMBRYO ABOUT 4MM SIZE AT 3-4 WEEKS

Smith CW. *Bioluminescence, Coherence and Biocommunication*. In: Jezowska-Trzebiatowska B, Kochel B, Slawinski J, Strek W (Eds.). *Biological Luminescence*. Singapore: World Scientific, 3-18, 1990. (Figure recreated)

**Table 3**

**Acupuncture Points and Nominal Values for their Endogenous Frequencies**

<b>“Classical” Acupuncture Meridians</b>	<b>Point Measured</b>	<b>Low Band Frequency</b>	<b>High Band Frequency</b>
		<b>Hz</b>	<b>MHz</b>
Lung	Lu1	0.48	24
Large Intestine	LI1	0.055	2.7
Stomach	St45 / right	0.044	22
Stomach	St45 / left	0.44	2.2
Spleen/Pancreas	Pn1	0.055	2.7
Heart	He9	7.8	380
Small Intestine	SI1	0.025	1.2
Urinary Bladder	BL67	5.5	270
Kidney	Ki1	0.00095	0.047
Pericardium	Pe9	0.25	13
Sanjiao (TW)	TW1	6,000	300,000
Gall Bladder	GB44	0.05	2.46
Liver	Liv1	4.8	240
Du Mai (GV)	GV14	4.3	149
Ren Mai (CV)	Ren24	14	730
<b>„Extra“ Points</b>			
Anmian I & II	Ex 8 & 9	3,000	
<b>Extra “Ting” Points</b>			
Lymphatics	Ly1	0.06	2.95
Nerve Degeneration	ND1	0.00055	0.027
Allergy	AD1	2	98.4
Organ Degeneration	Or1	0.078	3.85
Fatty Degeneration	FatD1	0.74	36
Skin Degeneration	Sk1	0.0035	0.172
Joint Degeneration	JD1	0.3	148
Fibroid Degeneration	FibD1	800	39,400
Circulation, pericardium	Ci9	0.05	2.46



## **5. Relation between Acupuncture Meridians and the ANS**

The relationship between the acupuncture meridians and the autonomic nervous system (ANS) comes from the work of Dr. Reinhardt Voll. In his work, cited in English by Kenyon<sup>1</sup>, Voll identifies a complete system of acupuncture points which indicate the functioning of both branches of the autonomic nervous system. These are listed in Table 4. These points, Voll accessed by electroacupuncture. He found a drop in the electroacupuncture reading where there was stress on the corresponding part of the ANS.

To be able to relate the results of Voll to the writer's measurements of frequency, measurements (Table 5) were made on Voll's summation point for the whole ANS, nerve degeneration meridian, ND1 on 7 days between February 15 & March 6, 2005 by the writer on himself. The measurement order was: RH frequencies, EAV % change measurement, RH frequencies; LH Frequencies, EAV % change measurement, LH frequencies. There were three frequencies to be measured in each water imprint – the frequency characteristic of acupuncture meridian ND1 ( $\sim 4 \times 10^{-4}$  Hz), the frequency characteristic of the sympathetic ANS ( $\sim 3 \times 10^{-3}$  Hz) and the frequency characteristic of the parasympathetic ANS ( $\sim 3 \times 10^{-1}$  Hz). These frequencies appear at those acupuncture points linked to the ANS in addition to the endogenous meridian frequency.

The frequency changes arose from the electrical stress imposed by the electroacupuncture measurement. The percentage frequency changes approximate to the percentage changes in the electroacupuncture readings.

In practice, it is quite difficult to read the electroacupuncture meter needle movement as it takes place while the probe is being applied to the point. Mostly, there was a drop in the acupuncture reading but, where the acupuncture reading showed an increase, the frequency also increased. Measuring the frequencies characteristic of the sympathetic and the parasympathetic systems does appear to indicate which system is under stress on either side of the body.

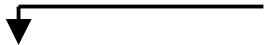

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<sup>1</sup> J.N. Kenyon, "Modern Techniques of Acupuncture" Vol. 3, Chapter 11 – Disordered Autonomic Steering.

The German source is: Friedrich Bechtloff, "EAV – Elektroakupunktur nach Voll – Eine Darstellung in Bereichen", Uelzen 1991)

**Table 4**

**EAV points Indicating the Functioning of the ANS**

		<b>ND1α Nerve Degeneration ANS</b>		
St10a	<b>Parasympathetic</b>		<b>Sympathetic</b>	GB20
GB11b	Vagus nerve nucleus in medulla		Sympathetic nerve – cranial	GB19a
St8c	Vagus nerve – cervical		Sympathetic nerve – cervical	GV16
St8d	Pharyngeal plexus		Cervical ganglion	TW1a
St16	Vagus thoracic		Sympathetic trunk – thoracic	BL16*
St15	Oesophageal plexus		Sympathetic trunk – abdominal	BL24**
St18	Pulmonary plexus		Coeliac plexus	St44c
St20 L/R	Gastric plexus – anterior/posterior		Sympathetic – Pelvic	BL33
Ki20	Vagus nerve – coeliac		Inferior hypogastric plexus	BL63***
Ki21	Vagus nerve – hepatic			
Ki 19	Vagus nerve – renal			
BL35	Sacral preganglion fibres			
BL34	Pelvic plexus			
BL32	Pelvic splanchnic nerves			

## Notes for Table 4

### **\*BL16 is the EAV summation point for:**

Ci8e/L	Thoracic aortic plexus
Ci8e/R	Cardiac ganglia
He8e	Cardiac plexus
Lu10d	Coronary plexus
Lu9a	Bronchial plexus

### **\*\*St44c is the EAV summation point for:**

St19	Phrenic plexus
Ki1b	Supra renal
Ki1d	Renal plexus
St30a	Testicular or ovarian plexus
St22/R	Superior gastric plexus
GB43c	Hepatic plexus
SI1a/R	Superior mesenteric plexus
SI1a/L	Inferior mesenteric plexus
Ci8a	Abdominal aortic plexus
LI1a/L	Iliac plexus
LI1a/R	Superior hypogastric plexus

### **\*\*\*BL63 is the EAV summation point for:**

Ki4	Renal or haemorrhoidal plexus
BL66c	Vesical plexus
BL49d	Prostatic plexus in male / uterovaginal plexus in female
BL50	Cavernous plexus of penis or clitoris.

After Dr. R. Voll from J.N. Kenyon, "Modern Techniques of Acupuncture", Vol. 3, Chapter 11.

**Table 5**

**Frequency Changes Following Electroacupuncture Measurements on ND1**

The frequencies before and after electroacupuncture and standard deviations are shown.

<b>Right hand before</b>	<b>Right hand after</b>	<b>% mean frequency change</b>	<b>% EAV change</b>	<b>Left hand before</b>	<b>Left hand after</b>	<b>% mean frequency change</b>	<b>% EAV change</b>
<b>Hz</b>	<b>Hz</b>	<b>ND1</b>	<b>ND1</b>	<b>Hz</b>	<b>Hz</b>	<b>ND1</b>	<b>ND1</b>
4.7542 $\times 10^{-4}$	4.5910 $\times 10^{-4}$	3.49%	5.29%	4.8187 $\times 10^{-4}$	4.5839 $\times 10^{-4}$	2.50%	6.71%
$\pm$ 1.93%	$\pm$ 4.66%			$\pm$ 5.54%	$\pm$ 3.84%		
		<b>Sympathetic ANS frequency</b>				<b>Sympathetic ANS frequency</b>	
3.2485 $\times 10^{-3}$	3.1975 $\times 10^{-3}$	1.48%		3.2353 $\times 10^{-3}$	3.1198 $\times 10^{-3}$	3.63%	
$\pm$ 2.32%	$\pm$ 2.19%			$\pm$ 2.73%	$\pm$ 4.27%		
		<b>Para sympathetic ANS frequency</b>				<b>Para-sympathetic ANS frequency</b>	
3.2133 $\times 10^{-1}$	3.1660 $\times 10^{-1}$	4.73%		3.2169 $\times 10^{-1}$	3.1927 $\times 10^{-1}$	0.76%	
$\pm$ 3.89%	$\pm$ 3.79%			$\pm$ 4.02%	$\pm$ 4.94%		

**Table 6**

**Magnetic Resonance in Acupuncture Meridians**

**Magnetic Fields Exciting Resonances on Acupuncture Meridians**

<b>"Classical" Meridians</b>	Point Measured	Low Band Frequency	Resonance Magnetic Field	High Band Frequency	Resonance Magnetic Field
		Hz	$\mu$ T	MHz	$\mu$ T
Lung	Lu1	0.48		24	856
Large Intestine	LI1	0.055		2.7	96
Stomach	St45 / right	0.044		22	785
Stomach	St45 / left	0.44		2.2	79
Spleen/Pancreas	Pn1	0.055		2.7	96
Heart	He9	7.8		380	13,700
Small Intestine	SI1	0.025		1.2	43
Urinary Bladder	BL67	5.5		270	9,600
Kidney	Ki1	0.00095		0.047	<b>1,120</b>
Pericardium	Pe9	0.25		13	464
Sanjiao (TW)	TW1	6,000	<b>142</b>	300,000	
Gall Bladder	GB44	0.05		2.46	89
Liver	Liv1	4.8		240	8,700
Du Mai (GV)	GV14	4.3		149	5,320
Ren Mai (CV)	Ren24	14		730	26,060
<b>"Extra" Points</b>					
Anmian I & II	Ex 8 & 9	3,000	<b>74</b>		
<b>"Ting" Points</b>					
Lymphatics	Ly1	0.06		2.95	105
Nerve Degeneration	ND1	0.00055		0.027	643
Allergy	AD1	2		98.4	351
Organ Degeneration	Or1	0.078		3.85	137
Fatty Degeneration	FatD1	0.74		36	1,290
Skin Degeneration	Sk1	0.0035		0.172	<b>4,090</b>
Joint Degeneration	JD1	0.3		148	5,280
Fibroid Degeneration	FibD 1	800	<b>19</b>	39,400	14,000

Proton magnetic resonance fields are shown in **italics**.

The other fields are for electron spin resonance.

The small intestine meridian is permanently stimulated by the normal geomagnetic field.

Once it was established that the acupuncture meridians carried characteristic endogenous frequencies, it was clear that a precise magnetic field (determined by the physical constants for the electron or proton) could also stimulate a meridian and thence the ANS through the linkages found by Voll. Those fields above the geomagnetic field are listed in Table 6; proton magnetic resonances are shown in italics. We had previously found that living systems could react to the magnetic resonance conditions even in fields as weak as the geomagnetic field (Jafary-Asl et al., 1983; Aarholt et al., 1990).

## **6. Chemical Frequency Signatures and the ANS**

In general, all biological cells are capable of emitting an electrical signal in response to a chemical stimulus and releasing a chemical in response to an electrical stimulus. Figure 3 maps the pathways for this activity and lists Voll's acupuncture points through which they would link to the ANS. The heavy arrows indicate the emission or absorption of a chemical, the lines indicate electrical pathways.

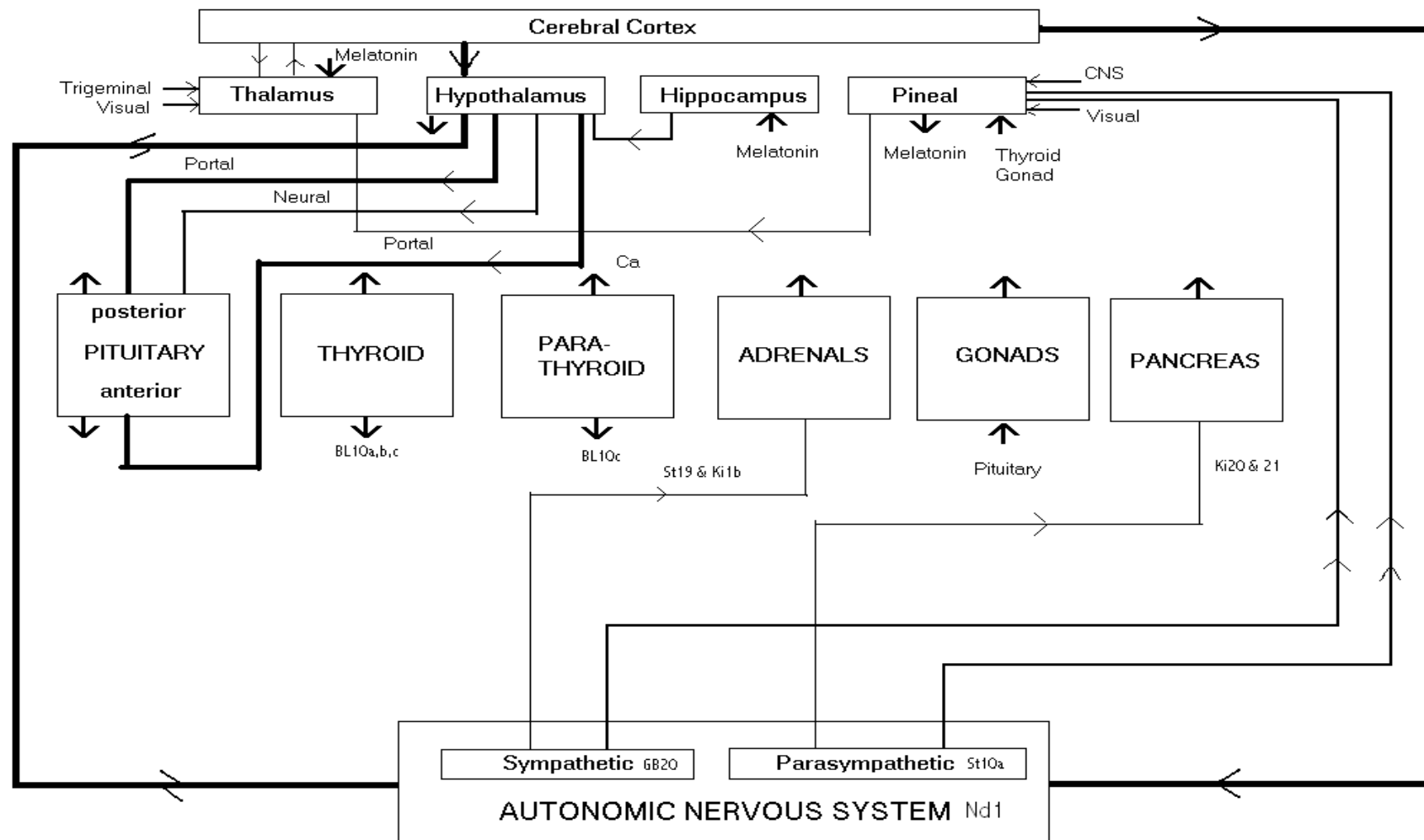
Figure 4 shows the frequency signatures for a number of toxic environmental chemicals measured in the blood of 22 EM sensitive patients. The frequencies entrained by the patients correlate exactly with those of the chemical signatures. The blood levels

(where available) are the average of values of measured concentrations which varied by up to a factor of ten between different patients.

Figure 5 relates to a patient who was one of about 200 persons chronically exposed to a toxic chemical in their living environment. It was acquired in following manner: In a new building, the waste steam from the heating boiler was designed to be used to humidify the air in the air-conditioning system. In operation, an anti-corrosion and de-scaling chemical product was put into the boiler; this vaporised into the steam and was circulated throughout the building. The chemicals' signatures contained 31 frequencies. A particular patient's body field had 21 frequencies of which 10 corresponded exactly to those of the chemicals as shown in Figure 5. This represents an almost 50% entrainment of a patient's endogenous frequency activity by an identifiable chemical contamination in the building, namely cyclohexylamine and morpholine. Of the 10 frequencies common to the chemicals and the patient, any of the lowest three would entrain the allergy meridian, the next three would entrain the heart meridian which also relates to the cardiac plexus, and all but one would entrain the Du Mai meridian which relates to the status of the cerebro-spinal fluid and to the cervical part of the sympathetic chain.

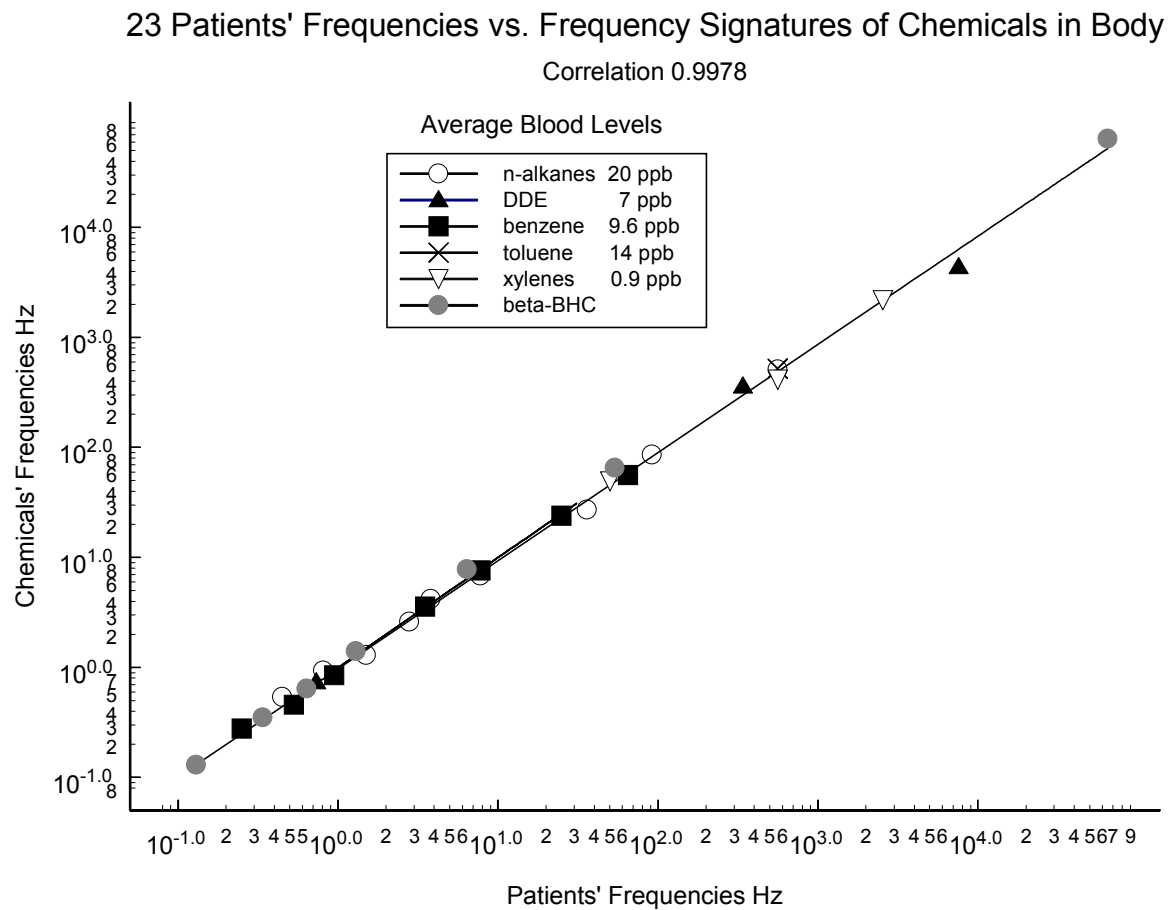
**Figure 3**

## ELECTROMAGNETIC INTERACTION SITES AND FEEDBACK PATHWAYS



**Figure 4**

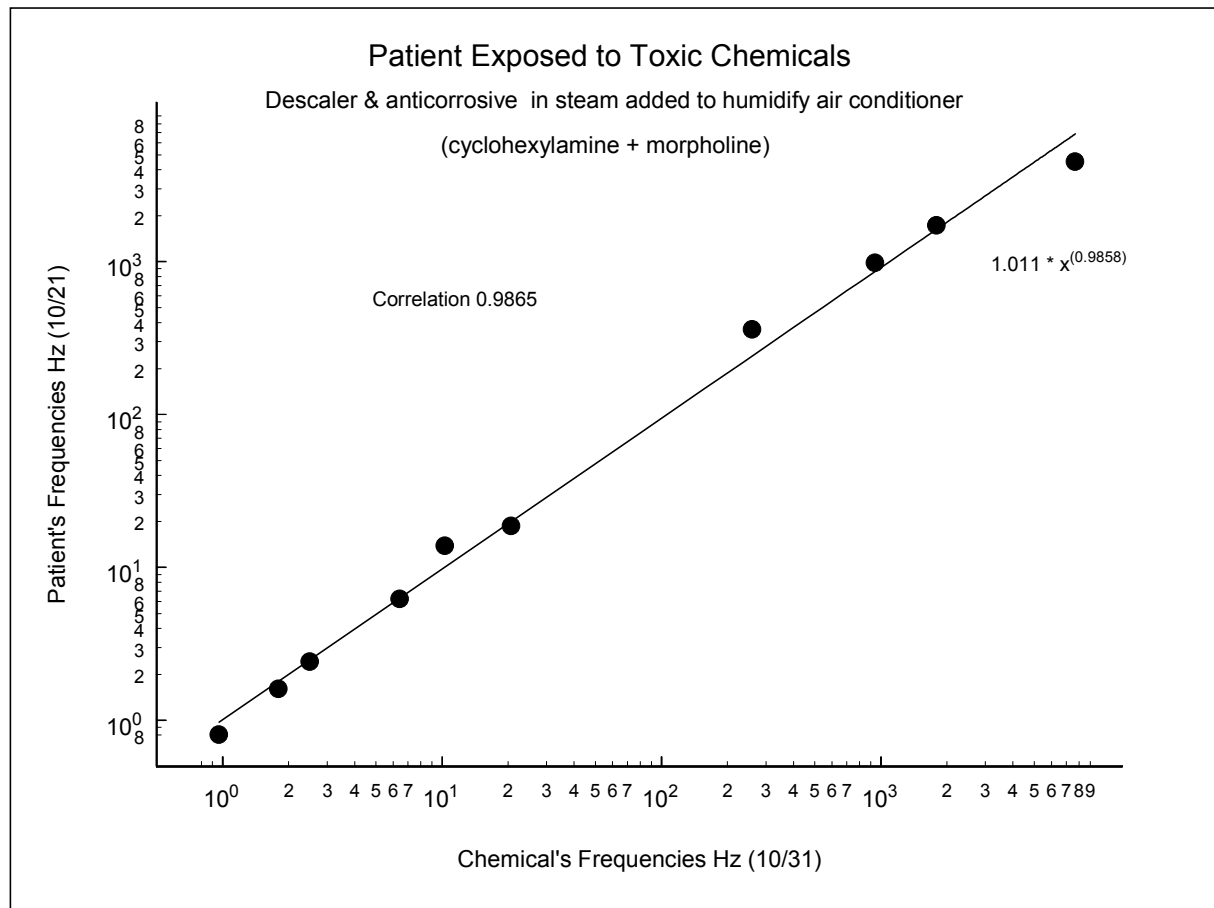
**Frequency Signatures of Chemicals in the Body**





**Figure 5**

**Patient Exposed to Toxic Chemicals**



## 7. Thyroxin Potencies

This set of potencies was prepared by Dr. Christian Endler, Boltzmann Institute, Graz.

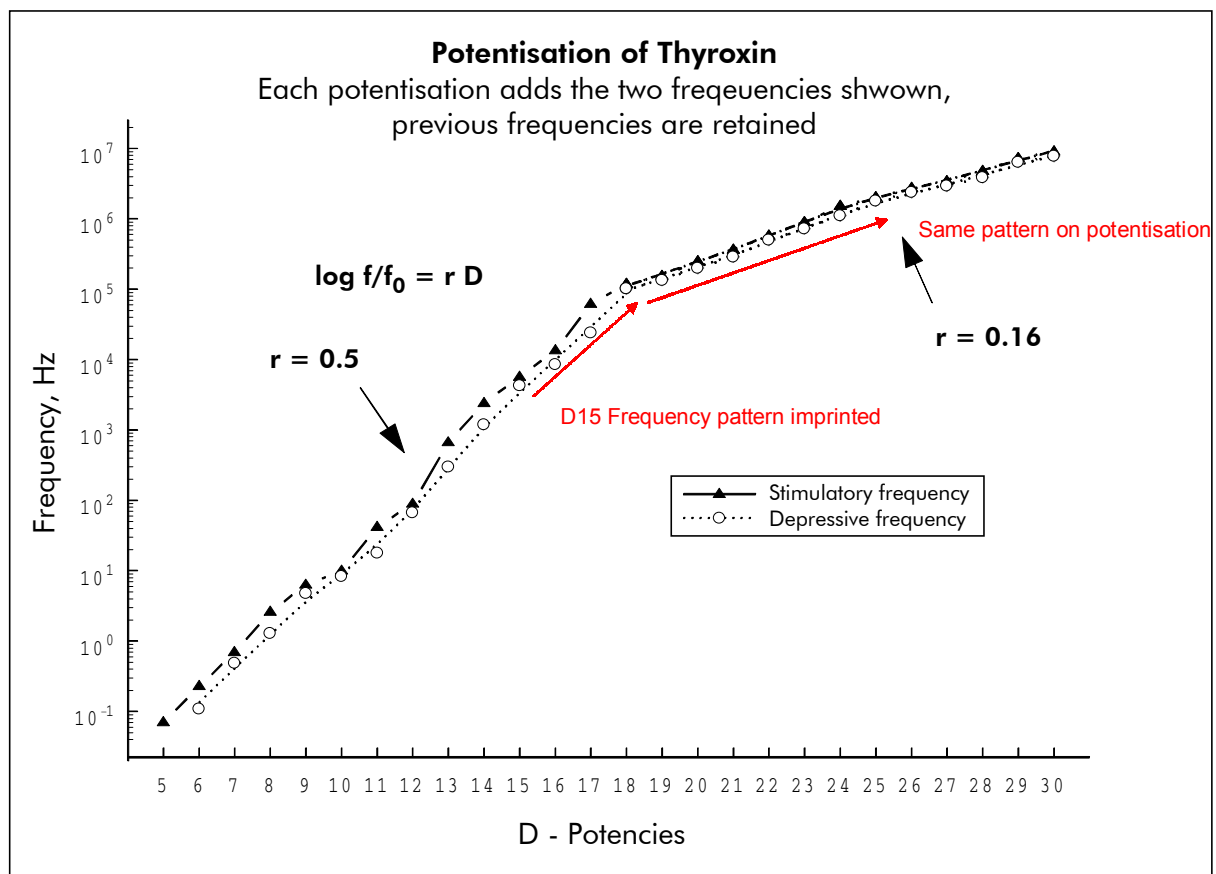
Frequency provides a theoretical basis for homeopathic potentisation. When water is imprinted with a frequency and then serially diluted and succussed, the original frequency disappears. It is replaced by that frequency multiplied by the dilution ratio. Not all dilution ratios do this. Some give no frequencies at all, others give the frequency of the previous dilution.

Importantly, as seen in Figure 5 there is no discontinuity at potency D24 which is the

dilution at which not one molecule of the original substance should remain (Avogadro's Number).

Water was imprinted with the complete pattern of frequencies previously determined for thyroxin of potency D15. This was further potentised by serial dilutions and succussions. The frequencies measured for each synthesized potency were exactly the same as those for the potencies prepared from the "Mother Tincture" of thyroxin. Yet, the synthesized potencies had started from nothing but erased water.

**Figure 6**



## **8. Imprinted Frequency Patterns Persist in Re-Programmed Daughter Cells**

It was shown that imprinted frequency patterns would persist in the daughter cells of those which had been re-programmed with a different pattern for frequencies. This implies that a therapy which involves the re-programming of cell frequencies can effect a permanent change in the condition of the organism.

Pischinger's work (see: Heine, 1999) demonstrates the importance of connective tissue in the body's regulatory systems. Measurement of the coherent frequency pattern of samples of connective tissue taken from healthy regions of breast tissue excised for biopsy following surgery showed a pattern of frequencies akin to the brain-wave spectrum. An example is shown in Column 1 of Table 7. This specimen was then tested by placing in a steel box to shield it from the geomagnetic field which would erase any frequencies imprinted into the water but, not frequencies due to a chemical constituent (the 'chemical signature'). Column 2 shows that only frequencies from 250 Hz to 15 kHz in this connective tissue could have been due to structural chemicals. The remaining frequencies endogenously imprinted in the cell water were erased as indicated by 'x'.

A binary sequence of frequencies was then imprinted into this erased connective tissue, a pattern most unlikely to occur naturally. The result is shown in Column 3. These frequency imprinted cells were then cultured and by the following week, the daughter cells had picked up all the imprinted frequencies. The other frequencies representing chemical activity had changed somewhat but, were clearly distinct from the imprinted frequencies all of which were present in the daughter cells. This demonstrates how frequency imprinted water, the equivalent of a homoeopathic potency, is capable of permanently modifying a pattern of coherent frequencies in an *in vitro* connective tissue

culture so as to persist into the next generation.

[B.B. Griffiths and W. J. Rea, Environmental Health Center, Dallas, Texas, and C. W. Smith, University of Salford, England. Presented at: First World Congress on "Effects of Electricity and Magnetism in the Natural World", Madeira 1-6 October, 1998. Published by Coghill Research Laboratories, Lower Race, Pontypool, Gwent NP4 5UH, Wales.]

**Table 7**

**Frequencies (Hz) for Connective Tissue (from right breast)**

<b>Date &amp; Time</b>			
<b>17Aug 95 1200-1700</b>	<b>17-18 Aug 95 1700-0900</b>	<b>18 Aug 95 0915</b>	<b>25 Aug 95</b>
<b>Original Tissue</b>	<b>After Hypomagnetic Erasure</b>	<b>New Frequency Pattern Imprinted</b>	<b>Cultured Daughter Cells</b>
0.11	x	0.1	0.1
0.19	x	0.2	0.2
2.8	x	0.4	0.4
6.5	x	0.8	0.8
			1.05
7.2	x	1.6	1.6
8.6	x	3.2	3.2
9.7	x	6.4	6.4
18	x	12.8	12.8
24	x	25.6	25.5
45	x	51.2	51
58	x	102.4	102
66	x		
76	x		
98	x		
250	250		
380	380		350
650	650		530
950	950		1,500
15,000	6,700	15,000	15,000

Frequencies not erased by placing in a steel box are the signatures of chemicals.

## **9. Frequency as the Basis of Bioresonance**

From work with electrically sensitive patients, it was found that when there is stress on a target organ or body system, its frequency is found in the whole-body field. Applying acupressure to an acupuncture point has the effect of spreading that frequency into the whole-body field. In effect, acupuncture by needling is using the endogenous frequencies for therapy. This phenomenon suggests that the Bioresonance measurement which involves the measuring the electrical resistance at the electrode/skin interface obtains its effect from interference between the whole-body stress frequency and the frequency on that acupuncture meridian and point.

In an attempt to confirm this, the writer made the following tests using himself as the subject.

A Bioresonance measurement was made on one of the Ting acupuncture points.

This measurement was repeated with a tube of water imprinted with the endogenous frequency of the acupuncture meridian for that point. About 20-30 seconds was allowed for the body to adjust to the stress. This imprint was made in the stimulatory phase of its frequency.

The measurement was then repeated but with the frequency imprint now in the depressive or stressful phase.

Measurements were repeated at all twenty of the Ting points on the right hand and foot.

In his whole body field the Subject only had one frequency present, the heart meridian frequency in the phase showing a need for stimulation. This is quite normal and shows he was ready for tea! To avoid introducing personal characteristics, only the following results were calculated but their comparison is sufficient to demonstrate that stressing the whole body field with the

frequency of the particular acupuncture meridian will substantially alter the drop in meter reading obtained with Bioresonance apparatus.

Meter drop for original unstressed measurements:	3.2 ± 2.5
Meter drop with stimulatory stress at the meridian endogenous frequency:	4.85 ± 4.25
Meter drop with depressive stress at the meridian endogenous frequency:	12.15 ± 5.0

This leaves the question, what causes the measured change in resistance? A possible answer comes from work on the superconductor-semiconductor interface. In a superconductor there is coherence, charges are spin-paired. To cross the interface the pairs are split up. One charge goes into the semiconductor the other is reflected back to conserve momentum. This results in a change of charge density and hence resistance at the interface.

There is a further question as to when an electrical oscillation is fed into a Bioresonance apparatus, the oscillation is seen on the test point but when connected to an acupuncture point only noise is observed. In living systems, one is dealing with quantum fields.

The "Classical" Electromagnetic Field describes physical states for which the phase is well defined but the number of particles (quanta) is undefined. For a Quantum Field the uncertainty of the phase ( $\Delta\Phi$ ) and the number of particles ( $\Delta N$ ) is determined by the Heisenberg Uncertainty Relation

$$(\Delta\Phi) (\Delta N) \geq \hbar / 2$$

Within a region of coherence, the phase coherence increases as the number of particles in the domain is allowed to

fluctuate. The more the uncertainty is taken up by fluctuation of the number of particles comprising a domain the more perfect is the coherence.

The charges from the body are passing through the Bioresonance apparatus and being processed by the amplifiers and filters but they do not have the phase coherence of an electromagnetic wave. It is like looking at a hologram in ordinary light. All one sees is granularity (spatial noise). It needs the coherence of a laser like the one that made the hologram to reconstruct the wave-front and so to view the image. It needs the coherence of the body frequencies to be able to recover the bio-information. This is what happens in the therapy mode when processed bio-information is fed back to the patient.

## **10. Conclusion**

Living systems make great use of coherent frequencies. A property of coherent frequencies is that within the domain of frequency coherence, frequency becomes a fractal quantity with no absolute scale of value. It is this which interlinks the chemical with the technological and the biological ranges of frequencies. If coherent frequencies were not a characteristic of the chemical bond, spectroscopic analysis would be impossible.

These bio-frequencies can be measured and used to determine the state and well-being of a living system. They can be used therapeutically to correct 'bio-misinformation'. The chemical frequency signatures can cause hypersensitivity problems. Their frequency patterns can be used as the basis for the potentiation of homoeopathic potencies. The acupuncture meridians have characteristic endogenous frequencies and needling or acupressure spreads them throughout the body. Bioresonance makes use of all these features of coherent frequencies.

## Appendix

### 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.

### 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

Coherence is an expression of the degree of constancy of phase, as for example between two oscillators or waves of nominally the same frequency. The bandwidth divided by the frequency is a measure of the extent to which perfect coherence (zero bandwidth) is achieved in

a practical situation. *Coherence Length* is the distance over which the coherence is maintained. *Coherence Time* is the time for which the coherence persists.

### 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).

### Quantum Effects

Any material object cannot be sub-divided indefinitely, one must eventually come to its constituent molecules and atoms. Likewise,

energy ultimately is packaged into so-called quanta. For a single quantum, the product of its position and momentum or, the product of its energy and time, both have a fundamental (Heisenberg) uncertainty associated with them. These products must be at least be equal to Planck's Constant  $h$  divided by  $4\pi$ . The energy of the quantum is proportional to its frequency (energy = frequency  $\times$  Planck's constant). A magnetic field is also quantized, a single quantum of magnetic flux equals Planck's constant divided by twice the electron charge ( $\sim 2 \times 10^{-15}$  Wb).

A quantum can be in more than one place or its being found in each condition. The basic unit for computing systems using quanta is called the 'qbit'; it is unlike the usual binary 'bit' (0 or 1) in that it only has a *probability* of having a particular value somewhere from 0 to 1. Memory in living systems is thought to involve the phase of quantum states as in a quantum hologram (P. Marcer & W. Schempp, "The Brain as a Conscious System", *Int. J. General Systems* Vol 27(1-3) pp231-248, (1998). This is the only memory system which places the

mental image where the object is in space and time (a necessity for all ball games).

These effects involve small probabilities which may only become significant if the frequency is very high, the distances very small or, the perturbing random fields from thermal vibrations are made very weak by extreme cooling. However, in a system of coherent domains such as the Del Guidice-Preparata model for water, perfect coherence is in theory possible if the system can vary the number of molecules in a domain (instead of the frequency) to accommodate the Heisenberg Uncertainty fluctuations. Many of the frequencies and fields discussed here involve the magnetic vector potential component of the magnetic field. The quantum nature of a living system is confirmed if it reacts to the magnetic vector potential field such as that generated by a toroidal coil. This field only has an effect on the phase of the wave function. Such systems may have the 'Josephson Effect' available, this offers frequency/voltage inter-conversion at 500 MHz/ $\mu$ V. All these are so-called "non-thermal" effects.

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