

Cellphone hazards

Cellphones, life energies and the *Biophone* protection device

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*Breakthrough discoveries from Eastern Europe –
cold war technology proven protection from cellphone emissions
and other microwave sources.*

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Preface

So far, Western biomedicine has been based almost exclusively on the chemical aspect of life. The basic science has been molecular biology, and our environmental concern has been chemical pollution. Only slowly and hesitantly are we beginning to realize that man is as much an electromagnetic being as chemical and that the question of electromagnetic pollution may be as crucial as chemical pollution. Habitual thinking, supported by vested interests, tends to prevent us from exploring this field in the open light of academic science. As a result, open-minded scientific research in this crucial field has been rare.

This book is based on a study that the author has done on the physiological effects of emissions from cellphones on test persons. The method used is based on electroacupuncture diagnostics originally developed by Voll and Pitterling in Germany. It is an objective method, well suited to measure subtle energy changes and reactions. The most constant finding when test persons were exposed to cellphone radiation was the "needle drop" phenomenon, which appears to be a characteristic physiological reaction to such exposure.

The next step was to test whether a small piece of silica crystals may have a protective effect from exposure to cellphones. In fact, it was – to the surprise of many of us.

More and more people are getting concerned about the health effects of electromagnetic radiation from artificial sources. The cellphone is a strong emitter of microwaves, which most people hold close to their heads. And not surprisingly, an increasing number of people suffer from ill effects due to this cause. A well-known example is Gro Harlem Brundtland, former prime minister of Norway and director of the World Health Organization. From the point of view of public health, it is mandatory that adequate research be carried out in this field. So far, however, this has not been done.

This study by Dr. Øverbye is, therefore, highly welcome. Although small, it is significant because it is an unbiased study and he has chosen a methodology appropriate to the purpose. Cellphone radiation exposure is a physical factor, and it is, therefore, rational to test its effect on the organism by measuring biophysical parameters.

In his theoretical discussion, Øverbye relates some fascinating ideas. In view of our relative ignorance in this field of biological science, it may be wise to recall the words of Charles Darwin: "Incorrect facts are extremely harmful to the progress of science, since they often prevail for a very long time. Incorrect theories, however, if they are supported by any data at all, do not cause harm, since each one finds a saving pleasure in their refutation, and when their erroneousness is demonstrated, then one of the pathways to error is closed and at the same time the way to the truth is opened." Having this in mind, I wish to emphasize that I find the idea of an 'electromagnetic immune system' highly interesting. This, I believe, is a fruitful hypothesis that is supported by other evidence. Cyril Smith, for example, has reported that some people react to specific frequencies of electromagnetic radiation with typical allergic reactions.

Tjøme, January 2006

Dr. Vilhelm Schjelderup MD

Foreword

More and more people are complaining about negative health effects from cellphones, cellphone masts, computers, TV sets, power lines, radar installations and radio antennae. Complaints range from headaches and blurred vision to serious diseases, even cancers. As the number of complaints increases, the suffering of victims have hit the press and have finally stirred politicians who sanctioned these inventions for hefty payments from companies for delivering "the goods". Since money, prestige and power are at stake, reports made by scientists from the establishment have been - as expected - made with unsuitable protocols and inadequate data, so that practically anything can be "explained" to be harmless.

Frustrated and angered, the public is now turning to dissenters and techno-wizards for solutions and explanations. In the sea of turmoil, some good explanations and useful devices do surface from time to time. One such device is the *Biophone* (formerly known as *Vector*), which according to thousands of cellphone users, seems to have helped them lead a better if not a carefree life. After selling the *Biophone* device for 3 years, the British distributor, Ecoflow Plc, wanted a more technical explanation for the market how such a small device, of a few grams, attached to a cellphone could cause "miracles" for electro-sufferers. So, I was contacted since at that time I ran a small biomedical lab, Theratronics and used various biophysical methods for diagnosing and treating my patients, including the German Bioresonance Therapy technology, which addresses exposure to radiation.

For the Ecoflow assignment, I went through thousands of pages of information, interviewed knowledgeable individuals and conducted more than 3,200 measurements on volunteer cellphone users. A perspective emerged that is not usually found in mainstream technical literature: how external radiation interferes with life energy and thereby disturbs the body's own wireless signal system. In other words, cellphones communicate not only with their base stations, but may also penetrate into the cellular-level signals network of life, thereby disturbing normal neurological functions. This book presents an effort to chart some of these disturbances and hopefully adding some new knowledge as to how living organisms react to external electromagnetic fields - knowledge that warns us that present-day technologies claimed to be "safe for humans", may indeed be the cause of present-day tragedies. Or, to put it otherwise: technocrats and politicians have unwillingly and unknowingly turned us into laboratory animals. You and I and everybody else are there to bear the burden of unproven technologies and experiments with our lives. Are you willing to bear that risk - and who shall pay the bill when your health is ruined? Think about it, you might be the next victim!

Dr. Bjørn Johan Øverbye M.D.

Part 1: The Problem: Cellphone hazards

Over the last decade, the cellphone network has exploded. Each year more people acquire a cellphone and spend increasingly more time using it. Cellphone antennae are becoming a part of the landscape - not even the wilderness is free from such metal giants emitting microwave radiation. Hailed as one of the true advances in the 21st century, cellphones are now being advertised to every age group, even kids, but in all the chorus sung by happy cellphone company shareholders and users, a discordance is heard with ever increasing strength: users are getting sick from their electronic toys, to the point of cancers.

The global zapping has begun...

Knowledge of the hazards of non-ionizing radiation has been around for the last 50 years. Whereas, the Russians took these problems seriously, Western industrial societies have weighed economic benefit against health problems and found the economics to be more important than public health. Numerous papers, articles and books on low-level, non-ionizing radiation seem to have done little to alert the authorities, even those coming from within governmental agencies themselves! ¹

In a recent paper issued by IEGMP: Independent Expert Group on Mobile Phones, led by Sir William Stewart, famous British biochemist and leader of Association for the Advancement of Science, states cellphone users may well experience long-term exposure effects that will damage health. The paper, *Cellphones and Health* issued April 2000 warned that children were in particular danger. Sir William also scorned cellphone producers for luring children to use cellphones as essential "back to school" items. Even though the *Stewart Report* as it is also nicknamed is basically a governmental, National Radiation Protection Board and the cellphone industry joint-operation, and thus probably biased, it is the first of its kind to warn children of hazards from long-term use of cellphones! ² As a critic of the *Stewart Report*, scientist Robert Coghill, has pointed out that certain non-thermal effects were omitted...as usual. ³

On December 8, 2000 the German Academy of Pediatrics issued a similar warning when advising parents not to encourage children to use cellphones unnecessarily. They warned that cellphone radiation is a potential health hazard for the young. Wolfram König issued the same warning from the German *Federal Agency for Radiation Protection*. ⁴ In a July 31 2001 press release in the *Berliner Morgenpost*, he urged people to consider that those sensitive to radiation may suffer ill effects, especially the young.

Several papers have been issued to warn pregnant women from exposure to extremely low frequency (ELF) and radiofrequency non-ionizing radiation. Professor Sianette Kwee of the Department of Medical Biochemistry at the University of Aarhus, the Danish expert to European Union's COST 281 Project group on Potential Health Effects from emerging Wireless Communication Systems, claims there is a substantial change in embryonic cells when exposed to ELF from power lines and microwave radiation from cellphones! The damage was greatest to young, fast growing embryonic cells. ⁵

¹ Ogden, Frank. Killing fields. *Electronic world + Wireless world*. January 1990, p 3. and Thomas E Bearden. Deep penetration of dense electromagnetic noise. *Planetary Association for Clean Energy Newsletter*. Vol. 11 (1&2). p 19 -24.

² Independent Expert Group on Cellphones 2000. See website: www.iegmp.org.uk, also available from NRPB by telephone: [44] 12-3583-1600. Extract found in: S. Maisch. Children and mobile use, is there a health risk? *Nexus Magazine*. June / July, 2002.

³ Coghill, Robert. Cellphones and health: why the missing evidence. *Electromagnetic Hazard and Therapy*. 200,11(1)

⁴ Wolfram König from the Federal Agency for Protection from Radiation, Bundesamt für Strahlenschutz.

⁵ European Union COST 281 Project: Potential effects from emerging wireless communication systems.

Professor Hyland warns

Professor Gerhard Hyland at the Department of Physics, University of Warwick, Coventry, England states several hazards in his report at the STOA Committee of the European Union dealing especially with children and cellphones. His findings are alarming since he points to the fact that there will be resonant phenomena (building up of received energy with no chance of escape) within the skull-cavity, especially in brains of the size of a young child! Young children using cellphones or being close to a phone will also absorb more than a grown up due to a much thinner skull.

According to Hyland the 8.34 Hz and 2Hz pulses of current analog phones lie in the range of normal brainwaves and may thus explain why such radiation is especially disturbing to the brain's activity. Again, this is most dangerous in children having an abundance of slow delta waves before the age of 12 when the faster alpha waves appear. Damage to the immunity system is also a problem not to be ignored.⁶

In an article in the December 27th 2001 issue of the *Sunday Mirror*, *The Child Scrambler*, a paper by Spanish scientists is quoted stating that 2 minutes of cellphone exposure to the ear causes altered brain activity for up to an hour afterwards, often resulting in aberrant behaviour, psychiatric problems and even ADHD attention deficiency-like problems.⁷

The problem countered is even more problematic than first considered in the Spanish Marbella Institute study quoted above, 87% of all children, in the age group between 11-16 used cellphones, but when confronted with the findings, as much as 70% said they did not bother about the consequences which bottom line means: regardless of scientific warnings, the average child is more willing to listen to producers advertising and the recommendations of their friends than hard science. Which of course raises a question of who should rule the market: science or cellphone-companies.⁸

In an effort to present numbers into the discussion, Swedish researchers Kjell Hansson and co-workers presented statistics in 1998 that can be ordered from forlage@niwl.se.⁹ In the controls, there were testers who only used cellphones 2 minutes per day. Their numbers were alarming: the longer the exposure the more problems would appear, *i.e.*: fatigue, headaches, heating behind the ear, heating of the ear and a sensation of burning in skin ("paresthesia"), and elsewhere on the body. The increase in symptoms went up 4 to 22 times more compared with the control group. Since the sensation of burning skin and fatigue are non-thermal problems, this should raise a few eyebrows in the "only heating effects" community!

Blowing your brain cells

Other alarming effects were found by professor Henry Lai and Dr. Naranda Singh at the University of Washington, Seattle when they discovered that rats exposed to microwaves similar to those of cellphone radiation got brain-cell DNA changed, not explainable by thermal effects alone.¹⁰ Another non-thermal critique came from within the military! Dr. John Tattersall from Porton Down Chemical & Biological Defence Base received a £113 000 research funding by British Department of Health and identified changes in rat -brain *hippocampus* after exposure to non-thermal levels of radiofrequency-radiation.¹¹

But apart from children, rats and cell cultures and randomly picked volunteers, also more prominent personalities seem to suffer: More recent is the suffering of the former World Health Organization General Secretary Gro Harlem Brundtland, Norwegian Prime Minister and chairman of the UN Brundtland Commission, and way back, Labour Party minister of Environmental Protection in Norway. Highly

⁶ Hyland, G. Report for the STOA committee of EU.

⁷ The Child scrambler, Sunday Mirror, Dec 27th, 2001 and Mobilism, part of an article, The mobile danger in Berlinske Tidende, September 21st 2003 – only Danish text available, but much of the text is taken from the Sunday Mirror article 2 years earlier.

⁸ S. Maisch. Children and mobile use, is there a health risk? Nexus Magazine. June/July, 2002.

⁹ Arbetslivesrapporten. 23. 1999. National Institute of Working Life, Umeå, Sweden.

¹⁰ Lai, H. and N. Singh. Single and double-strand DNA breaks in brain cells after acute exposure to radiofrequency electromagnetic radiation. International Journal of Radiation Biology. 1996. 69. p.513-21.

¹¹ Tattersall, J., *et al.* The effects of radiofrequency electromagnetic fields of rat brain slice *in vitro*. IEE Science Meeting, June 28, 1999, London. Reference 99043 CBD, Porton Down UK.

respected for her work and achievements, she suffered the ill consequences of apparent overuse of unshielded computers, cellphone radiation, and even from a microwave oven accident injuring her eyesight.¹² Her health became so fragile that no one was allowed to place a cellphone, a computer or a fluorescent light near her, confirmed to both the Norwegian press and *Microwave News*. While suffering, she has proclaimed no longer able to hold the prestigious post of "doctor to the world". Rumour was that the reason for her resignation was her failing health.

Public heat - official cool

Despite public complaint and the "Brundtland disease", as some papers nicknamed it, official reaction has been negative on behalf of the average sufferer. Much time seems to have been spent claiming that, "No scientific support has been found to explain the problems", and that all phones and mobile base stations operate "within safe limits", thrown in an effort to douse the public fire. Much of this negative outcome on behalf of the public seems to be due to a materialistic worldview well entrenched in early 20th century mechanistic beliefs about life. The idea of SAR technology was introduced. According to the idea, human beings were nothing but chemicals in 70% water, inside an envelope.

SAR meaning: Specific Absorption Rate. SAR refers to absorbed energy per kilo of body weight = Watt/kg. If your body is exposed to 7 Watt of EM energy and your weight is 70 kilos, your SAR = 7W/70kg = 0.1 W/kg. It has been found that, neglecting cooling, a human body exposed to a SAR of 2W/kg for 30 minutes will have a total body temperature rise of 1° Celsius. Officially, according to organizations such as IRPA in 1984, was that a SAR of 0.4 Watt/kg was "tolerable" for workers in industry! As for the public, SAR of a 0.08 W/kg was regarded as "safe".^{13,14} The SAR measurement in the technology community often uses "dummy heads" made out of plastic and filled with a jelly that simulates "what is inside your body", then irradiated by a cellphone. The sole interest here is temperature rise!¹⁵

In line with such arguments, authorities declared that deformed babies conceived by fathers working in the intense microwave environment on the special electronic warfare warship KNM Kvikk had suffered no harm living and working 24 hours per day in microwave exposure. The "Kvikk report" is a brilliant piece of whitewashing that also quotes cellphone companies as a source for reliable information to the problem.¹⁶

According to this flagrant disinformation soldiers onboard did not suffer undue SAR exposure and safety limit onboard was set to 0.4 W/kg. They, however, half-heartedly, admit that there are nonthermal dangers but "...international organizations have evaluated nonthermal effects too, but they find that knowledge about non-thermal/athermal damage (due to electromagnetic emissions/fields) is too incomplete and uncertain to give enough advice to be able to alter the standards"¹⁷. This is business as usual: the proof lies in the suffering of the individual, but it is up to the individual to prove the cause of his trouble, and the authorities are not to be blamed for not taking the sufferer seriously. Instead, considerable time is used to practice the *Pilatus* game: letting the innocent be sentenced by non-ionizing radiation exposure.

The constant referral to the SAR numbers, based on a purely political consensus of how much a productive man and woman should be allowed to be exposed to before failing to produce at the assembly lines, has been the sure defence against critics. And constantly undermining non-thermal effects with arguments that they are unreliable has led even international organizations like WHO to become ineffective as an accurate source of advice. It is the irony of life that while Mrs. Brundtland was the

¹² Dagbladet Norge. March 9, 2002. See also: www.dagbladet.no and Microwave News XII, 2, March/April 2002 and www.microwavenews.com.

¹³ Aagaard, L.H. Researcher says mobile debate now out of proportion. Berlingske Tidende. October 31, 2003. Also: www.berlingske.dk/popup:print=3719992?&

¹⁴ Sødergreen, L. and O. Johansson. Commentary: mobile telephones - will the golden goose become the mad cow? Journal of the Australasian College of Nutritional and Environmental Medicine. August 2001. p 29-30

¹⁵ Scott, J. & C. Van Zyl. Introduction to EMC. Newnes. Oxford, 1997.

¹⁶ Kristensen, P., K. Jacobsen and K. Skyber. Congenital deformities among babies who had fathers who served on KNM Kvikk. STAMI Report #3. 2000.

¹⁷ See reference 15.

General Secretary of the organization, she suffered harm from field levels that her experts publicly stated were completely safe! During the same period, however, international organizations were deeply concerned about non-thermal effects of fields on technical equipment. The bottom line seems to have been that the well-being of your computer in an electromagnetic field environment is, overall, more important than that of the operator, who in the end, is an economically replaceable unit.¹⁸

Confessing old sins the EU way

Much could be said about this situation, but asking people about discomfort and measuring SAR do not access the real problem of what happens to those exposed to a certain field over time.

To correct past sins, a European Parliament STOA subcommittee issued a statement concerning Physiological and Environmental Effects of Non-ionizing Radiation, PE 297.574, March 21, 2001 that recommends the following scientific research should be done concerning radiation safety limits:

- a) Observation of how living beings react to radiation, and stop using "dummies".
- b) Observation of which part of the body is exposed to radiation, not the mere fact that the body is exposed to radiation.
- c) Systematic investigation of human beings to reaction, using electrical measuring devices, such as Electroencephalograms and Myoelectrograms to study how these parameters tell something about electrical changes occurring in man.
- d) Use non-invasive methods of investigation such as measurements of bio-photon emission to study how cellphones influences humans.
- e) Evaluation of the effects of cellphones by using data from police and military experiences with their radar equipment.
- f) Investigation of harm done to animals on farms situated near cellphone network base stations.

At last, things are going in the right direction and our report is actually in line with recommendation e) and f) of the EU Parliament recommendations, and, to my knowledge, one of the few so far. As usual, a private company, concerned about public health hazards, paid for the report on cellphones and not a governmental agency or body.

Whistleblowers short of breath?

Officials and cellphone companies have tried to downplay the hazards by using obsolete measuring devices and by focusing mostly on the SAR (Specific Absorption Rate) measured in Watt/kilo bodyweight, claiming to find very little "heating effects", thus stating the problem to be minimal, even psychological. But serious scientists focus on the main issue: biological resonance.¹⁹

Bioresonance is a well-known phenomenon acknowledged more than 60 years back when the first experiments with biofeedback started in the United States. Briefly stated, it works like this: living tissues like organs, vessels, nerves, individual cells, even their individual parts (organelles, proteins, enzymes and DNA) have certain energy absorption resonant frequencies where they start to absorb energy more intensely, and when doing so, start to alter their manner of functioning sometimes improving their performance, but more often getting disturbed and starting to malfunction.²⁰

A considerable body of knowledge has been built up concerning radiation frequencies, wave topology (waveform, pulse duration and the sequence of pulses) and their electromagnetic field strength. This body of knowledge today forms the firm foundation of a diversity of disciplines such as the caring art of magnetic healing, the German *MORA* bioresonance therapy, the Hungarian/NASA *Quantum Xeroid*

¹⁸ See reference 15.

¹⁹ See references 1 and 15.

²⁰ Galle, Michael. *MORA Bioresonance therapy - and it works!* Pro Medica Ewald Häring, Wiesbaden, 2002. Major textbook on biological resonance by the German physicist. English translation expected. Data is relevant for devices by other manufacturers, such as *BICOM* and *Health Angel*.

therapy, and the more sinister art of electromagnetic warfare. Needless to say, the players in the latter game are more often silent than the other players, but enough is known by now to state firmly that microwaves are harmful even in nanoJoule/cm² quantities when topology and frequency are "right".^{21 22}

Unfortunately, current cellphone technology has hit the wrong combination, and unknowingly joined the wrong party. Solid facts now appear to cause alarm. A recent book by Alex Constantine documents that high-intensity as well as low-intensity microwave radiation is sufficient to "knock out your brain".²³

The more simplistic "heating tissue" problem, claimed to be the only reason for concern by pro-cellphone interests has its problems these days. Dr. Kjell Hansson Mild at the National Institute of Occupational Health in Umeå, Sweden has shown that analog cellphone users report heating effects after only 2 minutes of use. Habitual use of the phone for more than 60 minutes daily was 22 times more likely to give heating effects to the head.²⁴ If rats are your favourite subject, it may be disturbing to know that professors Henry Lai and Narandra Singh at University of Washington in Seattle found DNA damage to cellphone exposed rats, most probably nonusers.²⁵

Professor Leif Salford at Lund University has shown that cellphone radiation will cause an altered blood brain barrier, thus allowing toxic elements to penetrate the brain more easily. Toxic penetration appears after only 2 minutes of phone use. The effect is most probably a biological resonance effect.²⁶

The aforementioned Dr. John Tattersall at Porton Down Chemical and Biological Defence Base in Wiltshire found that radiofrequency emissions damaged the hippocampus of the brain of rats, the area of major structure for memory and learning abilities. These findings are disturbing because of their nature, and because as some saw it, the funds came from government funding of military research!²⁷

Clinical research is also abundant. A 1998 Swedish study by Kjell Hansson Mild and associates noted that symptoms of discomfort increased with time in exposure to cellphones in analog mode. Reported symptoms included: fatigue, headache, heat sensation in the head, and skin rash. The longer the exposure, the more frequent the complaints. For users exposed an hour or more daily, the increase in warmth behind the ears went up to 16-fold, and 4-fold for exhaustion - certainly not a sign of safe technology.²⁸

Searching for the Holy Grail of electromagnetic emissions

My own involvement with the emission problem came from personal experiences with NIR. Having studied Fortran- computer programming at the University of Oslo as a part of my studies in physics and mathematics (1966-69) I took an early interest in the field of personal computers and took a liking for PC work sitting hours in front of old-fashioned video display terminals - computer screens, later nicknamed "Chernobyl Screens" when it was discovered that users got their share of non-thermal radiation sickness. By 1994 I had to leave totally the screen-work and stop using the computer in my office, because

²¹ Schaffer, U. and G. Schaffer. MORA for the beginner. MedTronik, Friesenheim.1995

²² Private communication with Buryl Payne, January 2003. See: www.buryl.com.

²³ Constantine, A. Psychic dictatorship in the USA, Feral House, Los Angeles, 1995. Although this is underground text is not usually read by sober scientists, it presents a Pandora's box of documented information on weak EMF for covert warfare, more than 50 years old, showing that military already have enough evidence to render claims that the analog or even the digital cellphone systems are "safe" appear to be "rather dubious", to put it mildly. The book confirms that Dr. Schjeldrup's book, Electromagnetism and Life was well ahead of its time and true to fact.

²⁴ Mild, Hansson K., *et al.* Comparison of analog and digital cellphone users and symptoms - a Swedish-Norwegian epidemiological study. Arbetslivsrapport, 1993, #23

²⁵ Lai, H, and N. Singh. Single and double strand DNA breaks in brain cells after acute exposure to radiofrequency electromagnetic radiation. International Journal of Radiation Biology. 1996. 69, p. 513-21

²⁶ Salford, L., *et al.* Permeability of the blood brain barrier by 915MHz EM radiation, continuous wave and modulated at 8, 16, 50 and 200Hz". Microscopic Research and. Technology. 1994. 27. p. 535-42.

²⁷ Tattersall, J., *et al.* The effects of radiofrequency electromagnetic fields of rat brain slice in vitro " IEE Science Meeting, June 28,1999, London ref: 99043 CBD. Porton Down.

²⁸ Arbetslivsrapporten. 23. 1999. National Institute of Working Life, Umeå ,Sweden

secretary suffered blurred vision, headaches and itching; I myself suffered the same and open sores in the scalp that disappeared when I took a summer holiday and abstained from VDT exposure. After that, we did no more PC work until 7 years later when I finally changed technology to LCD screen, battery operated PC and Silver-silk shielding vest (Tightly woven silver material that can be used for making shirts and vests with 99% NIR protection). Several more exotic “shielding devices” were tried, but their efficiency was never satisfactory. During this period of a more cautious PC approach, we learnt through a businessman from the city of Stavanger that the military had shielded computers for years, and we were referred to a certain company in Florida that could deliver non-NIR computers. However, in the course of the discussion with the company we learnt they were military-affiliated and were told that they were not allowed to sell any of their gadgets, neither to us, nor to any common Joe!

By 2002, in our efforts to find technology to shield, and prove NIR-damage we finally came into contact with the German-based company *MedTronik*, founded back in 1976 by Dr. Franz Morell and the engineer, Erich Rasche, who worked with a technology that could detect the finer changes in human bioenergy, interpret the clinical meaning of these changes, and even treat imbalances and produce provable healing effects by simply taking signals from the body of the afflicted, filter and “clean” them, and put them back into the body as a sort of “energy medicine”.²⁹ As a consequence of the process of putting “cleaned” energy back into the body that had produced it in the first place, the inventors had indeed discovered a sort of “biological feedback therapy”, quite popular at that time.³⁰

However they settled for the name Bioresonance Therapy (BRT), since they focused on the fact that the energy was absorbed by “biological resonance” or more simply “vibrations absorbed by a system that itself vibrates with the same frequencies as those received”. To make it simpler: Get yourself two guitars that are tuned identical to a set standard, then pluck the G string of guitar A and guitar B will sound a pure G, without touching it: resonance is the name of the phenomenon.

After meeting BRT therapists like Reidun Dalhiem Lydersen - with 17 years of experience - and her teacher, former MD, now retired Nanik Shivadikar in London, who was a personal friend to Franz Morell, I finally bought state-of-the art BRT equipment: the *MORA Super Plus*, and started to measure the bio-energy of patients. Some 2,000 consultations later, I founded Theratronic, a company selling *MORA* equipment and doing bioenergy research, in addition to my own MD practice.

During these years, we discovered what other BRT practitioners had experienced before us: non-ionizing radiation changes bioenergy equilibrium and engenders health problems that disappear only once the disturbed bioenergy is properly “cleansed” and “corrected” (more about this later on). Thus, the search for personal protection devices became a must for not only myself but also for my patients - as well as a quest for other BRT pilgrims in search of the Holy Grail of such shielding! Eventually, I met with one such pilgrim, Carsten Bang, a friend of the Bulgarian professor Danev, former top-notch scientist in a cold war program (who developed a personal protection device that reduced the harm experienced by Bulgarian diplomats and military personnel exposed to Russian electromagnetic warfare - at least that was the story). According to Carsten Bang, Danev might have had a glimpse of the Holy Grail and I was given the contact Ecoflow, a British company selling Danev’s unit under the name, *Vector*, later changed to *Bioguard*, while Danev and Bang continue to sell the unit under the *Quantum* name.

And here starts the story to be told: how the BRT community provided us with the equipment to chart the path to understanding of how a small device the size of a thumb nail could actually boost the body’s radiation immunity so that the non-ionizing radiation would not intrude on the bioenergy and cause “electrosensitivity”, the infamous “Brundtland disease.”

²⁹ Morell, F. *MORA: Therapie Patienteigene und Farblicht Schwingungen-Konzept und Praxis 4 auflage* (MORA Therapy with body’s own energies and coloured lights). Haug Verlag, Heidelberg, 1987. [No English version available. Medtronik and Regumed have English literature and are on the Internet: www.regumed.de and www.med-tronik.de.]

³⁰ Moss, T. *The body electric*. Corgi Books, London. 1978.

Part 2: Charting the Life energies

How is it possible to quantify changes in human beings caused by cellphones? The following introduces a new technique: using equipment to measure the electromagnetic fields of the human body to put numbers to what is happening on the energetic level. This is obviously the correct way to go, since cellphones emit electromagnetic signals that interfere with body energies, not with structures seen by the microscope or primarily measured by chemical reactions. Only after exposure are such morphological changes seen. First, function is disturbed, and function is best measured with appropriate electromagnetic instruments.

Of astronauts and SQUIDs

Going through the Planetary Association for Clean Energy database on extremely low frequency, low frequency and radiofrequency studies on humans and animals, we found very little biophysical measurements as a basis for evaluating radiation hazards.³¹ Most papers dealt with morphological data: blood samples, cell morphology, *in vitro* studies, and clinical studies. Most of the data available came from the extensive Russian data presented by A. S. Pressman in his standard textbook³² and the even more impressive work of Alexander P. Dubrov, *The Geomagnetic Field and Life*, citing more than 1,181 works published by Russian, American, and other scientists.³³

From the German medical expert Dr. Döpp, we were introduced to the Russian *Prognose* equipment using the Voll electro-acupuncture parameters to test Russian astronauts. The equipment has a database of over 12 million measurements, but the technology is unfortunately based on the use of a host computer thereby irritating electro-sensitive patients and tending to give some problematic readings.³⁴

The idea behind all these works is simple, yet profound: *All* biological processes in the body involve transport of electrical charges and thus generate electromagnetic fields as predicted by the classical Maxwell formalism. There is actually no process in our body where electromagnetism is not generated! Furthermore, the type of electromagnetism generated is highly specific to the process going on. Therefore ever-increasing sensitive detectors let us identify processes with ever-increasing specificity. Today it is possible to identify radiation from viruses and bacteria and to use this data to identify the presence of these organisms as accurately as the best publicly available microscopic or serological tests known. Unfortunately such advanced equipment is unavailable in public hospitals or universities!^{35 36} Furthermore, to understand the phenomena a doctor should spend at least 2 semesters studying biophysics, a reasonable demand for most medical students that would provide benefits in medical technocracy.

To qualify biophysical parameters that can be used to monitor the life processes by means of electromagnetic energy, proper equipment must be available.^{37 38} The most advanced is, of course, direct

³¹ *Bioeffects of weak electromagnetic fields* – selected bibliography. Planetary Association for Clean Energy, Ottawa, 1994.

³² Pressman, A.S. *Electromagnetic field and life*. Plenum Press, New York, 1968.

³³ Dubrov, Alexander. P. *Geomagnetic field and life*. Plenum Press, New York, 1977.

³⁴ Personal information from Dr. Med. Döpp, *Prognose* medical advisor. The Althea-Prognos conference in Spain, October 2002.

³⁵ Private information from Wilhelm Schjeldrup MD, Oslo, 1989 on his work, *Electromagnetism and life*, Dreyer Forlag, Oslo, 1985. Schjeldrup was informed about such equipment by the Schiller Institute in Sweden. When I contacted him July 13, 2004, he could not find the original article, but confirmed that the institute (since closed due to its affiliation with the controversial US politician, Lyndon La Rouche) sent him a copy of a scientific paper about this kind of equipment.

³⁶ A machine was invented already in 1938 by American scientist Raymond R. Rife, in cooperation with Georges Lakhovsky that could tune to the resonant frequencies emitted by all types of microbes and then shatter them by using their resonance frequencies according to documentation presented in the book: *The healing of cancer* by Barry Lynes, Marcus Books, Queensville, Ontario, 1989. The Rife and Lakhovsky devices may not have been a diagnostic tools, rather a tool using the fact that living organisms absorb frequencies they emit.

³⁷ Eisen, J. *Suppressed Inventions & other discoveries*, Perigee Book, New York, 2001

³⁸ Pressman, A. S. *Fields of Life*. Paladin Press, New York, 1969

measurement of time-varying electromagnetic fields and radiation (short wavelengths). With the help of the super-cooled, super-conducting magnetometers used in *SQUID* detectors, it is possible to measure directly magnetic and electrical components of the body's various energies above a certain level and use these for life-process evaluation and diagnosis. *SQUIDS* are unfortunately not standard equipment in most universities, and even less for private clinics or private doctors like myself.

Discoveries of modern alchemists

To circumvent these problems, researchers have devised a number of indirect measurements, mostly based on Norbert Wiener's black-box approach. By injecting some stimuli: light, electromagnetic signal, physical action, chemical substance etc., and, then measuring changes in electrical parameters, we can develop a reliable theory of how living tissue behaves at the cellular level *in vivo* (in real life). The reason for using electrical parameters is, of course, that it is simpler to build and run electrical monitoring systems than magnetic ones.³⁹ It is possible, at least in theory, to calculate the magnetic field once the electric parameters are known. Below are some parameters used to evaluate the nature of "life-field", as understood by modern biophysics. A short table is presented below - not claiming to be complete - just to give an idea what techniques have been used.

Technique	Information source	Comment
1. Measurement of electrical resistance to applied currents in the skin. Galvanic Skin Response (GSR)	<i>The Ray of Discovery</i> . Borderland Sciences, circa 1980	1880s research by American George White MD shows GSR responds to external stimuli, including geomagnetic field variations!
2. Measurement of voltage gradients between areas and points on the skin of animals, humans and plants.	Harold Saxton Burr. <i>Blueprint for immortality</i> . CW Daniel Company, 1972	1936-70. Yale professor Burr introduces a life-field of energy, expressed in voltage differentials in the body, measured on the skin. (L-field) Led to EEGs, EMG, ECG technology.
3. Emission of electrons from body during external EMF. Phenomenon may be natural amplification also in exposure to geomagnetic field, resulting in aura phenomena.	Kipner & Rubin. <i>The Kirlian Aura</i> . Anchor Books, NY, 1974	1939. Symion Kirlian notes that when body is exposed to radiofrequency voltage, it radiates electrons according to state of health. Electron emissions can be photographed as Kirlian Aura.
4. Emission of photons during cell division by Russian scientists who call it "mitogenic light emission"	Gurwich & Gurwich: <i>Die Mitogene Strahlung</i> . East Berlin, 1960	1930-50. Russian couple Gurwich detect photons emitted by living cells in division; they show this light is used as communication between cells!
5. Discovery of the laser-like nature of light emitted by cells at all times.	Fritz-Albert Popp. <i>Die Bio Photonen</i> . Haug Verlag, Heidelberg, 1969 & personal information from Dr. Schjeldrup, 1977	German professor Fritz- Albert Popp measures light emitted from living cells and that is coherent like laser.
6. Biological energy in living beings is in a "plasma like "state: "bioplasma"	Ostrander & Shroeder, <i>Psychic discoveries behind the iron curtain</i> .	Russians Adamko and others propose that biological energy exists in a plasma-like state, introducing bioplasma idea.
7. Biological energy is deeply connected to the influence of outer magnetic forces	Rawls & Davids: <i>Magnetism and its effects on the living system</i> . Exposition Press, 1974	Rawls and Davids chart the polarity of biological energy and discover it has a dynamic

³⁹ Borsarello J. and J.Bersac. Techniques de détection et de stimulation des points cutanés en médecine chinoise. Private edition. Cary. 1976

		pattern with areas of North and South pole magnetic forces.
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This list is by no means complete, but gives an idea of the complexity of the phenomena. It shows that over-simplified explanations may not be the best thing to use for those working for big industries and governmental agencies, to put out the fire in public debates over cellphone hazards. One has to explain oneself to an ever more educated public, and the time has past when scientists could hide behind the fact that they alone knew. To use a metaphor: you could sell the idea to credulous teens in the 1950s that Spiderman became superhuman from nuclear radiation, but nowadays even the first grade toddlers would not believe it.

Tools of the trade

Over-simplified information may not be wise, but trying to use Life-field knowledge may not be as difficult as it seems. It is much like one electromagnetic theory which demands a lot of mathematics to be understood, while building a radio and making it work, is more a question of some working knowledge of electronics and a steady hand when putting the parts together. A number of friends in the electronic business and healing community are abler than myself in doing measurements. While I may know a few theoretical points of which they have no idea, they reach their goal the practical way.

Observation	Information source
Voltage in the skin varies with state of health in animals, humans and plants.	Saxton Burr and others 1935, <i>see above</i> .
Ohm resistance measured in acupuncture points	A number of works dating back even to 1850s! ³⁹
Bioresonance phenomena.	Morell & Rasche, 1965
Using the Kirlian Aura photography as a means of diagnosis. ⁴⁰	Kirlian 1939, and similar experiments done in USA, 1940 and onward.
Electro-encephalogram (EEG), Electro-neurography (ENG), Electromyography (EMG), Electro-Cardiogram (ECG).	Current medical knowledge used in hospitals worldwide, developed by Saxton Burr.

These 2 tables are historically inadequate as to the development of the cited methods since many researchers have used and developed such tools. Consider them as mere snapshots of events in time.

The conclusions drawn from advanced research reports are clear:

1. All life processes create electromagnetic energies of a very complex, not yet theoretically understood nature. According to the scientist, Thomas E. Bearden, the EM bioeffects that scientists measure in the body are actually gross level summations! They miss the entire rich internal structuring, and all the resulting long-term deleterious effects - from the dramatic effects from the alterations of the internal electrodynamics infolded inside the body's own EM fields, potentials and waves" [author's note: due to outer harmful fields].⁴¹ Only simple models exist - at least in the public domain; what military-funded research may have brought up is still to be wondered about.
2. All living cells/tissues/organs use these energies to communicate - a surprising fact. Cells, tissues and organs have, in the due process of evolution, "learnt" to distinguish certain very weak, complex signals as biologically meaningful, through the noise of background radiation created by random thermal movements of molecules and geological electromagnetic fields.⁴¹
3. All living cells / tissues / organs absorb and react to signals they themselves create and see these as biologically meaningful.⁴²

⁴⁰ Dumitrescu, I. and J. N. Kenyon. Electrographic imaging in medicine and biology, Neville Spearman, Suffok, 1979 and Becker, Robert O. and G. Selden. The body electric: electromagnetism and the foundation of life. Quill Press, New York, 1985.

⁴¹ Bearden, Thomas E.. Deep penetration of dense electromagnetic noise. Newsletter of the Planetary Association for Clean Energy. Volume 11, 1 & 2. p. 19-24.

⁴² Rein, Glen. Quantumbiology: healing with subtle energy. Planetary Association for Clean Energy, Ottawa

4. Geomagnetic field (GMF) and radiations emitted from the sun and cosmic sources, the weather, and man-made installations, disturb cellular communication and force living beings to react in a way to maintain functionality. This is known as the ability to adapt to maintain *homeostasis*; unfortunately traditional medical science, still living in the 19th century materialist paradigm, has yet to realize that living beings also adapt to maintain an electromagnetic *homeostasis*.⁴²

This adaptation to the outer fields has taken evolution billion of years, and unfortunately for all of us, certain fields and radiations are out of our of adapting to, thus causing deep electromagnetic disturbances that lead to biological breakdown. Such sources may be certain strong radiations from the earth, persistent solar flare activity, but above all, man-made radiations emitted by EM communication-equipment or even equipment intentionally built to harm people.⁴³ Due to the latter fact, one of the ironies of modern life is that while doctors in general deny such facts, certain military groups seem to take notice of the full implication of these facts, and accordingly utilize this vast knowledge for destructive means when found appropriate in warfare, openly or covertly. Today's models of cellphones emit harmful signals that add on to the ongoing bio-electronic warfare, with the difference that the victim willingly, or more often unknowingly, puts the "gun " to his head, because he wants to believe all is well, in the interest of convenience.

Voll points: reinventing acupuncture

Specific electrical resistance (Ohm resistance = Applied Voltage/Measured Current = Volt/Ampere) in certain points known as acupuncture points, has been used for 150 years, ever since the first Ampere meters became available. During the 1950s, French researchers like Dumortier, Ladoux and Niboyet, and German engineers like Pitterling worked hard to establish a type of technical equipment to measure resistance in a reliable manner. Such an apparatus was ready for the market by 1961 based on a Wheatstone-Bridge type measurement, connected to a sensitive amplifier.⁴⁴ The average resistance in a healthy acupuncture point was found to be 50kOhm, whereas surrounding skin resistance was found to be 150 kiloOhm up to 1 MegaOhm.⁴⁵

One of the first to utilise this new generation of equipment was the German MD, Reinhard Voll, who systematized certain major points, and by using standard voltage, found a common value in healthy persons. Whenever these points deviated from the norm, this indicated a pathological process, and by analysing thousands of measurements, he found which point best represented which part of the body. This method came to be known as EAP *Electro Acupuncture* or EAV *Electro-Acupuncture*-according-to-Voll.⁴⁶

Of all the Voll points - actually Chinese acupuncture points discovered thousands of years ago, but more precisely and better interpreted by Voll, those close to the corner of each nail on each of the 10 fingers and 10 toes have proven to be most useful. The Chinese knew these points as the Ting (end) points. The Chinese knew only of 6 Ting points on each hand and foot (34), while Voll noted that each finger and toe has 2 Ting points symmetrically situated on each side of the nail, adding up to 40 Voll Ting points instead of the acupuncture count of 24, or 12 on each side of the extremities⁴⁷ The $12 \times 2 = 24$ classical Ting

⁴³ See reference 33. Dubrov refers to more than 100 works on how GMF have shaped and influence life on the planet. According to evidence there are no isolated living beings; everything is interconnected via a common GMF origin, even at DNA level, complex and simple organisms share the same GMF-adapted design.

⁴⁴ See No. 39 du bulletin Societe d'acupuncture, 1er trimestre 1961. Studies by ing.Dumortier, article by Niboyet.

⁴⁵ Borsarello, J. and J. Bersac. Techniques de detection et de stimulation des points cutanes en meridiene chinoise. Edition Cary. Colombes. 1976.

⁴⁶ Voll, R.. Elektroakupunktur-Bildband I – IV. Med Lit Verlagsgesellschaft MBH, Uelenz. 1980.

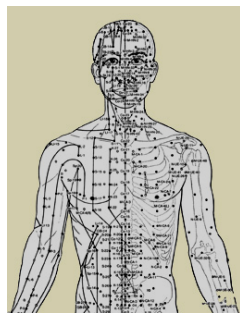
⁴⁷ The 6 classical Ting points on each hand and each foot give $2 \times 6 \times 2 = 24$ points. These points are symmetrically placed so in fact there are only 12 "different points" connected to the 12 major bilateral channels of acupuncture.

points are known today, thanks to Voll, to be related to organs, the vascular and glandular systems; the rest of the non-classical points are related to “functions” and various types of tissues.

Voll Points compared with the Classic Chinese point charts (intersections) ⁴⁸

Placement	Name of Voll Point	Classic term
Thumb medial side	Lymph system-point	Non classical
Lateral side	Lung point	Lung Ting point
Finger 2 medial side	Colon	Colon Ting point
Lateral side	Nervous system	Non classical
Finger 3 medial side	Arteries	Circulation/sex Ting point
Lateral side	Allergies	Non classical
Finger 4 medial side	Organ degeneration	Non classical
Lateral side	Glandular system	Triple Heater Ting point
Finger 5 medial side	Heart	Heart Ting point
Lateral side	Small intestine	Small intestine Ting point
Big toe medial side	R: Spleen / L: Pancreas	Spleen Ting point
Lateral side	Liver	Liver Ting point
Toe 2 medial side	Joints	Non classical
Lateral side	Stomach	Stomach Ting points
Toe 3 medial side	Connective tissue	Non classical
Lateral side	Skin	Non classical
Toe 4 medial side	Fat tissue degeneration	Non classical
Lateral side	Gall bladder	Gall bladder Ting point
Toe 5 medial side	Kidney	Non classical
Lateral side	Urinary bladder	Urine bladder Ting point

Voll points & functional “channels”



When reading this table, it is very important to retain that these points are not isolated neurological reflex points on one’s hands and feet, but the “end points” on a chain of points known as the meridian system, or in Chinese - the *Jing-Lo* - “the channel system”. ⁴⁹ The channel system has been thoroughly investigated by Chinese scientists. (See page 20). The cause for it is not properly explained but it seems that a mixture of crystalline structures in the connective tissue and nerves from a sort of “channel structure” along which very slow nerve signals of an electromagnetic nature flow. Chinese experience with epilepsy patients has shown that electrical discharging in certain brain areas may start a channel phenomenon in the body. A possible hypothesis is that the channel system is at the same time a *proto-nervous-like* linear system in the body and a sort of linear mapping in the brain.

All channels end on the Ting points on the fingers and toes. Since a Ting point is part of a corresponding “meridian” (chain of linearly-arranged sensory units along the body surface) makes the point not only

⁴⁸ Voll R. Topographische Lage der Messpunkte der Elektroakupunktur nach Voll. Med Lit Verlagsgesch MBH, Uelzen, 1980. Each nail has 1 Ting point on each side, increasing the number to 5 x 2 Ting points per hand and 5 x 2 on each foot. As these are bilateral, Voll found $2 \times 5 \times 2 \times 2 = 40$ Ting Points. Each point is located where the sides and the base of the nail meet. The total sum is like this:

	Left side	Right Side
Classical hand Ting points:	6	6
Classical foot Ting points:	6	6
New Voll hand Ting points:	4	4
New Voll foot Ting points:	4	4
Total New and old Ting points:	20	20

⁴⁹ Øverbye. Textbook on Acupuncture, Arcanum forlag, Göteborg. 1986.

important for its reflex function given by the Voll name, but also for the function of a region of the body. For a fuller understanding, the reader is advised to read any proper textbook on acupuncture.^{50 51}

How to read the body

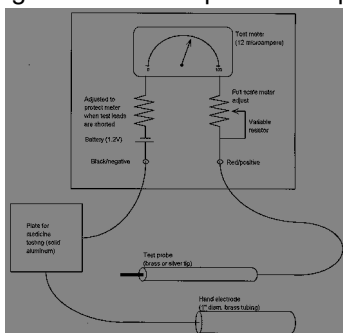
Readings on the *Electro-Acupuncture Meter* are done according to the specifications of Voll and his engineer, Pitterling, known as Voll parameters. The measuring technique demands that a brass/silver or gold-plated electrode serve as a "0 level" reference point (You may even connect this to ground, in order to obtain "true ground"), while a hand-held probe is used by the investigator to contact the Voll points, and serves as the active probe. Using the test unit on the *MORA*, *BICOM*, or any suitable equipment made to the Voll-Pitterling standard, the average resistance of a Voll point, when tested under controlled conditions, yields 50 kiloOhms.

Most meters today such as the *MORA* or *BICOM*, use conductance instead of Ohms, for purely psychological reasons. Hyperactive/excited persons have low resistance to a galvanic current, and by using conductance (Conductance = 1 / Resistance), you get an increase in the reading when a person is in a high-energy state, and *vice versa*! This is logic-satisfying and helps to remind the operator that when the needle goes up, it means overactive/hyperactive/high energy, and when it does not give a high reading the situation is reversed.⁵²

Dr. Cantoni and the flying papers

Using sensitive equipment like *BICOM*, *MORA Super plus*, or *VEGA* measuring units is no different from any other measurement procedure. But like all medical and technical advancements, such measurements have their story: In China, they have been detected by subjective means since certain active points on the body become more sensitive than normal skin, or more sensitive to heat or cold, or location, depending on the type of symptoms exhibited by a patient. The discovery that such active points had a lowered resistance to a galvanic current (DC = direct current) as compared with normal, surrounding skin was made by a French doctor, Cantoni, in 1948. When observing workers in a French paper mill, he noticed that static electricity created by the huge paper rolls made pieces of paper fly through the air and attach themselves to certain places on the skin of the workers that were identical to Chinese acupuncture points.⁵²

Together with Pompon and Leplus, he started to measure the electrical resistance in such points by a simple apparatus known as a Wheatstone Bridge, constructed for this purpose by Grenier and Brunet. It took more than 15 years to perfect the system and make it reliable, and by 1963 there existed several types on the market. In France, Dumortier and Ladoux made the first reliable systems utilized by Dr. Niboyet to form a scientific basis for French electroacupuncture. In Germany, Dr. Voll had his equipment made by Pitterling in Munich. It was this technology that was used by Morell and Rasche in their measurement system as a part of the *MORA* equipment.⁵³



Today, after 40 years of enhancements in electro-acupuncture measurement devices, the *BICOM*, *MORA Super Plus*, or the *Vega* are among the most reliable systems for an accurate measurement of the galvanic skin response at acupuncture points. While normal skin has a galvanic skin resistance of MegaOhms (10^6 Ohm), active points have a resistance of KiloOhms (10^3 Ohms).⁵⁴ The average of several thousand measurements lead Voll and others to conclude:

1. The body has certain points that relate to its health.

⁵⁰ See: www.bioresonance.no. Search: Øverbye: Using acupuncture system to measure human biological activity.

⁵¹ Per Lauborg. Akupunktur bogen. Vol 1, 2. Sopela Forlag, København. p.1002.

⁵² See reference 48, a classic reference text based on 30 years of empirical work

⁵³ See references 44 and 45.

⁵⁴ See reference 48.

2. These points are identical to the ancient system of acupuncture as described by the Chinese.
3. The points have a galvanic skin resistance expressed in KiloOhms.
4. When a disease or stress arises, certain points either lower or increase their resistance systematically, in accordance with a type of disease/stress, expressed in KiloOhms,

On the *Mora Super Plus*, the *BICOM* or the *VEGA*, which is in accord with the Voll-Pitterling protocol a normal, healthy point reads 50 units (= 50 Kilo Ohm) as mentioned, on the average + or - 5 units. Thus, we have a normal range of 45 - 55 units. Voll wrote about this, "the normal functioning of an organ gives a reading of 50 units in the corresponding acupuncture point(s)". To reach this reading, brass electrodes must be used and the skin must be cleaned with alcohol and then moistened with a few drops of sterile water.^{55 56}

To achieve a stable reading pressure to the skin, one must also have a constant value between 600 -1,400 ponds when using a 3mm brass probe. If using a sharper probe, pressure must be between 400-900 ponds. Below the pressure of 400, you will give a false low reading above 900 pond, you get a high reading which is false.⁵⁷

To ensure proper pressure, the *MORA Super plus* gives a signal when proper pressure is reached. The operator is never allowed at our lab to test until he/she has done at least 1,000 supervised point measurements, where the results are double-checked by me. (I have a record of about 500,000 single point measurements).

What do the Voll parameters tell you?

According Morell, Rasche and Voll, the clinical states corresponding to a certain Voll point reading (*i.e.* the Voll parameter interpretation) are as follows:

Reading	Pathology in organ/body part
Under 45	Reduced function = hypoactive
45-55	Normal function
55-82	Increased activity = hyperactive
82-88	Partial inflammation
88-100	Total inflammation

Measurements must be done on a relaxed patient, in a room without disturbing outer electromagnetic fields (this is ensured by daily checking for background radiation of ELF, HF, VHF and radioactivity in the lab using *TriField* meters and *Geiger* counters and lately, the German RF *Aaronia* "sniffers"), at 21°C, 30% humidity, always on a cleansed skin, and always by a trained lab assistant.

Our own statistics of several thousand measurements show a variation of readings on the same point (of course done on different patients, never more than maximum 10 measurements of the same point) of $X_{\max} - X_{\min} = 4$ units. This gives a variable for each individual point of 0.5×4 units = 2 units.

Our own experience also shows that most readings will be in the range of 40 - 90 thus making relative error maximum $2 / 40 \times 100\% = 5\%$ which is acceptable in modern laboratory practice. This uncertainty will reflect on the sensitivity of a reading, as to whether a reading is normal (called negative) or abnormal (called positive) in the language of statistics.^{58 59}

⁵⁵ Øverbye, B. and Lydersen R. Dalheim. How to become a good bioresonance therapist. Private edition. 2004. 1 year BRT curriculum at Oslo Fagskole for BRT, based on 20 years of BRT work, interviews with successful therapists and similar manuals.

⁵⁶ The Mora Therapy Handbook, MedTronik, Friesenheim, 1999.

⁵⁷ The pressure is measured with a sensitive piezoelectric unit or a simple spring-loaded unit in such a way that when your hand presses probe to the skin, you will read applied pressure on a corresponding scale. Since the probe tip has a diameter of 3 mm, pressure/ unit, area will be of a different value than the applied force. See reference 48, page 25 where Voll uses "Anpressdruck" {"the pressure applied" - by the operator to probe in absolute units} to describe the values in his charts.

⁵⁸ Lyngbye, J.. Nordic Laboratory medicine handbook. Helped AS, Molde. 1999.

⁵⁹ Moore, D.. Statistics: concepts and controversies. W.H. Freeman. 1979

$$\text{Sensitivity} = \text{True Positive} / (\text{True positive} + \text{false negative})$$

True positive = Diseased, confirmed by readings outside the accepted normal range.

False negative = Diseased, but readings are within the accepted norm normal range.

To have a good working method, true positive and true negative should be as high as possible, while false negative and false positive should be as low as possible. Note that the normal range is a statistical concept based on certain assumptions and concepts that may not always be in accordance with nature.⁶⁰

Life-energies by numbers!

To really establish the Voll parameters as measured with equipment like those produced by Pitterling (*Detecttherapic*), Regumed (*BICOM*), MedTronik (*MORA*) or *VEGA*, we need to know how specific the tests are to establish a clinical diagnosis. Or to put it simply: If we find a certain value/reading, how sure are we that this point-reading says something about a certain corresponding status of the organs named on the Voll Ting points or the status of the structures passed by the channel on which the Ting-end point lies? Only clinical tests can tell us. There are several procedures available. Clinical cross-checking: A patient with an established medical pathology is sent to testing and the results are compared; or the other way around, tests are made with Voll parameters and then sent to medical examinations to establish the diagnosis by already tested methods like X-Ray, MNR, CT, blood-tests, clinical inspection, etc. Several researchers have done such double-checking over the past decades in numerous studies of acupuncture point-specificity. In 1973 professor Yingqing Zhang



tested 2,074 patients with equipment similar to the *Niboyet Detecttherapic* on 8 points on the hand later to be called, the *ECIWO* points, a subset of the acupuncture points not normally used in the standardized Voll series. Accuracy was on the average 95.3%, probability value less than 0.01!^{61 62} In 1982 Zhang and co-workers repeated a new test, this time on 11,338 patients. Accuracy was 92.7%, p-value less than 0.01 (meaning: less than 1% chance the result was due to pure coincidence).⁶³

Even more impressive is the *Prognose* protocol developed in the Russian space program using a special probe, no more sensitive than the *MORA/BICOM* probe, but easier to use for quick-diagnosis because it demands less pressure. The tests were done on more than 12 million point-measurements, over a period of 15 years, and were found to be more than 90% accurate. *Prognose* equipment and its reduced Voll parameter protocol (using only the 12 bilateral "organ-points"), once a "secret", are sold for Dollars and Euros for the benefit of ordinary patients⁶⁴

A way to put verify the Voll parameters using *MORA Super plus* is to test patients with scar tissue. One finds deviant readings on the following points: nerve-degeneration point and skin-degeneration point, plus a crowd of variables depending on scar location. Since a combination of a high-skin reading and a low nerve reading occurs in each patient with a scar, one can deduct that, "inflamed skin" + "damaged nerve" = "scar tissue". The phenomenon is so accurate that in 9 out of 10 cases the presence of scars is determined simply with Voll measurements; the scar can be located if it is on a meridian - as the Voll reading of that meridian reads pathological.

Meridians: your rivers of life

⁶⁰ Prof Oddleif Aalen, Biostatistics, University of Oslo notes, "normal range is as much a tradition as a scientific concept based on scientific evidence. It always refers to a group of presumed normal population, if not being so will lead to a un-biological normality concept derived by measurements".

⁶¹ Schjeldrup, W. *ECIWO Biology*. Høyskoleforlaget, Kristiansand. 1999.

⁶² Advances in acupuncture and acupuncture anaesthesia. People's Medical Publishing, Beijing. 1980. p.255-79.

⁶³ See reference 61.

⁶⁴ Private communication with Dr. med Döpp at Althea-Prognose seminar, Spain, 2002.

Since 12 of the 21 points used by Voll also belonged to the organ Ting end meridian points, they have a stable, 4,000 year old reputation for actually reflecting the state of the organ to which they belong. It is beyond the scope of this report to validate the existence of the organ meridians, but it is reassuring to know that between 1972-78, 64,338 patients were tested with electrical currents at a number of specific points, to establish the subjective sensation of the meridians. On the average 5.6% to 45.2% claimed to feel the complete meridian course, called "Propagated Sensation along the Channel " (PSC). By analysing previous tests, Wang Buxiong and Cui Lihua and Chu Weizhong of Shanghai Institute of TCM reached a PSC success rate of 85.59% in 118 tested, healthy soldiers and students. All these tests on persons without previous knowledge of the meridian channels resulted in identical sensations, when occurring, about the precise course of each channel. ⁶⁵

The "Propagate Sensation along Channels" PSC meridian, according to modern Chinese research, confirms concepts and experiences as recorded in books like the 3,000-year old classic, *The Yellow Emperor's Classic on Internal Medicine*. ⁶⁶ Modern research has verified that the channels are not nerves but special skin phenomena related to the embryonic ionic skin channels that precede the peripheral nervous system. According to Dr. Hubertus J. Buchheit, these embryonic conductive lines are described by thousands of years of experience and explained in the study of modern embryology. Their function and morphology are, furthermore, established and so are the points on each channel. Why and how these skin areas develop is not fully understood, but their course is embedded in the sensory system of the brain and can be felt by electrical stimulation of areas in the cortex.

An observation by Dr. Xue Chongcheng at the Department of Neurosurgery and Neuropsychiatry at the People's Hospital in Guanxi Ziangzu region, relates to investigating patients with amputations of a limb, who experienced a complete PSC meridian sensation when an appropriate acupuncture point on the amputated limb was stimulated. ^{67 68} The patient then felt from sensation as if the limb were still there, a proof that the PSC is a cortical sensory experience, not only related to a physical limb. This is in accord with Professor Wilder Penfield's experiments with patients in the 1960s when he activated a limb sensation when stimulating certain areas in the sensory cortex.

Dr. Chongcheng notes that if there is a lesion in the sensory cortex of the patient; one cannot elicit a PSC phenomenon by using acupuncture! There is thus a clinical specificity to the points, a morphological substrata and a neuro-embryological explanation to the observed data. ⁶⁹ The Voll points are therefore, in a real sense, points that can be used to say something about the functioning of the human body.

Accuracy = specificity = true negative / true negative + false positive

False positive = Healthy, identified as diseased by a "bad" reading lying outside accepted normal range.

True negative = Healthy and identified as such by a good reading lying within accepted normal range.

We may state that by using the *MORA Super Plus* in a proper manner by a trained person, using the Voll parameters as described by Voll, both sensitivity and specificity are accurate to 90% or more.

⁶⁵ Complete description of these tests is found in www.bioresonance.no.

⁶⁶ Nei, Jing, Huang Di and Zu Wen. Institute of Oriental Heritage. Vancouver.1970.

⁶⁷ Same as 65.

⁶⁸ Schjeldrup W.. ECIWO-biology, Høyskoleforelaget, Kristiansand, 1999

⁶⁹ Øverbye B: A new theory of ear-acupuncture, 1982. [My PhD thesis, available for \$75: Dr. Øverbye, Box 348, 4803 Arendal, Norway.]

Part 3: Deeper secrets of the energies of Life

Probing the mystery of human bioenergy with BRT technology

Until recently, scientists have had much variation in evaluating and understanding the body's ordering and responses to its outer and inner environment. Using the BRT protocol based on the Voll parameters, and the BRT machines made by MORA/BICOM, a more accurate understanding is available. Since this technique is purely technical it could be learnt by any doctor, therapist or investigating scientist as the tool of the 21st century for seeing the body in a more realistic manner, as opposed to chemical testing that is like a still-photo. The difference is like that between movies compared to a still life. What should be the tool of choice is, to this author, obvious!

Why we get sick!

To truly understand our approach the reader must understand the concept of biophysical reality. The body's bioenergetic field reflects not only classical pathological states as defined in scholastic medicine taught to students, but also more subtle changes that precede organic pathology, plus variation in the bioenergetic field due to external fields. A brief summary of some possible causes is given below:

1. *Genetic / DNA defects*
2. *Psychological problems / traumas.*
3. *Toxins: produced by the body and accumulating due to defective excretion.*
4. *Malnutrition, deficits in vitamins, minerals, enzymes, antioxidants, proteins and lipids.*
5. *Structural stress in the teeth, cranium and skeletal system.*
6. *Microbial: viruses, bacteria and fungus attacking a weakened body.*
7. *External fields: e.g., solar radiation, geomagnetism, atmospheric pressure changes, radio towers, high-voltage transmission lines, fluorescent lighting, electric heating, cellphones, computers, radioactivity.*
8. *Chemical pollutants: through food, air, water and medicines Their number seems infinite!*

When measuring a human body by the use of the *MORA Super plus* and using the Voll parameters all these variations will be present. To pick out one influence needs a certain protocol, called the *MORA /BICOM* protocol.⁷⁰ (A similar protocol can be established using the *Health Angel* produced by Dr. Boswinkel from Switzerland.)

The *MORA/BICOM* protocol is based on the discoveries of doctor Franz Morell and engineer, Erich Rasche. The former now deceased, the latter is still alive and active at the MedTronik Company. Before his death, Morell split with Rasche due to personal disagreements. Morell went on to establish the Regumed Company, which today produces the *BICOM*. What is said about the *MORA* protocol that we use, can also be said about the *BICOM* protocol, since both machines are, in principle, identical.

⁷⁰ Schaffar and Schaffar. *MORA for beginners*. MedTronik, Friesenheim. 1995. p 83-6. Quotes 20 scientific papers on point specificity and measurement accuracy. Also: Dalheim, R. and B. Øverbye. *How to become a good bioresonance therapist*. Private edition. Nordkjosbotn. 2003. And, F. Morell. *MORA-Therapie Patienteigene und Farblicht Schwingungen-Konzept und Praxis* 4 auflage. [MORA Therapy with body's own energies and coloured lights.] Haug Verlag, Heidelberg, 1987. [No English version available, but one may contact MedTronik or Regumed in Germany to get English literature. The companies are at: www.regumed.de and www.med-tronik.de.]

Treating the body with its own energies!

Bioresonance Therapy (BRT) system takes some time to explain, and it is beyond the scope of this book, but one can outline some clinical observations. The basic idea is to take electrical energy from the body part with the highest electron density and send it to the body part with the lowest electron density, in other words to “feed back “ energy from an over-active part to an under-active body part.

A body part in this context can mean any part of the body, but most therapists rely on hands and feet as “gateways” to the body. This concept is purely empirical, but in principle, any body part can serve as a “sender” or as a “receiver”. For example: if you have a headache and readings on Voll points related to the head have high readings, while simultaneously you have cold feet and Voll points related to the feet show low readings, the head will serve as a sender and the feet as a receiver. A band with conductive material is thus strapped to the head and signals emitted by the head are sent to the MORA (BICOM) machine where they are amplified and filtered and then relayed to the feet through a brass electrode on which the feet rest. (This example is purely illustrative and not necessarily how it is done in practice by most therapists, who would use more sophisticated procedures based on the meridian system.)

An assumption could be that an electrical current was flowing from an overactive to an under active body part - a purely galvanic phenomena; using a *Galvanometer* will easily identify a potential difference between body parts with different readings on an electro-acupuncture measurement. High readings (*i.e.* high conductance) spell higher voltage (relative to ground), than a low reading, but there is more “flowing” than a simple galvanic current as will soon be seen!⁷¹

Decoding Life signals

When introducing filters in electrical conductors from higher to lower voltage, one observes on the Voll parameters that filters have an influence on the process. This effect may be explained only by concluding that the energy flow must be electromagnetic in nature - having both electric and magnetic components, as well as frequency (time-varying energy transfer, with frequency measured in Hertz, 1 Hz = 1 periodic alteration per second). Later measurements have established this fact beyond any doubt.

By using low-pass and high-pass filters, Morell and Rasche found that the most useful frequencies for their purpose were transferred by an electrical system with a DC to 200,000Hz bandwidth.⁷² However, other results were also achieved with greater bandwidths, according to this author’s own experiments.

Relying on filters and signal manipulations, it became obvious that very weak electromagnetic signals were transmitted, determined to be in the *Pico* Voltage range. MedTronik still manufactures the *Performance 2000* unit that detects micro voltages (relative to ground), generated in acupuncture points and that measures ultra weak Ampere in the circuitry. Although “ultra weak” in technical terms, the strength of signals is enough to modify Voll parameters when flowing from high readings to a low readings area (observed in conductivity meters). When manipulating these signals with filters, various effects are observed on the Voll parameters when comparing “before BRT” with “after BRT” measurements.

Scalar waves: Life’s exotic secrets?

A recent explanation to the observable fact: “ultra-weak signals do have a deep influence on the body”, is that what we measure is not all of what is going on. Former U.S. military scientist, Thomas E Bearden argues convincingly that the body also produces what are known as longitudinal electromagnetic waves (also known as undistorted progressive waves or quasi-scalar waves, since they contain residues of transverse electromagnetic waves) and true scalar waves. To understand these would require quite a number of additional pages, but some notions can be given quickly.

⁷¹ Burr, Harold Saxton. *Blueprint for immortality – the electric patterns of Life*. C. W. Daniel. 1972.

⁷² Galle, M. *MORA Bioresonanz Therapie – und es funktioniert doch* [MORA bioresonance therapy – and it works!] Promedicina-Edwald Häring, Wiesbaden. 2002. Available from MedTronik and on the Internet, see reference 48.

According to the classical theories of Scottish Professor, James Clark Maxwell, developed 150 years ago, the transfer of energy caused by oscillating electricity is done through a wave containing both electricity and magnetism. In such waves (spread through space “like a wave on water”) the electric and the magnetic forces are always perpendicular to each other - thus the term, transverse wave.⁷³ Within the theory’s framework there are 2 mathematical concepts: the vector potential function and the scalar potential function. These 2 entities were viewed as mathematical niceties that made wave and field calculations easier. However, in 1980, two scientists, David Bohm and Y. Aharonov, proved that the vector potential function, previously regarded as an imaginary and theoretical, is manifest in reality.⁷⁴

Could it then be that the scalar potential function is not only a tool, but also a real entity? According to a prodigal son of US science, Nikola Tesla, such energy transfer exists.⁷⁵ Energy may be transferred as a scalar wave (that is there are no observable forces like electrical force or magnetic force present); energy flows through space and when it “hits” a proper absorbing system, electrical and magnetic force appears. In 1904, the English mathematician George Whittaker proved that scalar waves can arise in a proper combination of sinusoidal waves.⁷⁶ According to the mathematics, you cannot measure scalars with tools designed to measure electric and magnetic forces. Yet, according to Bearden and other scalar researchers, space is filled with them; and so is the body, which both produces and absorbs scalars and it alters its function accordingly as its total scalar potential varies. According to Bearden, living beings are good detectors for their presence. Scalars are explainable once you understand their presence, yet the theories to fully describe them are beyond the scope of this book.⁷⁷

What is the function of scalars in the body? According to Bearden and others, they are energy transfers that meet no resistance and can pass through the body without difficulty. They serve as cellular signals, however weak, that interconnect every part and they travel flawlessly through the body as a living wireless signal system. If true, some claim they may even explain ESP phenomena,⁷⁸ and unite a host of “paranormal phenomena” that are not accepted within the framework of ordinary science.⁷⁹

Can such signals be detected with bioresonance devices? I am by no means certain - so why bring up such ideas? To cover the field completely and to give the reader the idea that there might be many things hidden in nature that ordinary science provides little explanation for. Scalars are a like a twilight zone phenomenon.⁷⁹

A healthy dose of your own medicine



Over the years, several filters (signal modification) have been introduced into the feedback loop to improve on the original Morell-Rasche discovery. **A** = an all pass “filter”; that only amplifies the body’s bioenergy without altering its signal topology. This resembles the classic biofeedback technique used in mental training where brainwaves are picked up and then sent them back to the patient. When not otherwise stated, all frequencies are let through (0 – 200,000Hz bandwidth). (Actually “**A**” only means “amplified”, and is a no-filter situation). Morel and Rasche use “**A**” even if “amplification” is less than 1, in other words, a weakening of the signal strength. “**A**” is thus a misnomer that clings to this way of notation when “**A**” is less than 1. The only way to go around the problem is to accept the notation. In technical electronics, what an **A** filter does is to send back an amplified version of the original signal to the emitter (the body). This amplifies existing signals and activates the body – as is detected in the Voll parameters. When we use the

⁷³ Haus, H.A. and J. Melcher. Electromagnetic fields and Energy. Prentice Hall. 1989.

⁷⁴ Aharonov, Y. and D. Bohm. Significance of electromagnetic potentials in quantum theory. Physical review. Series 2, Vol. 115, 3. Aug. 1,1959. p 485-91.

⁷⁵ O’Neill, John Joseph. Prodigal genius: the life of Nikola Tesla. Ives Washburn, New York. 1944. [reprinted since.]

⁷⁶ Whittaker, E.T.. On an expression of the electromagnetic field due to electrons by means of two scalar potential functions. Proceedings of the London Mathematical Society. Series 2 (1), 1904. p 367-72. Longitudinal waves combine into scalar waves.

⁷⁷ Ongoing discussion in Rick Anderson’s www.tricountyi.net. Author plans to present a more complete scalar wave theory as a topological energy theory in multidimensional space, where 3D phenomena are projections and magnetism results from topological arrangement of energy surfaces in higher dimensions.

⁷⁸ McTaggart, L. The field. WDDTY, London. 2000.

⁷⁹ Pearce, J. C.. The biology of transcendence. Inner Traditions, Vermont. 2002.

A mode, with an un-modified bandwidth, the Voll parameters, on the average, become higher and the patients actually feel “energized” / “stimulated”. To the surprise of early researchers, results were not always fortunate: sometimes disease symptoms aggravated: high readings would rise still higher, suggesting a worsening of disease. The hypothesis to explain the phenomenon was that by amplifying signals emitted by the organism and feeding it back, the body got an extra dose of its own energy and thus all cell energy became activated by the extra input. An early discovery was that if one divides the incoming energy in short pulses (turning the machine “on” for 7 seconds and “off” for 3 seconds), results improved.

Persons who were just low in energy, but not diseased, sensed this energy boost as a welcome “energy-upper”. However, there were those who actually became worse from getting an extra dose of their “own medicine”; especially those who already had high readings - who had allergies, infections, acute inflammations or were intoxicated by some drug or poison. Such patients ended up worse than before. To solve this problem Rasche suggested that since what is transferred is “nothing but signals”; maybe one could “null out” the disease signals of the body by using what is known as a phase-inverted signal.

Looking-glass medicine

The term, “phase-inverted signal” sounds techno-magical, but it is simple. The term “phase” refers to the difference between 2 waves moving either in the same or opposite directions. Waves can be decomposed into a series of harmonious waves called sinusoidal (sinusoidal function: $y = \sin(x)$), which are the simplest case. Physicists imagine (for simplicity or lack of better explanation) that electromagnetic waves move like sinusoidal waves through “space”, or, in this case through wires in the device and then into the body. If 2 waves start off, but are separated by a half wavelength, we call the second wave the phase inverted or mirror image to the first (or vice versa). Two waves that are a perfect mirror image of each other will, in theory, lead to a situation where there is nothing to be measured. The 2 waves annihilate each other. According to Rasche, electronic engineer, if you take a signal from the body, invert it (denoted A_i = amplified and inverted) the inverted wave would nullify the original waves in the body.

In actual practice, it seemed that if when a signal from a body part with high Voll parameters was sent through the machine, and then mirrored, “chopped up” with pulses of neat packets of 7 seconds divided by 3 seconds “off”, all previous problems would be lessened. Overactive patients got their high Voll readings reduced; the same was the case for those with inflammations, infections and intoxications. Success was incomplete, yet the situation improved. Whether Rasche’s explanation was correct or not, is another question. To be true, life energy would have to respond as a uniform “substance” and as soon as the phase-inverted wave returned, it had to react with an opposite-direction vibration; the whole body field would have to come to a standstill, like when opposing waves meet on a lake. However, this explanation may have been too hasty and too simple for physicists to grasp.

Twenty years later, physicist Paul Kreisl came up with more complex explanations for phase-inverted signal effects. One was that the body consisted of numerous biological oscillators, i.e.: vibrating systems where the returned inverted wave would start to drive the majority of these cellular oscillators in the opposite direction. Such oscillating systems could be cells, masses of cells, organs even nerves - in other words, from the quantum up to the macroscopic level.⁸⁰ Another explanation was that perhaps these oscillators were producing biophotons, like lasers. If a laser is “driven” by signals, electrons inside biological structures keep jumping “up “ and “down” between energy-poor and energy-rich levels. As they fall, they emit photons. The discoveries of Popp, mentioned above, give credit to this. What could happen is that an incoming phase-inverted wave, thus delayed, could interfere with the “jumping” effect and “kick” falling electrons back into a higher level, hindering them from “falling” and thus producing energy, like a quantum “Valium”.⁸¹ Of course, this would be a quantum level effect with discrete levels of energy being absorbed and emitted. Thus, in terms of frequencies and vibrations, some frequencies emitted, when mirrored, would cause biological energy to “harmonize”.

⁸⁰ Kreisl, P.. Zur Wissenschaftlichen Begründung der BICOM Resonanz-Therapie, Wissenschaftlichen Studien, Institute für Regulative Medizin, Gräfelfing. 1999.

⁸¹ Hatsagortsyan K.Z.. Phase matched high harmonic generation from laser driven crystals. Journal of Atomic, Molecular & Optical Physics. 35 (8).

Kreisli's third hypothesis was that the skin and subcutaneous tissues work like a huge vibrating, crystalline system so that incoming mirrored waves would bring its vibration to a standstill by an effect known as an "out-phasing", actually the same as the first explanation, only referring to specific body areas. Whatever hypothesis might be right, the method worked. Actually, all these explanations may be right and no single system accounts for the whole effect.⁸²

On harmful and healthy signals

Some clinical circumstances implied mere over-activity of beneficial energies, which normalised Voll parameters and improved a patient's health by simple amplification ("A" type manipulation) when fed back to the weakest (most under-active body part). On the other hand, other situations seemed to imply harmful energies, which, when fed back with amplification alone would worsen both Voll parameters and the patient's symptoms. However, harmful energies could be used to "neutralise" diseased conditions if mirrored / phase-inverted with a simple A_i filter (A_i filters were often called "anti-allergy filters" and one imagined that A_i filtering gave an antidote effect, like that of using immunisation).⁸³

Symbolically speaking, Morell and Rasche came to view real diseases, not merely as physiological over-activity or under-activity, caused by the presence of "harmful energies" emitted by malfunctioning cells. Their theory was that the A_i filters "reflected" harmful energies, thus "cancelling" their harmful effects. The harmful energies (or: signals) were seen to be emitted like radio waves from diseased cells, and picked up by healthy cells just as in radio broadcasting between transmitter and receivers; the receiving process was called "resonance". Since we are dealing with biological tissues, the term Bioresonance was born.⁸⁴

The feedback principle was applied when healing patients with their own body energies, so the concept of *Bioresonance Therapy* (BRT) was initiated – replacing the older term, *MORA* therapy that referred to its inventors (but not the company, MedTronik that holds the rights to use *MORA* label). Thus *BICOM* is as much a *MORA* machine as the *MORA* machine from the MedTronik, and both are true BRT devices.⁸⁵

Morell and Rasche discovered later that signals could be extracted from any part of the body, even acupuncture points, and sent back via plate / electrode! The same principle applies: signals are taken from overactive acupuncture points (Voll points) and fed back either to under-active parts or acupuncture points. Thus Morell and Rasche concluded correctly that body parts and acupuncture points are both emitters and receivers of electromagnetic signals.⁸⁶

Asking the living for an answer

Of importance in the early work of these pioneers, was the discovery that living beings react to signals emitted by external sources such of artificial signal generators or those emitted by organic materials, crystals and even water. Technically, this is called "signal injection" of external inputs to the body, through amplifiers and filters, via an electrical wire into a probe touching an acupuncture point, just as when taking signals from the body itself. This method turns the biofeedback machine into a biotherapy machine.⁸⁷

Experimenting with external signals, early researchers noted improvement in patients' health, even healing, merely by "injecting" an electromagnetic signal appropriate for a point or disease. Such signals could be traditional homeopathic medicine or colloids, where energies bound to isolated molecules were

⁸² Pischinger A.. Das System der grundregulation - Grundlagen für eine ganzheitbiologische Theorie der medizin. Haug verlag, Heidelberg. 1975.

⁸³ See reference 70 for historical development of this idea. Many researchers are cited: Greefe, Heim, Ludwig, etc., whose works are unavailable in English. I recommend those interested to contact Regumed or MedTronik, whose literature includes lecture notes and references from research meetings circulating among practitioners.

⁸⁴ See reference 80 for a review of the "biological oscillation" concept. Most material is in German.

⁸⁵ In fact, there are 3 machines: *MORA*, *BICOM* and *Health Angel*, the latter from the Litauen complex, known as the Silicon Valley of former USSR.

⁸⁶ See reference 70.

⁸⁷ See reference 70. In his book, Morell accounts for his first experiments with signal injection. Prof. Salford later showed that acupuncture points act like antennae with narrow low and high resonant frequency (private communication with Prof. Hyland).

stored in water! With tests, Morell and Rasche observed that these substances, dissolved in liquid (water or alcohol), transmitted a broad energy spectrum, but when diluted into colloids (potentized) only a narrow frequency band was emitted (for explanation see paragraph below).⁸⁸ They also discovered that if a diluted (potentized / colloid solution) substance is to be useful to heal, the bandwidth (potency) and the frequency pattern must be an exact mirror image of the state caused by an allergy. The better the match, the better the effect. Morell and Rasche may have thus “cracked” the homeopathic “code”, but 99% of homeopaths and doctors around the world never heard of it, and are still unaware of it today.⁸⁹

The wireless medicine experiment

The fact that pure substances in liquids and colloids emit specific signals that are picked up by the body, was quite a sensation among homeopathy “believers”, but went unnoticed by sceptics. The believers always claimed, as did the discoverer of homeopathy, Dr. Samuel Hahnemann, that some sort of invisible “life force” is transmitted from a substance to the liquid. Now this elusive “life force” is detectable by the Voll parameters and obviously seems to flow from an ampoule placed on a brass plate, connected to the BRT machine, and fed either into the body through a brass plate or to a specific acupuncture point related to the diseased organ.^{90 91}

Morell and Rasche argued that if these signals were EM waves, they could be picked up by antenna, fed into a proper radio transmitter and then be picked up by a radio receiver and then fed / injected into the body. This one BRT breakthrough: the use of a small brass plate as a sensor and mounting it to a simple FM sender with a 200,000Hz bandwidth. The signal was picked up from ampoules, transmitted several meters across a room to the FM receiver and then fed to the patient.⁹²

And it worked! This was an early proof that the effects of colloids were not only associated with their substance *per se*, but also to signals emitted by them. Of course, the substance to produce the signals had to be there, but one could now imitate their effects just by injecting their signals into the body. As shown later on, science today does understand what creates these signals, their nature, and how to record them. Put them on a hard disk or CD Rom as MedTronik and Regumed do now, and sell “by mail” or even via the Internet, pure substance “signatures” to practitioners and researchers.

Morell and Rasche conducted thousands of experiments, as did their equipment users, leading to an understanding of the body as not merely a caloric biochemical factory steered by *homeostasis*, but as an intelligent organism wherein information is treated as electromagnetic signals for the core existence and maintenance of life.⁹³ Thus, BRT is about decoding and transferring information! In this respect, the two pioneers opened the way to the intelligent information concepts in medicine, and departed from the old mechanistic 19th century. “Man as a machine” was finally disproved - an idea that current medicine still clings on to as the “medicine” business machine.⁹⁴

The astonishing fact that very weak signals from colloid solutions (homeopathic remedies), minerals, and even blood, can be detected by the body so strongly has to be explained, relates to Voll parameters.

Disease: disharmonies in life's orchestra

In the course of BRT development, Dr. Ludger Mersmann realized rhythmical movements uphold Life, somewhat like the old Chinese Ying-Yang concept. As a scientist I am well aware of the risk of using such metaphors, but it is important for readers to have some notions. Although the underlying physics is complicated, the Ying-Yang idea is a nice overlay for the mind to reflect upon.

⁸⁸ Deutsch, S.. Models of the nervous system. John Wiley & Sons, New York. 1967.

⁸⁹ Abrahamson, N. Information theory and coding, McGraw Hill. New York. 1967 and see reference 70.

⁹⁰ Hahnemann, S..The Chronic diseases. Vol. 1-2. Jain Publications, Calcutta. 1992

⁹¹ Endler, P.C. *et al.* Übertragung von Molekül Informationen mittels Bioresonanz Gerät BICOM in Amphibenversuch, Erfahrungsheilkunde. Band 44, Heft 3. 1995

⁹² See reference 70.

⁹³ Abrahamson, N.. Information theory and coding. McGraw Hill, New York.. 1967.

⁹⁴ Schjeldrup, W.. Medisinen pånye veier. Dreyer forlag, Oslo. 1972

The Ying-Yang nature of cell movements can be seen in the cells' electric makeup. During the 1990s we ran a microscope research lab working with special microscopes that allowed us to make high-resolution films of live cells in blood. By fine-tuning equipment, we could photograph cell membranes and film the interior of living cells to view what other have seen: that living cells vibrate! They actually seem to make movements like "breathing". These rhythmical movements in cell membranes and their internal parts produce Ying-Yang electrical patterns: harmonious, sinusoidal signals. Interestingly enough, healthy cell emissions consist of a number of sinusoidal signals related to each other like a vibrating string; that is, a basic fundamental note, plus a number of over-harmonics.

Mersmann successfully argued that if life is disturbed, this orchestra of sinusoidal, electromagnetic waves would be disturbed by cellular parts that could no longer vibrate harmoniously - thus producing disharmonious signals, devoid of their Ying-Yang nature. Such signals would not consist of rhythmical movements, but of halted, irregular ones, like a dying man grasping for his breath, giving rise to electromagnetic non-sinusoidal signals. He therefore suggested to Morell and Rasche that they introduce a third kind of filter into their existing *MORA* equipment that could split healthy harmonic signals from the non-harmonious signals of the diseased cells. (These were the happy days of teamwork and friendship.)

In 1980, the **H + D** filter was made. Not technically complicated, nor expensive, it was intellectually and scientifically a breakthrough in understanding nature. Morell writes in his memoirs, "Actually you cannot remove physiological (naturally healthy) vibrations, because they are produced all the time! Such vibrations are produced and emitted all the time."⁹⁵ And then "if these vibrations are only produced in the body or if they are stimulated by energy from the cosmos, we cannot say, because energy waves from the cosmos and the earth are all the time activating the body and making it vibrate (like an instrument)". These thoughts were not new to Morell, Prof. Saxton Burr had stated the same ideas 40 years earlier, and so had the wise men in the Orient, thousands of years before him.⁹⁶

Healthy vibrations, Morell states, based on his experiences, are "physiological vibrations that are ordered and coherent". That means they consist of a series of totally symmetrical movements where half of the time is spent in the electrical-negative region and the other half in the electro-positive region. When you mirror such a signal (with our **A_i** filter) you can totally wipe out such a vibration. If, however, you send back an amplified version of such a wave (by using our "**A**" filter technique) the effect of such a vibration becomes stronger than the original vibration was before it was stimulated..." and further on, "In 1981 we started to build in a new kind of basic therapy by using **H + D** separating filters that allowed us to separate the healthy (**H**) from those characteristic of disease (**D**). These pathological vibration (caused by disease) were mirrored **D_i** (**D** = diseased non-harmonious waves + **I** for inverted = mirrored = phase-inverted). This idea came from (my colleague) Ludger Mersmann, and the discovery was convenient. Until then, we had only used **A_i**, whereby healthy and diseased vibrations were nullified, now, according to Mersmann, we could have a chance to nullify only those caused by diseases in the cells!"

And once more amplifying his point of view, "Harmonic oscillations (**H**) are healthy, normal oscillations. This idea we have from physics and also from music, where we call a signal when half phase is either under or over the zero-line, a harmonic signal. On the other hand, **D** means disharmonic. All oscillations that are different from the harmonics are disharmonic. These have unequal half-waves, unequal amplitudes and are irregular in shape. They are pathological."⁹⁷

All - or just a few?

After the surprising wireless medicine experiment, Morell and Rasche learned a good lesson from Nature: when there is a disease you do not need to treat all frequencies, only those frequencies that represent a disease. It is much like going after a band of criminals: you don't have to put all citizens under scrutiny or jail them - you take out the few rotten eggs in the basket. This meant introducing bandwidth filters, which work much like radio receivers. The body emits a cascade of frequencies in the 0 - 200,000Hz band, but

⁹⁵ Reference 70. p. 60-2. I have rewritten Morell without distortion. His argument assumes readers follow his case in other texts.

⁹⁶ Eliade, M.. Yoga - the science of immortality. Bollingen series. 1966.

⁹⁷ Reference 70. p. 60-2.

only a small frequency band, let's say, 120,000 – 150,000Hz may be disturbed by disharmony. Why then treat cells that are not diseased? To achieve selectivity, Morell and Rasche started to use bandwidth filters that work as follows: to get hold of the 120,000 – 150,000Hz band, you remove all below 120,000Hz, using a high pass filter (HPF). Everything higher than 120,000Hz passes. To capture those lower than 150,000Hz you use a low-pass filter (LPF) that allows everything below 150,000Hz to pass. Adding a HPF plus a LPF you get a band pass filter (BPF), only those frequencies between the lowest and the highest frequency pass on. Simply written:

$$\text{BPF} = \text{LPF} + \text{HPF}$$

Of Homeopaths, ELFs and EMSA

At this stage of our study, we have come to a point where we depart from Homeopathy, as it was understood in the past: beyond a presumed mystical “vital force” within dead substances and claims of inherent life force becoming stronger when repeatedly diluted in water - ideas that have made the scientific community frown and homeopaths retract to their fortresses.⁹⁸

The wireless medicine experiment, the filters and band pass experiments, put it all in place, and we don't have to spend much time on it:

Disease is the presence of parasitic, non-harmonious frequencies.

Such frequencies occupy only a narrow frequency-band.

Diseases can be “annulled” by mirror image signals in the same frequency band.

Such signals can be extracted from the body itself with the use of proper filters.

A proper dilution of a pure substance can do the same thing if the EMSA of the diluted substance matches the mirror of the disease signal, and, the frequency range of the diluted substance matches the frequency band of the disease signal.

Even better, during the 1990s, Emil Rasche managed to capture the signals of pure substances in dilutions by the use of extremely sensitive radio receiver equipment, and put their frequency characteristics onto a computer-based medium. By simply picking out the proper frequency band (band pass filtering the original EMSA coded to a hard disk), MedTronik could offer “homeopathy” on a hard disk. The immensity of this achievement was staggering! Yet again, both the medical academe, and the homeopathic groups overlooked the revolution. Instead discussions were “business as usual”.

Practical BRT alchemy

Over the years, pioneers have learned what works and what doesn't. Gatherings were held in Germany, and later in other parts of the world. By 2004 about 10,000 were registered as active *MORA* or *BICOM* users. The *Latvian Health Angel* has been sold to about 3,000 users, giving a total of about 13,000 end-users. The combined experiences of users have been fed back into various working groups, resulting in handbooks. These manuals tell which setting and which filters to use for various problems. MedTronik is probably the company that has gone furthest in incorporating such knowledge on hard-disk, making all procedures accessible from a hooked up PC and coding the EMSA of more than 5,000 pure substances on a CD-ROM. Regumed, which sells *BICOM*, still favours the hands-on method, selling their pure substances in ampoules. But how effective is this new kind of alchemy?



⁹⁸ Hahnemann, S. *Organon der Heilkunst*. Carl F Haug Verlag, Heidelberg. 1980. [German edition.] First empirical medical method presented to a superstitious early 18th century audience. Due to its arcane presentation the book soon became a bible and Hahnemann became a priest of his own teaching - a tragic ending to a good start. Whatever good might have come out of it, much was altered over time in quarrels between believers and opponents, instead of detached investigation; alas, such is life of pioneers.

Proving the results

It is one thing to believe in a method, another to prove it. Luckily for BRT users, there are several ways to verify results. The simplest way, which has been the backbone of all medicine over the centuries and still is, of course, is the improvement in the patient's wellness. Well-being is expressed as a change in his or her subjective feeling of ease and the successive disappearance of his or her symptoms (symptom = a particular feeling of discomfort, pain, unease or altered manner of moving/thinking or feeling). Biophysical researcher Michael Galle goes about this fact by spelling it all out to sceptics and believers alike that for something to heal we need to take into account the following facts:⁹⁹

- a. Improvements appearing during or shortly after the treatment.
- b. What was before is not any more after the treatment.
- c. Improvements over some time following the treatment
- d. Symptoms disappearing locally where the treatment was applied.

Galle mentions a few examples. One illustrates the point. Dr. S., a good friend of mine, went to Germany in 1982 to attend a medical congress, where Dr. Morell invited him to a BRT lecture. During the lecture, Morell asked if anybody would like to be treated on stage. Dr. S. volunteered and Morell treated him with a basic therapy and afterwards with local treatment with electrodes to his legs where he had a psoriasis rash that resisted all therapy for 5 years. While on stage, Dr. S. felt a subjective improvement in well-being, and the next morning his psoriasis was gone and still is, to this day.¹⁰⁰

Such stories are numerous, "too good to be true" to medicine and sceptics alike; accusations of the *placebo* effect are inevitable. To avoid insinuations that "the patient hypnotised himself to become better", experiments have proven the opposite. We cannot conduct double blind tests, where neither doctor nor patient know what is going on, since sitting by the machine is in itself a testimonial that something is there. So one has to go about it like the tests done by US MD, Marlo Morgan. Her results were presented at the 4th *Symposium for European Acupuncture and Alternative Medicine*, Copenhagen, August 8 – September 1, 1985. Morgan studied how blood platelets aggregated under BRT using an early version *MORA* apparatus. *MORA* results were distinctively better and different from psychotherapy, Biofeedback, hypnosis, prayers and music therapy etc.¹⁰¹ Symptoms disappear: eczemas, sores heal and scars vanish.¹⁰²

Changes in blood parameters: normalisation of blood-cell counts, improvement of immune reactions, hormone normalisation, etc. are demonstrable after proper BRT. Such effects can, of course, be produced by skilled hypnosis and with healing, but that does mean that sitting in front of a bioresonance machine is the same as being in the hands of an expert hypnotist. Having hypnosis myself, I know that you may hypnotize humans and thereby improve their health by suggestion (known as the *placebo* effect). Bioresonance Therapy is different in that, according to research mentioned in Michael Galle's book it also has provable effects on subjects beyond hypnotic reach: animals, organs, cell-cultures, seeds and chemical solutions. Another argument is in Franz Morell's lab notes, where bioresonance done "the wrong way", as did the pioneers before they found proper techniques, made their patients worse, while both doctor and patient expected improvement! Admitting the *placebo* effect, as we all have to in medicine and in human interaction, Bioresonance Therapy offers improvement beyond the influence of the mind.¹⁰³

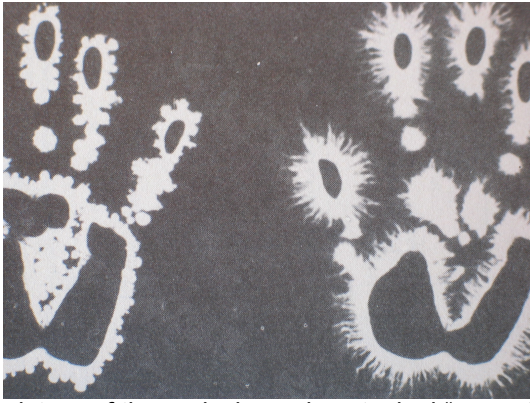
⁹⁹ Galle M. *MORA Bioresonanz Therapie – und es funktioniert doch*. Pro Medica Ewald Häring, Wiesbaden 2002. p 145-47.

¹⁰⁰ The retired MD remains anonymous, well respected in the UK. The author visited him and his wife confirmed the story.

¹⁰¹ See reference 70.

¹⁰² Bjerke, A. and H. Tusberg. *Grenseland 5 år efter*. Aschoug forlag, Oslo. 1977.

¹⁰³ Simminton and Simminton. *Getting well again*. Bantam. 1978. See reference 99, Galle for statistics.



picture of the emissions gives typical “aura photos” that strangely enough reflect the biological state of the organism being tested.¹⁰⁴ As mentioned above, there are the experiments that show objective effects on animals, insects, plants, and cells in a test tube, to name a few hard-to-hypnotise subjects.

Another claim lies in electro-acupuncture diagnostics, where considerable statistics confirm it as a practical tool to pinpoint problems in the human body. Besides, Bioresonance Therapy can improve upon objective problems, such as removing scar tissues and benign ovarian cysts (50-60% success rate). Of course, Voll parameter normalization can be measured on *MORA*, *BICOM*, *VEGA*, *Prognose*, or other suitable instruments.¹⁰³ Improvement can be shown with electrographic imaging using equipment like the Kirlian photography. This technique is often nicknamed “aura-photography”. By exposing the body to a high frequency current, the body emits electrons and photons that can be caught on film. The

The conclusion from controlled experiments and patient’s therapies confirms the biofeedback, and could also help us to understand the next problem, directly concerning cellphone parasitic frequencies.¹⁰⁵

“Parasitic” versus “normal” energies?

No theory known to this author seems to completely explain the bioenergy of living organisms in a way that fully explains the circumstances experienced in BRT; much seems to be well understood and well presented in various books and papers, but not yet in a single tome! It is like a supermarket: biophysics abounds with thousands of results and theories spread “all over “ the Internet and libraries, written in most major languages, Russian, English, German, Japanese, Korean, French, Spanish, Polish, Bulgarian etc. Bioresonance has its own inventory of bags of results, mostly practical. But who is there to go through this vast supermarket to collect facts relevant to the smaller BRT bag? What explanations should we use?

There is a parallel situation for DNA and life. According to Professor Ian Stewart, DNA chemistry is understood and well presented; yet current paradigms do not fully explain the observed facts of life. Not being a biologist, but a mathematician, Stewart offers a fresh idea: real life is bigger than the structure and workings of DNA. Something else, more elusive is “at hand” and Stewart calls this the forces of life. In his book, *Life’s Other Secret*, he points towards a paradigm where DNA is not the source of life; it is just its recipe book! One might well ask: but who then is the cook?¹⁰⁶

Similarly, measurable entities like electromagnetic potentials, low frequency EM fields, and biophotons, taken together, are not the life force *per se*, but manifestations of life, for which there do not seem to be proper equations. So far, all we can say is that of the myriads of signals running throughout the body, some seem to be just “noise”, while others are information, parts of a vast non-local signal system, named by Morell: “the wireless nature of man”¹⁰⁷

Although the signals are not “life force” in themselves, their measurable electromagnetic aspect is still useful. Using the classical Norbert Wiener’s “black box approach” created by studying the relationships between input and output (stimuli and response), one can construct models and some ideas of what could be going on. Based on such studies one can propose that:

¹⁰⁴ Dumitrescu, I. and J. N. Kenyon. Electrographic imaging in medicine and biology. Neville Spearman. 1990. My colleague, Reidun Dalheim Lydersen did for years Kirlian photography of patients’ hands and feet before-and-after BRT and found that pictures taken after treatment looked steadily more like those of totally healthy persons as the BRT proceeded.

¹⁰⁵ Wissenschaftliche Studien zur BICOM resonanz Therapie. Institute für Regulative Medizin, Gräfelfing, 1999. Well documented, with convincing experiments.

¹⁰⁶ Stewart, I.. *Life’s other secret: a new mathematics of the living world*. Penguin, London. 1998.

¹⁰⁷ Rein, Glen. *Quantum healing*. Planetary Association for Clean Energy, Ottawa. 1992.

1. Living beings produce and emit EM signals in a wide frequency range. Much of this is noise, but within the noise is information transferred by signals: EM signals, photons or by potential waves known as scalar waves. The manifestations are what Driech described as force fields “not in space, but acting in space”. The signals appear to arise from within cell structures as they vibrate or electrically charge particles that move around. Of special interest are cell organelles, DNA and cell membranes. Other signals arise from cell masses, organs, and the electrically active structures in the nerve and heart systems. Research shows that the signals are important for the coexistence and interaction of various body parts - a true EM communication system.¹⁰⁸
2. Living beings strive to exist in equilibrium, a phenomenon known as *homeostasis*. To adapt under varying circumstances, living beings have information gathering means compatible with the experienced influences. To adapt to external electromagnetic fields, nerves alone appear to be insufficient for assessing that environment; so there appears to be an “electromagnetic sense-organ”. Our tests suggest that the meridian system may be such an “organ” since exposure to harmful external fields leads to instantaneous reaction in meridians. Ancient Chinese doctors observed that “harmful energies” seem to penetrate (= influence) energy channels and cause various problems. Wind was regarded as such a factor; and, according to present-day knowledge, wind causes electromagnetic atmospheric discharges that generate ELF (extremely low frequencies) that are reflected in meridian shifts, likewise for harmful energies from the ground, the so-called geopathic stress zones.¹⁰⁹ Artefacts such as radio masts, radars and cellphones are also picked up by our meridians!

What occurs when an organism is exposed to harmful radiation? Statistics referred to in the first part show that over time they develop diseases, progressively going through stages of stress that are reflected in meridian measurements. Exposure to electromagnetics and being able to adapt is nothing new: nature is indeed full of fields and radiations.¹⁰⁹ The problem, according to German researcher Ernst Hartmann, is when you unknowingly expose the same body part every day to the same radiation over a long time, even years, as when a patient sleeps in a bed with an geopathic radiation underneath emitted from an ore body, running water or local deviation in the natural geomagnetic field.¹¹⁰ Hartmann’s 30 years of research suggest: a disease will emerge typical for the body, sex, age and the emissions exposed to, as indicated by the title of his opus: *Krankheit als Standortproblem* (diseases as a problem of where we live)

There is however a new difference: Hartmann’s work was done between 1950 and 1965; today technoradiation from radio masts, cellphones and radars has proliferated and soon there may be no place to hide anymore. Add the natural harmful energies from the ground plus the increasing powerlines with voltages in the 100,000 - 500,000 Volt range (50 / 60Hz) and a more alarming environment emerges to which the body is reacting to 24 hours a day!

So what might happen? According to the pioneers, Morell, Rasche, Mersmann and others, not only does the body get stressed, but also harmful frequencies seem to move into the body and establish local oscillations where body part starts to vibrate at the same frequency as the external input. This phenomenon was termed “parasitic frequencies” and was identifiable in various organs, as well as in the meridians.¹¹¹

The manner by which organisms absorb and integrate foreign frequencies into themselves is the very same bioresonance phenomena. External frequencies can make any living being in nature vibrate in accord with them, and according to the Russian scientist, Dubrov, this adaptive process makes living beings interact in the geomagnetic field. But interaction may be something more!

Georges Lakhovsky, paid by the French government during the 1930s to investigate biological resonance, found that we vibrate in harmony with external fields and that such vibrations can input energy. Some may be the source for most of our own energies, and accordingly, by understanding the harmonious life-supporting natural energies, we can make devices that mimic natural energy transfer. Lakhovsky’s device

¹⁰⁸ Pearce, J. C.. *The biology of transcendence*. Park Street Press. Rochester, Vermont. 2002. Also: John Davidson. *Subtle energy*. J. W. Daniels, Saffron Walden. 1987.

¹⁰⁹ Ernst Hartmann. *Krankheit als Standortproblem*, Haug Verlag, Heidelberg. 1964.

¹¹⁰ Cathie, Bruce L.. *The energy grid*. Adventure Unlimited. 1997

¹¹¹ See reference 70.

was called the *Multiple Wave Oscillator (MWO)*. According to testimonials and lab reports, *MWO* therapy made people feel invigorated, and there were claims of cures of chronic and malignant diseases. Unfortunately, the original *MWO* design is lost; today only less effective copies exist. The *MWO* was a first major bioresonance machine to mimic natural healing energies of Gaia - a breakthrough.¹¹²

Adapting to Gaia or to your cellphone?

Living organisms developed by adapting to surroundings - it is up to the nature of life to adjust their function to external energy exposure. Adaptation takes time, often generations. Till the end of the 19th century, all external EMF were natural. After Nikola Tesla, when Guglielmo Marconi made the first radio transmitters, the world was never the same. Within decades, the planet's industrial part became immersed in a sea of pulsating, vibrating electromagnetic fields that nature knew nothing of, and that man had no opportunity for long-term adaptation to.

As the intensity and number of frequencies and their wave topology became ever more advanced, efforts to adapt became even more strenuous, and today mankind as a whole is suffering from mal-adaptation to exposure to technical fields - the cellphone being particularly serious since its radiation is held close to the body's main organizing centre: the brain. For those not believing these facts we recommend to look at the pictures from the article *Den mobile fare* (The cellphone danger) printed in *Berlingske Tidende* on September 21, 2003, which can be downloaded from www.berlingske.dk. These pictures are brain scans of children using cellphones. The scans show abnormal radiations from within the brain when analysed by the MR scanner that bases its data on the EM properties of matter!

Even the most cellphone-friendly user will get a chill, and realize that regardless how advanced the human adaptive ability is, coping with cellphone radiation could be thousands of generations away. However, in this day and age, such energies will lead to destructive interference and creation of a pathological body field. This can be seen when screening the Voll parameters of cellphone users. Prior to the *Biophone project*, more than 200 patients were tested and all showed the same three characteristics: Chaotic Voll parameters (you cannot find any coherent pattern, every point seems disturbed and out of connection with another), an increase of energy in the points (high readings) and the presence of multiple points with "needle drop" giving rise to a low score on the Stability Index.

The mysterious Zeigerabfall



Still using the "black box" analogy of Prof. Norbert Wiener,¹¹³ we shall discuss briefly an interesting phenomenon called "Zeigerabfall" by Dr. Voll. The English equivalent is, "the needle falls" or "needle drop" on the meter used to measure how much electrical energy is passing through a point while using the described test equipment. Usually, Voll parameters measurement gives a stable reading that does not change over time if the probe is applied to the skin for a longer period (average 10 - 30 seconds, after 30 seconds, changes are observed due to the fact that the probe will irritate skin, increasing conductivity, and readings tends to get higher values). However, under certain circumstances, stable readings are not the case from the very start of the measurement! Instead, the needle on the meter (the first meters used were analog, nowadays some give digital readings) starts to fall, indicating a decreased conductivity. The visual sighting of the falling needle when the probe is applied to the Voll point with a constant pressure over time (Voll recommends at least 10 seconds observation) gives the "needle drop". Of course, for proper monitoring, the operator must not press the probe too hard and with constant pressure during observation. In most patients, needle drops start after 1 - 2 seconds, making prolonged application unnecessary. Today, the *MORA Super* and the *BICOM* give constant actual applied probe pressure data on-screen, making "needle drop" measurements simple.

Needle Drops can be observed with 2 techniques: The classical Wheatstone Bridge apparatus measures electron passage while external voltage is applied to a test person, indicating a change in conductivity. Also, it is observed with *micro* voltage measurement probes with the MedTronik *Performance 2000* micro-

¹¹² Brown, T..The Lakhovsky Multiple Wave oscillator handbook. Borderland Research Science. 1980. Hard to get, diagrams even harder to make them work. Anyone who can make equipment perform as Lakhovsky intended, please contact us.

¹¹³ Wiener, Norbert. Cybernetics. Chapman and Hall, London. 1948.

Ampere meters that need no external voltage which describe the decreasing micro volts that appear in Voll points - and see them “discharge” over time. These methods reflect the previous “needle drop” seen using “classical equipment”.

The fact that the phenomenon can also be viewed these ways lets us deduct that a “needle drop” is not an artefact associated with instabilities in handling external test equipment DC voltage, but that it is an intrinsic Voll point property and that the body itself undergoes changes. Experiments in our laboratory indicate that what is registered is the lost of the body’s ability to cope with high frequency EM radiation from the natural environment and that the Needle Drop is an expression of life field fluctuation observed by Saxton Burr.^{114 115} Clinical data show Needle Drops occur in individuals exposed to / contaminated with:

1. Non-metallic toxins (*exotoxins*) or toxins produced internally by the body itself (*endotoxins*).
2. Heavy metals - typical are: mercury, lead cadmium.
3. Acute microbial inflammation.
4. External electromagnetic fields that create in the body some pathological energy pattern (Morell and Rasche’s “parasitic energies“ notion.)

The Morell and Rasche “parasite energies” modify the body’s total field. Normally, transition from one stable state to another leads to re-establishing of a new dissipative coherent state, but the above 4 situations lead to instability where the system breaks down, in the terms of René Thoms catastrophe theory.¹¹⁶ Figuratively, after exposure to one of the above 4 agents, the system tries to adapt by increasing its total energy from stable state **A** onto some new stable, more energized state **B**; instead, it attains an energized, but an unstable state **B**¹, where the total system energy fluctuates (as detected with Voll parameters).

A Swedish Professor and a vanishing river

In the unstable **B**¹ state monitored with the *MORA Super*, where total body energy fluctuates, it may also be assumed that electrical currents passing through tissues whose conductivity is a function of body energy, also fluctuate. The internal electron flow fluctuation may in turn influence the conductivity of external currents imposed on the system by the meter. According to the author, this hypothesis accounts for the Needle Drop phenomenon, where conductivity decreases over time. Another explanation can be found in the work of Swedish professor and inventor Björn Nordenström. His discovery of charged mineral particles flowing in intracellular fluids explains how electrical currents spread throughout the body. Known as *Biological Closed Electric Circuits*, it is the basis of his cancer electrotherapy, a treatment without side effects.¹¹⁷ Though the Swedish medical society has not embraced his work, hundreds of thousands have been cured successfully in China with his electrotherapy equipment. But back to the needle drop phenomenon.

The presence of a “needle drop” thus indicates a change in the manner electrical currents flow through body tissues. Normally, charged particles flow steadily between electrodes of the measuring equipment (probes held at acupuncture point and at patient’s foot plate). In patients with Needle Drop phenomenon most electric particles appear to flow from one electrode to the other, maintaining a steady base-level current, like a small river flowing steadily from one lake to another, while a percentage of charged particles are sucked up by the surrounding tissue, making charged particles disappear at a steady rate. When looking at your scale you see this “draining of charged particles” away from the main river as a steady fall

¹¹⁴ We use “silver silk” shielding that blocks high frequency emissions with 90 dB effectiveness. Patients wear a silver-silk vest; those having Needle Drops either on *MORA Super* or *Pico* Voltmeter show no Needle Drop while wearing it, suggesting that the drops indicate inability to cope with high frequency EM emissions, manmade or natural. See reference 33, where Dubrov refers to geomagnetism and its effects on living beings. The ability to cope with external fields is a requirement for healthy living!

¹¹⁵ Prof. Burr named the endogenously produced electrical field the Life Field that he observed with a vacuum tube Voltmeter. Certain points in the skin (in fact, acupuncture points) gave a good indication to various biochemical processes in the body and health. The L-Field varies with external EMF, as described in his book, *Blueprint for Immortality*.

¹¹⁶ Davis, M. and A. Woodcock. *Catastrophe Theory*. Penguin, London. 1978.

¹¹⁷ Proceedings of the 4th International symposium on BCEC. South Bloomington, Oct. 26-29, 1997. The symposium had many papers on BCEC, with relevant ideas in pages 30-45.

in conductivity, because steadily less electricity is passed on and the meter responds by a falling needle. This may not be the only explanation, but at least the most logical to my mind!

Stability Index

This is only for the mathematically inclined and is not essential to general understanding: To quantify the phenomena, Dr. Voll observed point readings for up to 60 seconds and how much the needle fell in that time. In practice, 99% of readings stabilize after 10 -15 seconds; few individuals need 30 - 60 seconds. In our tests, we used what I call a stability-index (SI). It is calculated as:

$$SI = \text{Area under the curve} / (\text{Maximum value} \times \text{Observation time, in seconds})$$

$$\text{Normally the fall curve is exponential of the Value observed} = V_{max} (1^{-time}).$$

However, for all simplicity we may approximate this to:

$$SI = (\text{Falltime} / 15 \text{ seconds}) \times (0.5) (1 + (V_{min} / V_{max}))$$

Using SI, we find that for stable situations, where there is no change in reading over 15 seconds, you get $SI = 1$. In moderately unstable situations the $SI = 0.8$, but in disturbed readings SI may be as low as 0.2 - 0.3. In cellphone tests, some cellphone users before the *Biophone* project had an SI between 0.2 (heavy users) to 0.6 (occasional users). Hopefully, *MORA* will apply a SI real-time index on the *Super Plus* unit.

Buryl Payne and the spin force

BRT notes Voll and Stability Index variations as changes in electrical states caused by some electromagnetic adjustments. But more profound activities seem to be involved than modifications in electric and magnetic intensity and frequency.

According to Saxton Burr, there seems to be an underlying life field that manifests as differentials in electrical changes between skin points (similar to Voll points measurements). Today, this is understood as a one of several energy manifestations in living beings - others being thermal radiation, biophoton emissions, spin-resonance radiation, time-varying EMFs, etc.

A deeper state might be the zero-point energy field. Zero-point energy oversees life and directs all its functions.¹¹⁸ According to the mathematician and biology critic, Ian Stuart, life is bigger than DNA, which is just a tool. It is useful to call this entity that organizes atoms to molecules and molecules to living, self-reproducing, thinking structures, the "O field". Stuart admits in his books, and so does biologist Rupert Sheldrake, that we can see the effects of this force field or "O field", but to claim to understand it would be an overstatement.¹¹⁹ Advances have been made about its nature: the existence of scalar waves and the "spinning" quality of natural phenomena. According to Buryl Payne, one can measure a right-spinning energy field around healthy humans, which appears not to be electrical, magnetic, gravitational or nuclear. It appears to be a universal force present known as spin-force (the gyro-effect).¹²⁰ By simple means, (see figure) one can demonstrate with a torsion ring, made from metal, wood, plastic or almost anything, that it will turn clockwise if you place your head under it. The degree of spin depends on local geomagnetic field, presence of cosmic radiation, weather conditions etc.

¹¹⁸ Cook, N.. In search of the Zero point, Century Publishing. 2001.

¹¹⁹ Stuart, Ian. Life's other secrets. Pelican Books. 2002

¹²⁰ Payne, Buryl. Gravity, bioenergy and spin. Privately published.

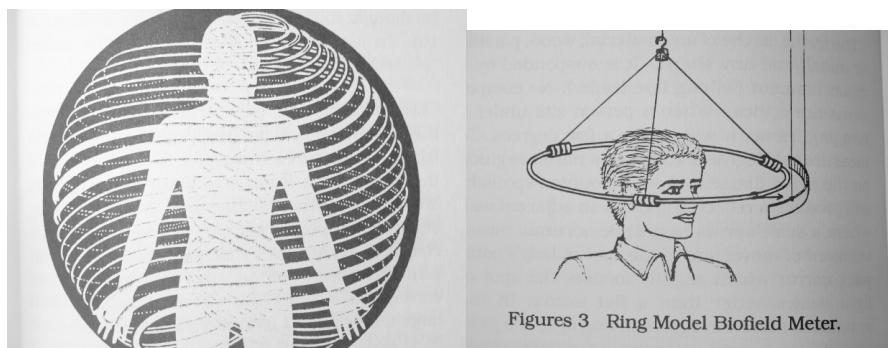


Illustration of the bio-spin-field

Buryl Payne's antenna: Biofield Meter

If there is a health-risk, the ring turns counter-clockwise. Dr. Payne takes this to indicate the presence of an unrecognised natural force provoked by external EM fields. What promotes the reversal of spin?¹²¹ Could it be the Burr L-field, the "mysterious" zero-point energy field spin, or even elusive scalar waves?¹²²

If you have a normal clockwise turning energy-field and then you use a cellphone, the spin-indicator turns to the left! At the same time, your Voll parameters go "wild" and your SI starts to fall.

Einstein abhorred it - Nature loves it!

Albert Einstein abhorred the world spinning round and at times denied it, claiming that the universe could never spin. Yet it does. Actually everything spins: galaxies, solar systems, planets around their axes, human life energy, molecules, atoms and sub-atomic particles. Everything is turning around itself or something else.¹²³

The idea of orbiting electrons around spinning nuclear particles (proton and neutron), and the gyroscopic spin of each electron around some internal axis gained popularity in the 1920s. Models for these phenomena lie in quantum mechanics and are beyond the scope of this report. All we wish to say is that since subatomic particles are electrically charged, their spin creates magnetic forces that are either oriented in space or rotating in space.¹²⁴ Because we are dealing with magnetic forces created by spinning particles, any outer magnetic field will influence the nature of the spin and the orientation of subatomic particles - a popular and somewhat useful mental/mathematical picture of the orbiting, and at same time spinning electron, is like a miniature solar system. It is possible by quantum mechanics to calculate a theoretic orbiting and spin property wherein is a magnitude of speed of spin and rotation (actually angular velocity).¹²⁵

When an external magnetic field is applied on atoms, they *align* with the external field at an angle. If the external wave / field fluctuates, the spin speed and direction change, and so the *energy of atoms changes*.

If the frequency of an incoming wave is within appropriate spinning range and angular velocity band (angular frequency) varying levels of resonance arise, depending on the closeness of the incoming frequency. The atoms will emit narrow band frequencies of varying intensity depending on closeness (degrees of coupling). The more the incoming frequency resembles the main resonant frequency band,

¹²¹ Material on the spin field may be obtained from www.payne.com.

¹²² Payne Buryl. Life force and physics. Journal of Borderland Research. May-August 1990. p 9-10.

¹²³ Øverbye B. Warped mind, bent truths: did Einstein fake his theories? Private edition. 2002. [Booklet can be ordered from the author for \$25, including shipment.]

¹²⁴ French, A. P. and E. F. Taylor. An introduction to quantum physics. The MIT introductory physics series. W.W. Norton. 1978. p. 425-519. Although one can rely on quantum theory spin, it is incomplete as it artificially separates electrical, magnetic, gravitational and nuclear forces. Bohm's "hidden variable" gives no new ideas to explain biological spin. So, new physics must describe a unified presentation where spin is at the core. The author has worked with a theory that has a multidimensional analysis of energy distribution on surfaces. Notions are proposed with a different vocabulary than quantum and electromagnetic concepts with terms such as spin, surfaces, energy pattern distributions, etc.

¹²⁵ Alonso, Finn. Fundamental University Physics. Vol. III. Addison Wesley Publishing. 1980.

the tighter the coupling and the greater the response to the incoming EM wave.¹²⁶ There are several spin-resonance phenomena: nuclear spin (rotating nuclear particles), electron spin reacting to outer electromagnetic waves, geomagnetic field and spin-spin coupling where radiation emitted by one spinning system is absorbed by other spinning systems.

Let Gaia energies rock your soul

Nature provides an enormous time-varying electromagnetic field consisting of both a constant magnetism and countless waves, known as the geo-magneto-gravitational field (GMF).¹²⁷ This field makes all atoms on earth undergo some degree of spin activation. German biophysicist Michael Galle writes, “elementary particles that are in the fluctuating GMF emit a rotating and molecular-specific, spin-produced radiation. The Strube and Atoltz hypothesis was later verified by use of the Aschoff oscillators. According to German nuclear scientist Strube, there exists an electromagnetic, structural, 3-dimensional picture / aura EMSA, around every substance, about 10^{-9} weaker than the infrared-resonance of these substances that is emitted near molecules. This creates a spectral distribution of frequencies that sheathes the 3D arrangements of parts of molecules. The EMSA is a complex mix of frequencies of different amplitudes. Rotation of the magnetic vector of elementary particles of molecules is activated by heat and by GMF (about 0.5 Gauss). The GMF is understood to contain all the various oscillations of the field. Parts of this field pulsate and are rhythmically changed by the moon, the sun and the planets.” He states, “the EMSA of molecules in GMF is very weak and only rudimentarily monitored by current technical equipment”.¹²⁸

According to Strube and his co-workers,¹²⁹ the EMSA of pure substances diluted in water is defined by a main resonant frequency that acts as a modulation wave in the lower frequency region of high frequency carrier waves. It is due to molecular noise generated by thermal movement of elementary particles and molecules. This modulated high frequency wave is transmitted from a substance to a BRT device, amplified and treated by filters, and then injected into the patient. It is the main EMSA frequency, known as the nuclear spin of pure substances that was transmitted by FM senders to the BRT machine by Morell and Rasche in earlier experiments. For composite substances like organic molecules the EMSA is the sum of nuclear spin resonance frequencies of their separate parts.

Cracking the wireless vibrational medicine enigma

In 1992, Strube and Dr. Dieter Aschoff tested their EMSA hypothesis with oscillators that emit frequencies identical to the nuclear spin of pure substances. By quantifying body reaction to signals from pure substances injected into acupuncture points as measured with Voll parameters, specific reactions to pure substances were identified. The Morell and Rasche experiments using filters and colloid solutions of pure substances injected into deviant Voll points showed that such readings could be normalized. Specific substances, in correct dilution, can be therapeutic for this problem.¹³⁰

Using the theoretically calculated frequency of a substance emitted by oscillator and transmitting it through the same filters, Aschoff and Strube achieved identical normalization! With this experiment, they proved that pure substances communicate with the body through their nuclear spin frequency generated in the geomagnetic field and transmit to the body a compound signal consisting of a thermal noise carrier plus the spin resonance frequency operating as a modulation frequency. This method of recognizing matter

¹²⁶ In textbooks, spin resonance frequencies are cited as singular frequencies; in real life we refer to oscillators that operate within a frequency range, embedded by the Heisenberg uncertainty principle for real life measurements. Thus, there is in reality no exact spin frequency resonance, only a spin frequency spectrum with a range with peak energy transfer!

¹²⁷ Dubrov who supports his analyses with over 1,300 references sees the geomagnetic field (GMF) consists of the directional North-South magnetic vector (that changes with time and location), EMF radiating from the earth's crust, particle radiation from the earth and cosmos, ionosphere cavity resonance and fields (the best known is the 7.8Hz Schumann resonance) and, as others have pointed out, gravitational waves postulated by Einstein's General Theory of Relativity, detected by US scientist T.

Townsend Brown in the 1940s. Latest contenders are scalars. This author comments on this latter day recognition of a more than 100-year-old discovery that there are no true scalar phenomena in nature; only quasi-scalar fields, since living beings react to so-called “perfect scalar waves” due to the presence of weak MHz EM radiation and photons being created by quasi-scalar waves.

¹²⁸ See reference 70, p 98-100.

¹²⁹ Strube, *et al.* Lecture, June 2, 2000. Bad Kissing. Published by MedTronik, 2000.

¹³⁰ See reference 70, p. 98-99.

and living organisms seems to represent a sort of 6th sense and may explain what Prof. Johansson of Karolinska Hospital in Stockholm terms as the “electromagnetic sense” of living organisms. ¹³¹

Life in the subtle energy realms

An amazing phenomenon occurs when a substance is put in a brass container and connected to the BRT machine and the signal is handled as described above, with filters etc. Humans react to the substance-emitted EMSA transferred via copper wires and the device. The body may interpret the signal as *useful*: Voll parameters may normalize, with a lowering of the Needle Drop. Or, the body may interpret the signals as *harmful*: Voll parameters become aberrant, rising or falling, often chaotically, and the needle drops may or may not appear. Or then, there may be no reaction at all. It is as if a cellular intelligence, which bypasses conscious recognition in the brain, is at work.

Voll readings and clinical reactions of patients, over time, when exposed to such weak EMSA signals in BRT, confirm the phenomenon. What is the mechanism behind this extreme sensitivity to specific signals, while others seem to be totally ignored? Galle estimated that the EMSA energy transferred between a substance and body is 10^{-8} Watt or less. With conventional solid-state biophysics it is impossible to “explain” these “extremely weak” type of biological reactions. ¹³²

Superconductivity - ask your tomato plants!

Few books and papers deal with the core question: what are the mechanisms for such weak biological reactions? Most are satisfied with the fact that reactions occur. Recently, Russian researchers have discovered a possible relationship that may throw light on why even extremely weak radiation may be very harmful. The link to the extremely weak fields is called “biological superconductivity”.

Superconductivity is a recent discovery. Certain super-cooled metals lose all resistance to electron transport, allowing a flow of electrons (current), once set in motion, to circulate indefinitely. Such phenomena in solid-state physics usually occur at 20° Kelvin, near to absolute zero temperature in vacuum. Biological materials in living beings seem to have the same properties for the passage of alternating electromagnetic signals. According to Freeman Cope¹³³ molecular membranes surrounding living cells, exhibit superconductivity. Some plants exhibit negative resistance to external voltage, amplifying currents passing through them! ¹³⁴ Such phenomena may exist in humans, where certain membranes or tissues work as biological amplifiers of specific signals. Alexander Dubrov discusses several mechanisms for biological superconductors and points out that water in living cells is in a state of maximum organization, acting as a perfect superconductive liquid crystal. ¹³⁵ Dubrov cites research that shows that parts of the body, or even most of it behaves like a “single pseudo-crystalline structure”, that is very sensitive to external magnetic fields.

According to Dr. Zaboј V. Harvalik, one can measure reactions in sensitive persons to variations in magnetic fields as weak as 10^{-14} Gauss! There are brain centres that amplify such weak signals by 10^6 to 10^8 fold. Thus, a weak signal of 10^{-14} Gauss is amplified in the brain to 10^{-6} Gauss. ¹³⁶ Whether this is superconductivity or not is to be investigated, but we may call it “superconductivity by analogy” since the basis for biological circuits with zero or negative resistance seems to demand explanations that differ from quantum theoretical consideration for solid state, liquids or gases.

¹³¹ Actually the whole idea may be wrong. It was postulated when electromagnetic radiation and sensing by spin-spin resonance was unknown in mainstream physics. I retain the term as it provides a framework. The notion of spin-spin resonance coupling is valid as long as we stick to the fact that we have a frequency distribution of emitted signals here. Most quantum theory books are vague and give the impression that only 1 frequency is emitted, while “band” of frequencies with spin-spin resonance coupling is in cyclotron resonance with the constant geomagnetic field. See: Blackman, C. F., *et al.* Effects of AC and DC magnetic field orientation on nerve cells. Biochemical and biophysical research communication. 200, 1996. p. 807-11.

¹³² See reference 70, page 101.

¹³³ Cope, Freeman W.. Biological sensitivity to weak magnetic fields due to biological superconductive Josephson junctions. Physiological Chemistry and Physics. 5(3) 1973, p. 173-6; Discontinuous magnetic field effects (Barkhausen Noise) in nucleic acids as evidence for room temperature organic superconduction. Physiological Chemistry and Physics. 10 1978, p. 233-46.

¹³⁴ Kiryuskin and Kim. Problems in Bionics. Nauka, Moscow.1973.

¹³⁵ Dubrov. p. 148-9

¹³⁶ Harvalik, Zaboј. A biophysical magnetometer-gradiometer. Journal Virginia Academy of Sciences. 1970. See: Dubrov, 151-2.

Dubrov shows that acupuncture points and meridians have superconducting properties, making them sensitive to even the weakest electromagnetic signals. When EMSA signals from pure substances in colloidal state are amplified and applied with electrodes and probes they become strong enough to attain the Havralik 10^{-14} Gauss magnetic component threshold. Their electrical component is in the microVolt range, intense enough for Voll points.¹³⁷

Dubrov observes that biological superconductivity is vital for humans to maintain proper bioenergetic *homeostasis* in the geomagnetic field. This trait seems to explain “odd phenomena” like “animal magnetism”, “electromagnetic sensitivity” and maybe even ESP.¹³⁷ Dubrov’s book, *The Geomagnetic field and Life* goes a long way to explain the mechanisms of what is observed, but it leaves scalars and quasi-scalar signals that pass through the body along structures like the meridians in a superconductive manner. The mechanisms are beyond the scope of this text I want readers to be aware that the “old-style thinking” sees the body as a lump of chemicals with some electricity added, a depiction often presented by the “microwaves-are-not-dangerous-community”, that is so outdated and best left to die by itself, like the dinosaurs.

The strange discovery of Dr. Abrams explained?

The abovementioned facts go a long way to explain why humans react to substances as being harmful or beneficial, through biological, frequency-dependent superconductivity. The “harmful *versus* useful” switch is done by the body-as-a-whole in that the input signals decrease order and increase chaos (harmful) or increase order and coherence, and decrease chaos (useful). Could this explain the effects observed by California neurologist Dr. Albert Abrams in the 1920s? Abrams made a startling discovery, not understood in his time. When putting patients in contact with a bottled solution with germs that they already had in their bodies, their body electricity and muscular strength changed! Abrams found this intriguing, and saw a potential diagnosis method by bottling germs and letting patients touch each bottle till a specific electrical reaction took place, thus identifying the disease. Later on, he went a step further: by touching a patient already holding a bottled germ, he tested the same measurable electric changes in himself! Not only the germ in the bottle transmitted its information, but also the patient’s reaction could be transferred to the healthy doctor by touch or by a wired connection between them.

Abrams went even further: by placing the bottled germ solution on a brass plate and connecting this arrangement to the patient with a copper wire, the same results took place. With proper guesswork and a few more steps Abrams could have invented the first bioresonance diagnosing equipment, because what he discovered was the transfer of EMSA substance to the patient, either over a short distance (bottle to skin) or via a copper wire as with the *MORA* or *BICOM* devices built 50 years later.

Due to the limitations of electric components of his time, Abrams never built such machines. Instead, he developed his primary discovery in other hard-to-explain areas. Somehow it all worked! In 1924, a committee of leading British scientists, led by Lord Horder, investigated his method, using sealed substances that promoted reactions in operators brought in contact with the patient through a wire, etc. Lord Horder exclaimed, "All tests were successful. The chance of these results being an accident is of the order of 1/33,554,432." (Horder and others nominated Abrams for the Nobel Prize for having explained the mechanism behind the effect.)¹³⁸ Abrams did not win any prize, but his work laid the foundation for fundamental discoveries: the intelligent reaction of humans to substances perceived as being harmful. Morell and Rasche’s experiments confirmed his discoveries. Others discovered the physical nuts and bolts of what might be going on.

Dr. Voll, techno-hermit

True pioneer of applied biophysics was German MD and acupuncturist Dr. Reinhard Voll, who for 4 decades charted human acupuncture points, using Abrams’ method to test for medicines to heal patients. His work was solitary at first; and, he wrote later: "Doing this kind of work is an utterly lonesome road to

¹³⁷ Dubrov. p. 152.

¹³⁸ Inglis, Brian. Natural therapies. Collins, London. 1979

knowledge". By the 1960's Voll classified points known now as Voll points, plus another 200 Chinese acupuncture points, which until then were only understood for their practical application rather than for their precise medical connection to specific body parts. In recognition for his method, these electroacupuncture measurements and tests are known as Electro-Acupuncture-according-to-Dr.-Voll, abbreviated to *EAV*.

Morell and Rasche adopted the same method as the basis for the *MORA* concept and began to use toxic-substance-testing with their equipment and then to treat diseases arising from such substances via the **A** method, feeding inverted oscillations into the body, with amplifiers. Diagnosis was about 90% successful; therapeutic effects on allergies were likewise successful, without placebo effects. Dr. Marlo Morgan investigated the technique in 1985 and concluded that results could be observed in blood tests, and were definitely superior to biofeedback, hypnosis, prayer, magnetic pulsed therapy, etc.¹³⁹ In the same period, the patient's own blood was used as therapy, an idea first proposed by Abrams 60 years earlier!

What does this have to do with cellphones? We have a evaluation database of information gathered from individuals who have problems with external electromagnetic fields. When toxic substances cause problems to patients, they alter Voll parameters and the Needle Drop by EMSA spin-spin resonance between an EMSA substance and the body. Voll parameter shifts are noted at the allergy and the lymph points, and points connected to disturbed organs. For instance, hay fever always makes the lung point abnormal. In patients with food allergies, the stomach point is normally abnormal, etc.¹⁴⁰

Cellphones produce toxic waste!

After testing for substances that provoke "harmful" reactions, one gets a "list" of reactions to substances specific for each individual. One cannot actually forecast reactions, as each patient has their "typical" reactivity pattern, due to inherent chemical reactivity, past history, exposure, and lifestyle, etc. For those hoping to detect "standard answers" to given situations, BRT testing is a frustration! For those appreciating the uniqueness of personal reactions to external or inner environments, BRT is the answer! Some substances are so toxic that anyone will react to them; these are the truly harmful toxins everybody should / must avoid.¹⁴¹ Such statements must be based upon facts, like the classic LD50 animal experiments that work well with deadly poisons. For chronic toxic states where disease is seen months and even years after exposure we must rely on clinical data, supported by lab tests, and tests like BRT.

An interesting phenomenon is hidden in this Aristotelian syllogism:

*Toxins appear as high readings in 1 or more Voll parameters + Needle Drop
in 1 or more abnormal readings.*

*"Substance X" results in high readings of 1 or more Voll parameters + Needle Drop
in 1 or more abnormal readings*

Therefore: "Substance X" is toxic

This logic expands the concept of "toxic" in addition to those described in points 1 - 4 on page 17. Since science is about defining words, we may use the term, "toxic" this way, as defined by the syllogism, a view supported by such researchers as Reckweger, because all the aforementioned factors, including harmful EMF, lead to cellular breakdown and release endotoxins (toxic substances released by damaged cell metabolism - toxic intermediates, etc). Defined as such, cellphones and other harmful radiations confirm our more comprehensive concept of a "toxin".

Irradiated blood: a poisonous substance?

¹³⁹ Results presented at 4th Symposium for European Acupuncture and Alternative Medicine, Copenhagen, Aug.8 – Sept.1, 1985.

¹⁴⁰ Personal experience and that of others. See references 70 and 139.

¹⁴¹ Reckweger, H. Homotoxiokologie: Ganzheitsschau eier synthese der Medizin. Aurellia Verlag, Baden-Baden. 2000

A disturbing observation is that when a subject is exposed to cellphone radiation, or other known harmful sources of radiation, and their blood sample placed in the input of a BRT device, the reading alerts a “toxic”, as defined by the above syllogism (high readings plus Needle Drop). Why does blood behave as a toxic substance to its own body? Is it because there is a cellular substance or protein breakdown in the blood, or is it for some other reason? Our research with a high-resolution, dark-field microscopy supports the first hypothesis: subjects exposed to harmful radiation show up with damaged blood, as those exposed to toxins and infections do!

Drs. Ludger Mersmann, Morell, and Rasche discovered that blood samples drawn from a vein (e.g.: 1cm³) in those exposed to harmful radiation act as a substance that provokes spin-reversal to an otherwise non-spin reversed test subject! This is proved as follows: a normal healthy person is tested, with no Needle Drop. The person is then exposed to emissions (cellphone for 2 - 5 minutes). Placed under a Payne antenna, spin-reversal is observed in total body EMSA field. A Voll parameter test notes abnormal readings + Needle Drop. Using a proper BRT program the situation is brought back to normal, so the Voll parameters return to normal, Needle Drop disappears, and the Payne antenna shows no more spin-reversal.

When the same person is then exposed to his/her own blood drawn after cellphone exposure, the blood sample will show abnormal Voll parameters and Needle Drop and provoke a “toxic type reaction” as defined in our syllogism. The blood has become a “toxin”. We may then take the toxic blood, amplify its signals by using an “A” type manipulation (pure amplification only), and feed it, let's say, a footplate placed under each foot, and connect it to the BRT unit. We do not have a BRT feedback situation, but a provocative signal from toxic blood injected to the body. Toxic readings reappear together with a Payne antenna spin-reversal. The test person becomes sick due to his own radiation-toxic blood! ¹⁴² The cause-effect chain of events backs the observation that harmful emissions cause body field spin-reversal (at least of the head, since the antenna is placed over the head), and provoke a toxic blood reaction. By using the following syllogism we conclude:

An EMSA radiation from a substance with a left-turning spin gives a L-spin reaction in the human body as monitored with a Payne antenna (when the signal is strong enough). L-turning spin in the human body EMSA is a “spin-reversal” (as opposed to the normal healthy R-turning spin as observed by the Payne-antenna). When used as a provoking substance (feeding the EMSA signal through the BRT device using only amplification of the signal / no manipulation).

Blood from a person exposed to harmful radiation gives a L-spin in an otherwise spin-normal person when used as a provoking substance using a BRT machine with no signal manipulation.

Blood from a person exposed to harmful radiation is spin-reversed.

Geopathic treatment and the Mersmann antenna

In 1980, to efface spin-reversing effects in human life fields, Ludger Mersmann suggested to Rasche and Morell that they pick up only L-turning part of radiation emitted by blood, with the use of a spin-selective antenna.



By feeding the “harmful” signal, (by that time treated as any signal interpreted by the body as if from toxic substance) and manipulating it with an **A_i** filter - as done with allergens and toxins, they managed to reverse spin-reversal effects. Since *spin-reversal* was first observed occurring over geopathic “hot spots” from the subsurface, where static magnetic variation is acute, this protocol of using the Mersmann antenna and the **A_i** program became known as the “Geopathic program”. Running the geopathic correction program, putting electromagnetic toxic blood in the antenna totally annihilates spin-reversal, as explained below. When a person is exposed to a harmful environmental field, spin-

¹⁴² Personal experience, and that of others. See references 70 and 141.

reversal is made visually apparent by the L-rotation of the Payne antenna and further objectified as one or more Voll parameters provide high readings and the Needle Drop effect. When a patient's blood sample is put in a Mersmann antenna (see photo), the effect created by L-spin on basic blood particles is thought to become separated from the effect created by the R-spinning particles. When this compound signal is fed through the BRT device using A_i filters and proper signal amplification, all spin-reversal indicators disappear: the L-spin of the Payne-antenna, elevated Voll parameter readings and the Needle Drop. The body's harmony is re-established as if the body had never been exposed to harmful spin-reversing external EMF!¹⁴³

If the body is immediately once more exposed to the harmful field, most subjects will lapse back into the spin-reversal situation! However clinical experience shows that after repeated BRT sessions with spin-reversal correction, most individuals become stable, even when exposed to harmful environmental EMF, provided that the exposure is brief and not too intense. In this manner, BRT can ease and even heal so-called "electrosensitive" people. However, exposure to harmful fields will eventually bring them back to the doctor. Therefore, being able to live in a harmful environment becomes hopeless.

Part 4: Testing the Biophone

How BRT know-how solved the riddle of biological shielding from microwave emissions with the Biophone cold-war scalar technology

During the Cold War the Bulgarian scientist, Prof. Danev was asked by his government to design a small, portable device to shield diplomats against Russian electromagnetic warfare. 20 years later, this device surfaced in the West as the Vector, later renamed Bioguard. Bioguard is a specially-treated silica crystal encapsulated in metal and attached to a cellphone. According to Danev, the device reduces biological harm done by cellphones. Till now, no one in the West could explain how the device works, since the Bioguard seems to have little influence on conventional, measurable parameters of power emitted by cellphones. However, users felt considerable improvement, well above the usual "placebo level".

By applying the previously described techniques, we finally found an answer, but first we asked the cellphone users how they felt!

Why we did what we did

In science, as everywhere else, there are questions of "correctness" and the most "correct" way to conduct a test. These days, the correct way is to do random, double blind tests, pretending that no particular outcome is expected. The reason we did not run double-blind tests with "look-a-like" dud *Biophones* known to have no effect whatsoever on EMF nor humans was due to the nature of the problem.

A few months earlier, a Norwegian inventor approached us with an idea to use a metal shaped in a certain geometry and to tape it on cellphones. His own tests with humans, asking for their feelings when using "treated" versus "naked" phones, led him to believe that certain materials with special geometry were the only thing that worked. To test his supposition based on user interviews, he came to my office with various prototypes and we ran a number of tests of each prototype on unaware individuals and found out that the prototype that reduced spin-inversion and normalized Voll parameters was the same one that users "felt" had the best effect. The rest of the prototypes had no measurable spin-inversion effects!

¹⁴³ Wissenschaftliche Studien zur BICOM Resonanz-Therapie. Institute für Regulative Medizin-Gräfing. 1999.

From this preliminary experiment we knew that there was some ambiguity about subjective experience of “effectiveness” that could best be tested with double blind random set-up; however, when it came to BRT measurements, only the really effective units removed spin-inversion. Therefore we felt safe to say that BRT would, in the end, pick out the effectiveness of a device. This was also the experience of others.

Participants

Finding volunteers for the tests was easier than performing the tests. Ads were placed in the local paper for volunteers for a “reactions to cellphone discomfort” test. Naturally, due to the nature of the ads, most of those who signed up for the experiment were people with some sort of discomfort, but interviews with the volunteers soon proved that there were also those who claimed to have few problems. When settling for a proper number of participants, we followed the recommendations of Dr. Jørgen Lyngbye’s classical handbook of laboratory medicine.¹⁴⁴ It is recommended that if “Gaussian statistics” are assumed, that is spreading of data around some natural middle-value, one should use the formula $100 / \text{lower limit} = \text{number of participants}$. If one then wants 96% of all participants to “fall within” some “natural interval” this gives a lower limit of $((100-96) / 2)\% = 2\%$. This gives us the desired number $100 / 2 = 50$ participants.

After 3 weeks, 50 volunteers signed up, willing to go through with the testing, without financial compensation except for keeping their *Biophone* they used in the experiments. 8 persons left after the first test, stating that they did not have time to come a second time, leaving us with 42 participants to go through the whole procedure. This gives a lower limit of $(100 / 42)\% = 2.4\%$, which is still acceptable.

Bias and prejudices

Bias means fact that participants were not selected at random from a database by computer. These days, random selection is like a “golden rule”, however most fundamental conclusions in science were achieved in laboratories, without randomization. Randomization would be nice but there is no reason why it should make the experiment better. Actually, most medical research is not randomized but done, as we do, on volunteers. The validity of our research did not rest on randomization and double blinds but on a controlled experiment in the classical physics tradition.

Previous history

Participants were asked about past exposure to cordless phones, cellphones, PCs, electrical heating, and daily exposure time, over number of years, We expected to find that greater exposure would lead to more deviation from a “normal range”. We also expected that people exposed to elevated electromagnetic fields in terms of exposure intensity and duration would be more sensitized and react more when subjected to additional cellphone exposure. We assumed *a priori* that seriously exposed individuals would have little or no effect from the *Biophone*, which is why we asked about previous exposure, other than from cellphones.

Some lab considerations

All subjects were tested twice: before fitting the *Biophone* and after using it for a month. Each test (1 and 2) occurred within 5 workdays since spreading it out could introduce confounding factors such as solar flare activity, geomagnetic variations and weather changes, all known to induce atmospheric and earth radiation variations. Such environmental EMF changes can sensitize individuals into abnormal reactions regardless of manmade electromagnetics. To ensure “radiation-free” lab conditions, we measured the lab with *Tri-Field* meters and removed all electrical equipment that might interfere. The *MORA Super Plus* was run on battery during operation and was insulated and grounded with shielded cables connected with BNC plugs in insulate equipment. The lab and equipment conform to EMC recommendations. During testing, subjects removed electronic watches, arm bracelets, and rings; cellphones were turned “off” and placed 3 feet away from subjects during cellphone-free test phases. Computers were left outside the lab.

¹⁴⁴ Lyngbye, J.. Nordic Laboratory medicine handbook. Helped AS, Molde. 1999.

What we did and why we did it

Step 1: “Cleaning up” subjects’ bioenergy:

To create a baseline, participants (none were “patients”) were given a so-called “base therapy”. This treatment is suggested by Morell at the beginning of BRT to remove “unwanted electrical noise” from the body. Base Therapy uses the **H + D_i** operation to reinforce healthy frequencies (**H** for harmonious) and “extinguish” disharmonious ones with the use of **D_i** (phase inversion of unipolar waves from unhealthy cells). The first phase deals with low frequencies using a low-pass filter that lets through 0 - 1kHz (1kHz = 1,000 cycles per second), while the second part deals with those between 1kHz - 200 kHz, using a high-pass filter. Each step lasts 150 seconds (15 x 17 seconds “on” + 3 seconds “off” pulsing of incoming signal). Input signals to the *MORA Super* are taken from an extremity with highest reading (see previous discussion on this protocol) and fed into the extremity with lowest reading + 1 signal injection source using fresh capillary blood drawn from a finger. Base Therapy is, according to Morell, “a very useful therapy, without which electroacupuncture measurements (of Voll points) would often not be possible, thus making comparison between before-and-after (therapy of another sort) impossible”.¹⁴⁵ The idea is to recreate what Dr. Harvey Wiley, health adviser to President Theodore Roosevelt, called the “clean boys” cohort. “Clean boys” were farmers who lived and ate healthily. They were used as a “baseline” for “a naturally healthy individual” and then exposed to harmful substances, with reactions noted. Wiley hoped to understand how harmful foods, white sugar and *Coca Cola*, harmed otherwise healthy persons.

Step 2: Measuring bioenergy of the “clean persons”

After having formed the “Wiley clean boys” baseline, we tested for and recorded the 20 right side Voll Parameters and left side spleen Voll points. (The big toe medial side has a Voll –Ting point for pancreas on the right side and the spleen on the left. All other points are bilateral for the same organ/tissue.) When writing down the Voll parameters, their value and Needle Drop were also noted. Care was taken to ensure a stable pressure to avoid false needle drops, as explained earlier. The *MORA Super* has an algorithm that stores the first stable value reached, ensuring that an operator will not continue to press beyond.

Step 3: What to do with needle drops?

If Needle Drop = low SI reading was found in a “clean person”, we made the individual “cleaner” by removing their spin-reversal. To achieve this state, we applied the Morell-Mersmann-Rasche protocol: their blood sample was used (since blood is emissions-sensitive for spin-reversal and needle drops of 1 or more Voll point measurements + Payne antenna L-turning reactions, it reacts like the body). If you use BRT device on a “clean person” and signal back their blood’s EMSA, the reaction resembles that of exposure to harmful emissions that cause spin-reversal! Morell, Mersmann and Rasche noted this effect over 20 years ago. Placing a “toxic” blood sample from an electrosensitive person into the L-spin part of the Mersmann antenna, passing the signal through a **A_i** filter (all-pass, phase inversion = anti-allergy filter) and injecting the signal into Voll Ting points with Needle Drop (if and when Needle Drop is due to electromagnetic spin-reversal) the Needle Drop in that point disappears! The bioenergetic system seems to recognize such signal as therapeutic and responds temporarily by normalizing itself. The effect lasts as long as the signal is injected into the Voll Ting point. Once the signal is removed from the circuit and the Voll Ting point is tested again, Needle Drop resumes indicating that the body relapses into spin-reversal.

When the BRT device does an **A_i** therapy session with 15 therapy pulses (7 seconds “on” + 3 seconds “off” X 15 = 150 seconds), using input from blood put in the Mersmann antenna, all needle drops disappear. In this manner, testing for and therapy remove all needle drops caused by spin-inverting EMF. Some EMF produce R-spin pathology. The same protocol applies as for L-spin inverted case. In cellphones, only L-spin pathology has been observed. When our subjects had Needle Drop, we tested for spin pathology and L-spin was always the case and L-spin correction with the *MORA Super* was the rule. Using the Base Therapy regime, seeking for needle drops and then removing them with the Geopathic Program (spin-

¹⁴⁵ See reference 70, page 62.

inversion correction), all subjects ended up like Dr. Wiley's "clean boys", for a while - in optimum bioenergetic balance ready to experience cellphones "risks". In this way, we could observe what cellphone emissions do to otherwise "normal" (or rather, "normalized", put into a normal state).

Step 4: "Clean persons" baseline reading

All subjects were Needle Drop free, avoiding uncertainty in point readings. All were in normal range, giving consistent readings. Departure from normal indicates degree of chronic body imbalance. Later on, we would like to see who had what underlying health problem and how it predisposed their reactions to cellphones. The baseline reading involves 21 unilateral parameters (20 unilateral + test point for the spleen Endothelial system on the left foot. The symmetrical point on the right foot is the pancreas test point).

Step 5: Exposing "clean persons" to typical cellphone use

Subject left the lab, made a 3-minute call, to return for a test of full 21-point Ting point measurements. This was the unshielded provocation test. Voll parameters monitor body response to emissions and variance from "clean state". Needle drops reappear to indicate spin-inversion; the Payne antenna objectifies spin-inversion.

Step 6: Repeating step 5 with *Biophone* attached to cellphone

Exposing "clean boys" to cellphones for 3 minutes with a *Biophone* gave us the result of how much harm *Biophone*-fitted cellphones caused compared to "unprotected" phones. In each case, the "clean person" state was compared with that after cellphone exposure. *Biophone*-fitted phones reduced harmful effects so our conclusion is that there is an improvement compared with "unfitted cellphones".

Part 5: *Biophone* Project data

Interview and measurement data

Participants

50 persons were recruited with ads in local papers and by an article in *Agderposten*, Norway's largest-circulation newspaper. After one week the volunteers arrived, all cellphone users except for 1 who used a cordless phone. All were questioned and tested; for the *Biophone* measurements on the 14th day, only 42 showed up. This still gives an acceptable confidence index of $(100 - 2 \times (100 : 42)) \% = 95.2\%$.

1. Age and sex

Table 1

Age group	M	F
0 -19	3	2
20 - 29	4	5
30 - 39	1	6
40 - 49	7	5
50 - 59	4	2
60 +	3	0
Total	22	20

2. Type of residence

People living in concrete structures tend to have greater electromagnetic burden than those living in wooden residences, perhaps due to iron reinforcement.

Table 2

Houses made of wood	36
Houses made of concrete	4
Unknown:	2

3. Occupation

Though not essential to our conclusions, it is interesting to know who participated.

Table 3

Occupation	Male	Female	Total
Student	2	3	5
Unemployed & pensioner	3	7	10
Employed	18	9	27
Total	23	19	42

4. Hours per week on computer?

Our purpose was to examine cellphone and *Biophone* effects. Computers emit near-2MegaHertz, another microwave burden. We assumed that total EMF burden = cellphone + computer + "other" EM emission exposure. If *Biophone* works only on cellphone exposure, we would expect that second measurements, *i.e.*, before cellphone used in the lab, would still show "needle drop" and/or spin-inversion. This would be so if computers behave like cellphones! We tested several hypotheses together:

1. Computers give rise to problems like cellphones, so using *Biophone* on cellphones achieve little.
2. Cellphones cause problems the *Biophone* solves. Computers cause "something else" that does not show up as "needle drop".
3. Computers and cellphones have something in common so the *Biophone* resolves effects of both - *i.e.* "*Biophone* is a therapeutic modality".

The last assumption was a "long shot" that no one at the lab believed in, but my bioelectronics experiences taught me that some assumptions are not far-fetched enough!

Table 4

Hours of exposure/week	Number of persons
0 hours	9
Less than 10 hours	22
11 - 20 hours	3
21 - 30 hours	6
31 - 40 hours	2
Average weekly exposure: 8 h 52 min	

5. How many on computers?

Table 5

Computer exposure	Number of persons
Alone at home	20
Together with another at work:	7
Together with many at work	6
Do not own a computer	9

6. Minutes per week on a cellphone?

Table 6

Weekly exposure time talking + SMS	Number of persons
0 - 60 minutes	9
61- 120 minutes	9
121 - 180 minutes	1
181 -240 minutes	6
241 - 300 minutes	1
300 - 600 minutes	5
600 - 900 minutes	6
More than 900 minutes	4
Total	42

On the average, each participant used his/her cellphone 350 minutes weekly, or 49 minutes daily. Maximum use was achieved by a social worker, with 180 minutes daily!

7. Cellphone habits

Table 7

Cellphone habit	Number
Leaving cellphone "on" at home	15
Leaving it "on" on desk	16
Carrying it in shirt pocket	16
Carrying it "on" in bag, purse	4
Using hands free	10
Carrying it in pocket	10
Carrying it on belt	12
Leaving it "on" under pillow	2

Users had intimate proximity to their emission source, like carrying the cellphone "on", close to their genitals (does not promote fertility). Sleeping with cellphone "on" under pillows won't improve sleep, school scores or job performance, or "next morning radiation hangovers". *Subjects had several habits, so sum of results is greater than 42.*

8. User comments about cellphone effects

We looked at user comments when asked about personal problems related to exposure to computers, high voltage lines, earth currents, radio antennae and cellphones. We asked them to consider all possible sources to avoid subjective criticism and to note if there was any change in symptoms before and after 4 weeks of *Biophone* use, and to rate their problems on a scale of 0 (none) to 10 (serious problem). To simplify, we averaged the answers, *i.e.*, for each symptom we took the personal score, added the scores and divided by number of persons having that problem. This number became the "average score" for those with the problem. We did this exercise the first time users came with "untreated phones" *i.e.* experience of typical cellphone user. After the first testing, we fitted the phones with *Biophone* technology, and sent the subjects home for 4 weeks with "treated phones". When they came back, we asked the same questions all over, and averaged the subjective complaint of each symptom. Interestingly enough, no one totally lost his/her particular symptom! The group was the same both "before" and "after", but as seen below there is a reduction in the subjective discomfort within each group!

Table 8

Problem attributed to cellphone only by subjects	Persons with symptom	Average score untreated phones	Average score 4 weeks after <i>Biophone</i> -fitted cellphones	Change in discomfort - "before" and "after"
Fatigue	12	5.7	4.8	-0.9 (-15%)
Headaches	19	4.0	2.3	-1.7 (-42.5%)
Heat around ear	13	6.0	3.7	-2.3 (-38.3%)
Burning sensation in skin	26	4.9	2.5	-2.5 (-20.4%)
Eye problems	23	4.1	3.1	-1.0 (-24.4%)
Burning eyes	24	4.2	3.8	-0.4 (-9.5%)
<i>Parestesia</i> * in hands and feet	26	4.8	2.9	-1.9 (-39.5%)
Joint pains	27	4.9	4.2	-0.7 (-14.3%)
Restlessness/urge to move	17	5.5	3.8	-1.7 (-30.9%)
Cannot concentrate	17	5.6	3.8	-1.8 (-32.1%)
Angry/irritated/stressed	21	4.2	3.8	-0.4 (-9.5%)
Muscle cramps	21	4.9	3.6	-1.3 (-26.5%)
Average of average **	21	4.9	3.6	-1.3 (-26.5%)

* *Parestesia* = itching, crawling sensation often associated with nerve inflammation.

** Average of average: number of persons in each group added together and divided by number of groups, giving: "how many persons on average" out of 42 perceived discomfort from cellphone use. Likewise for the scores: sum of scores within each group, divided by number of groups.

The minus (-) sign before change means, reduction of subjective discomfort score and therefore a perceived improvement after using the *Biophone*; (+) means increase, or no perceived cellphone effect.

“On average”, things don’t look dramatic when it comes to improvement. Consider this: 50% had problems they related to radiation exposure! They rated their problems as considerable trouble (close to 5 on the scale). Is this not something to think about? This problem they ascribed to all radiation types!

After using the *Biophone* on their cellphones for 4 weeks everyone, on the average, experienced an improvement as rated on the personal 0 - 10 scale of - 1.3 reduction, or 26.5% of relative improvement. Specifically, they noticed the most dramatic improvements in the following (more than 30% reduction):

- Sensation of heat around the ear
- Feeling of restlessness/unease
- Headaches
- Paresthesia (“ant crawling/tingling sensation)
- Reduced ability to concentrate

Since this table is an average of all groups, when looking into individual scores, we noted a trend. Those who ranked their problem as 5 or less, judged their discomfort equal to or a little worse going “off” the *Biophone* for 4 weeks. When questioned, they admitted it because participating in the project made them more “aware of what radiation does to me”. Double blind testing would have removed all doubts. For those with scores above 5 - those most aware of and affected by their phones - all felt reduced discomfort. In other words: All participants experienced some sort of discomfort when using cellphones, those least affected did not consider their problems being connected with their phones until being told to be more attentive to symptoms. Those most affected experienced an improvement after using *Biophone*-fitted phones. The bottom line is: *"The more radiation troubles you, the more benefit you may feel!"*

Measurement results

Judging from the answers, "something is going on" but can it be measured? Lets examine our 3,528 point-measurements through statistical filters (42 persons tested twice at each session for 21 Voll parameters, or $42 \times 2 \times 21 \times 2 = 3,528$ measurements):

1st observation: state of the body of “clean people”

These are the Voll parameters of participants after having been given Basis Therapy, followed by the geopathic program to wipe out spin-inversion, on day 1 of tests, before exposure to their phones. Results show the effectiveness of the BRT machines, while giving a baseline for a “pseudo-normal” population. From past experience, this state, if not immediately disrupted by EMF exposure may last for several days.

Table 9

1 st measurement - after cleansing - before using <i>Biophone</i> -fitted cellphones	
Meridian	Voll parameter measurement
Lymph	57.33
Lung	50.76
Large intestine, colon	57.55 (highest reading)
Nervous system	53.95
Circulatory system	52.74
Allergy	52.40
Organ degeneration	50.45
Endocrine glands	48.02
Heart-	51.02
Small intestine	47.26 (lowest reading)
Pancreas	53.43
Spleen	56.57
Liver	57.00
Joints	51.81
Stomach	52.48
Muscles/connecting tissue	51.50
Skin	52.57
Fat degeneration	54.88
Gallbladder	54.17
Kidney	54.79
Urine bladder	50.29
Sum	1,110.97
Average for all Voll parameters	52.90

From the Voll parameters, we note that an incompletely “normalized” Colon meridian results in an average reading of 57.55. This meridian passes the jaw where users usually hold their phones. The emissions may be affecting facial skin and bone structure in a way that “cleansing” does not reduce readings. There is however no needle drop indicating a spin-inversion, only the “over active state” observation.

The Lymph system meridian has a 57.33 reading. This means the emissions affect facial lymphatics. We know from experience that this point activates with dental involvement; it may be that cellphone emissions affect teeth via their crystalline Calcium Apatite that acts as “crystal receiver” for electromagnetic signals.

The 3rd highest reading is the Liver meridian. In Chinese medicine, this meridian’s points relate to stress, aggression, the liver and to tissue along its path. In modern physiology, the limbic system influences aggression and stress.¹⁴⁶ Cellphone antennae usually align with the limbic system.

The 4th highest reading is the “spleen channel”, which in Voll electroacupuncture describes the state of the spleen. Somehow cellphone emissions excite the lymphatic system beyond local lymph nodes. The rest of the readings are either normal or subnormal (below 45).

The lowest readings are for the Gland and the Small Intestine meridians with 48.02 and 47.26 respectively. The meridians run behind the ear and channels also activated by emissions. That the hypothalamus, the highest endocrine centre, is often aligned with cellphone antenna may explain the phenomenon.

To what degree does a lowered Voll state, over time, gives rise to altered functions in corresponding organs, with the small intestine and the hormone producing glands may be shown in functional tests of these organ systems. In the future, we plan a follow-up examination of hormone levels for the hypothesis, thyroid, pancreas, adrenals and the gonads.

Voll point readings of “clean people” after 3-minute unshielded cellphone use
Table 10

Name of Meridian	Voll parameter readings	
	Average, before Needle Drop	Meridians with Needle Drop
Lymph	57.12	20
Lung	50.24	27
Large intestine	53.07	21
Nervous system	51.26	31
Circulatory System	51.02	20
Allergy	47.21	29
Organ degeneration	51.83	29
Endocrine glands	47.74 (<i>minimum</i>)	33
Heart	51.93	22
Small intestine	51.55	26
Pancreas	54.71	16
Spleen	58.14	14 (<i>minimum</i>)
Liver	59.10 (<i>maximum</i>)	23
Joints	55.93	34
Stomach	55.50	36
Muscles/connecting tissue	54.29	30
Skin	52.93	36
Fat degeneration	55.45	23
Gallbladder	54.76	24
Kidney	56.05	30
Urine bladder	53.24	35 (<i>maximum</i>)
Sum of averages	1,023.07	559.00
Average point reading = sum Voll averages / 21	53.48	26.62

The second column gives average readings of participants for a point, *i.e.*: sum of individual point measurements / 42. Readings were made as the computer fixed correct maximum value before any needle drop started. Third column notes participants out of 42 with Needle Drop for point. Example: of 42 participants with their Kidney meridian Ting point measured, the average value was 56.05 on the conductance scale, slightly “overactive” (the upper “normal” limit being 55.00). In those tested, 30 had

¹⁴⁶ Carter, Rita. Mapping the mind, Weidenfeld & Nicolson. 1998.

needle drops for the point, indicating spin-reversal within 1 or more structures linked to the Kidney meridian. By combining the 2 tables we see how cellphones change bioenergy of “clean” people after only 3 minutes of exposure.

Effects on “clean persons” after 3 minutes cellphone use, without *Biophone*
Table 11 = Table 9 + Table10

Meridian	Average reading before cellphone use *	Average reading after cellphone use**	
Lymph	57.33	57.12	ND: 20
Lung	50.76	50.24	ND: 27
Large intestine	57.55	53.07	ND: 21
Nervous system	53.95	51.26	ND: 31
Circulatory system	52.74	51.02	ND: 20
Allergy	52.40	47.21	ND: 29
Organ degeneration	50.45	51.83	ND: 29
Endocrine glands	48.02	47.74	ND: 33
Heart	51.02	51.93	ND: 22
Small intestine	47.26	51.55	ND: 26
Pancreas	53.43	54.71	ND: 16
Spleen	56.57	58.14	ND: 14
Liver	57.00	59.10	ND: 23
Joints	51.81	55.93	ND: 34
Stomach	52.48	55.50	ND: 36
Muscles/connecting tissue	51.50	54.29	ND: 30
Skin	52.57	52.93	ND: 36
Fat degeneration	54.88	55.45	ND: 23
Gallbladder	54.17	54.76	ND: 24
Kidney	54.79	56.05	ND: 30
Urine bladder	50.29	53.24	ND: 35

* Without Needle Drop or spin-reversal. ** Needle Drop persons out of 42 test subjects.

In this comparison, it is shown that a 3-minute cellphone exposure does not significantly change Voll values, *i.e.*, no clinically significant hyper- or hypo-states are introduced. However, in 62% of the cases needle drops occur in tissues connected with the channels. (In Table 11, 26.6 out of 42 persons, for the 21 channels measured, yield a Needle Drop.) This leads to an initial observation: even short-term cellphone usage introduces needle drops, demonstrating instability provoked by spin-reversal.

We did not determine the long-term effects from electromagnetic field exposure. To establish this we should have measured “untreated” users. After the experiment, we regretted not having done so. At least it can be argued that the results would have looked worse on “un-cleaned” users before testing. But then, exposing “unclean” test-subjects would not have yielded such evident changes. It could be argued that we could have “cleaned” them later, and then expose them in order to gain more data.

Measuring the *Biophone*-shielded cellphone user

Readings 1 month after *Biophone* cell use (after basic therapy) show no spin-inversion, an improvement.

“Clean people” after 4 week *Biophone* phones before *Biophone* phone use in laboratory setting
Table 12

Meridian	Before cellphone use
Lymph	57.69
Lung	55.64
Large intestine	50.00
Nervous system	52.76
Circulatory system	50.02
Allergy	52.48
Organ degeneration	52.86
Glands	53.19
Heart	53.93
Small intestine	51.12
Pancreas	58.45
Spleen	56.90
Liver	63.62

Joints	58.88
Stomach	58.38
Muscles/connecting tissue	58.00
Skin	56.31
Fat degeneration	55.79
Gallbladder	54.88
Kidney	58.98
Urine bladder	54.24
Total	1,164.12
Average:	55.43

The purpose of comparing the clean state in users before the *Biophone* experiment, after their 4-week *Biophone*-fitted cellphones use, was to assess overall improvement in test persons. Though “cleaning” normalizes, it is interesting to check if *Biophone* usage makes it easier to “clean” test subjects.

When comparing before-and-after *Biophone* use data, subtle changes caught our attention:

- a) There is a minor boost in body energy. Average readings for meridians rose by 4.2%, from 52.90 to 55.43, to a total body bioenergy state that bioresonance community accepts as “upper limit” for “normal point readings”.⁴⁸ An explanation for the “energizing” may be *Biophone* crystals transform phone emissions into a bioenergetic stimulus, over time (overall change over 4 weeks’ use).
- b) Two Ting points drew nearer to 50.0 mean value: the Colon and Small Intestine meridians, which pass the upper jaw and the ear used for phones. The Gland meridian passes near that ear remains elevated, but within normal range. The Gall one (also passes near ear) is unchanged.
- c) Five Ting meridian points got out of normal range: skin, joints, muscles and Pancreas and Liver. With no adequate explanation for this, further research may be necessary. A possible deduction is that an energy-frequency pattern change in *Biophone*-fitted phones somehow excites these meridians and or corresponding brain centres. Is there a clinical significance for this is to be seen.

Comparing “cleaned” test subjects before and after *Biophone*- fitted cellphones use
Table 13 = Table 9 + Table 12

Meridian	Table 9 *	Table 12 **
Lymph	57.33	57.69
Lung	50.76	55.64
Colon	57.55	50.00
Nerve	53.95	52.76
Circulation	52.74	50.02
Allergy	52.40	52.48
Organ degeneration	50.45	52.86
Endocrine glands	48.02	53.19
Heart	51.02	53.93
Small Intestines	47.26	51.12
Pancreas	53.43	58.45
Spleen	56.57	56.90
Liver	57.00	63.62
Joints	51.81	58.88
Stomach	52.48	58.38
Muscles	51.50	58.00
Skin	52.57	56.31
Fat degeneration	54.88	55.79
Gall bladder	54.17	54.88
Kidney	54.79	58.98
Urinary bladder	50.29	54.24
Average value	52.90	55.43

* At 1st “cleaning” all participants had needle drops on several Ting points (sign of emission-induced spin-reversal). The “cleaning” removed this, so it does not show in the table.

** At 2nd visit no test subject had needle drop on any Ting point before being “cleaned”, indicating that the *Biophone* removed their spin-reversal - or that participants became “immunized” to spin-reversal due to *Biophone* use.

A striking improvement is total removal of needle drops. Would the drops reappear after 3-minute *Biophone-fitted* phone use, like the first time? Does the *Biophone* protect during use?

Measurement of “clean persons” after 3-minute *Biophone-fitted* cellphone use
Table 14

Meridian	After cellphone use	Voll points with needle drop
Lymph	58.83	0
Lung	53.98	1
Large intestine	52.76	0
Nervous system	56.33	1
Circulatory system	52.29	0
Allergy	56.26	4
Organ degeneration	50.98	1
Glands	51.64	0
Heart	53.50	3
Small intestine	51.48	1
Pancreas	56.71	0
Spleen	59.36	0
Liver	62.83	0
Joints	57.57	0
Stomach	55.93	0
Muscles/connecting tissue	56.71	1
Skin	55.45	3
Fat degeneration	54.10	1
Gallbladder	55.12	0
Kidney	57.64	2
Urine bladder	53.98	0
Total	1,163.45	18
Average	55.40	0.86

The results are striking, as shown in Table 15 that compares needle drops of “clean“ test subjects who were exposed to unprotected phones with their state 4 weeks later when they were exposed to their *Biophone-fitted* phones. The change was dramatic!

Comparison of “clean” test subjects at 1st session after 3-minute cellphone use compared to the same persons undergoing the same experiment 4 weeks later with *Biophone-fitted* cellphones
Table 15 = Table 10 + Table 14

Meridian	Voll parameter readings	
	Needle Drop after cell use	Needle drop after <i>Biophone-fitted</i> use
Lymph	20	0
Lung	27	1
Large intestine	21	0
Nervous system	31	1
Circulatory system	20	0
Allergy	29	4
Organ degeneration	29	1
Endocrine Glands	33	0
Heart	22	3
Small intestine	26	1
Pancreas	16	0
Spleen	14	0
Liver	23	0
Joints	34	0
Stomach	36	0
Muscles /connecting tissue	30	1
Skin	36	3
Fat degeneration	23	1
Gall bladder	24	0
Kidney	30	2
Urine bladder	35	0
Sum of averages	559.00	18
Average reading / point = sum Voll averages / 21	26.62	0.86

Since a Needle Drop indicates spin-reversal, it is astonishing that the Biophone – as small as a thumb – when fitted to an analog mode cellphone has such a positive effect. It is nearly as effective as a 5-minute session with a £13,000 *MORA Super Plus* unit running the “Geopathic correction protocol” specifically designed to remove spin-reversal in electrosensitive persons while normalizing their Voll parameters. The *Biophone* does not totally normalize Voll Ting meridian skin, allergy and heart needle drops, however. For the other points, its effect is near-100% (1 remaining needle drop is insignificant, 3 is still 97% effective).

Can the *Biophone* effect be explained?

How does a tiny silica crystal mixed with metal, activated by a proprietary process, actually remove all body spin-inversion when placed on a cellphone? Without Professor Danev’s own explanation or his technical notes - only his invention, I note that the device, when attached near to a cellphone antenna, results in subjective and measurable effects:

- a) Some subjective symptoms commonly associated with 2 GHz digital cellphone emissions are reduced by more than 30% on a scale from 1-10. These are:
 - 1. Sensation of heat around ear
 - 2. Feeling of restlessness/unease
 - 3. Headaches
 - 4. Parestesia (“ant crawling”/tingling)
 - 5. Reduced ability to concentrate
- b) “Clean” persons show higher energy level (higher Voll parameters) after 4-week *Biophone* use, compared with those without a *Biophone*. Either people were using their phones more after fitting a *Biophone*, feeling “safer” to talk longer or the device inputs a minor stimulating effect obtained by the “geopathic correction protocol”. Point c) could support the latter assumption.
- c) The same effect applies to persons who used their cellphones. With the *Biophone*, total energy is slightly increased.
- d) The removal of spin-reversal associated with Needle Drop was an unexpected result.

These facts give a framework for an explanation of how the device works, as we know the equivalence in bioresonance technology! Below is a comparison between the *Biophone* and bioresonance situation:

Observation	<i>Biophone</i>	Bioresonance equivalent
Improving symptoms associated with electromagnetic emissions	Yes	Running geopathic correction program with blood sample in Mersmann spin-separation antenna connected to input and using the A_i setting
Removing Needle Drop in Voll parameters associated with electromagnetic emissions	Yes	Only known procedure is the above!
Slight increase in Voll parameter readings, without adding Needle Drop	Yes	Only known procedure known to do this applies A protocol

In our analysis, we noted that the *Biophone* crystal technology imitates the 200X more expensive *MORA Super Plus* in the short-term reduction of human biofield emission-induced spin-reversal. The *Biophone* does not operate in the same way as the *MORA* classical BRT by phase-inversion of low frequency spectrum emissions. How does a *MORA* or a *BICOM* work? They pick up DC to 200,000Hz emissions from the body and blood and use these to manipulate the entire body. They do not deal with the 900 MHz analog cellphone frequency band. They are low-frequency manipulators and cope with biofield damage done by all sorts of fields, regardless of bandwidth!

The *Biophone* is, however, a crystal device that is tuned to cellphone frequency. Crystals of this size have resonant frequencies in the GHz range, not in the DC to 200,000Hz range of the *MORA* /*BICOM* devices.

¹⁴⁷ We contacted cellphone engineer Ivar Wraalsen who worked for the Norwegian national phone company, TeleNor, for 20 years and who was an active Electrosensitives Association member. In his opinion, the problem with analog cellphones is not the 900 MHz carrier but their harmonic overtones. In his view, these harmonics should be damped by -100 dB, according to manufacturers. Though they approach modern lab equipment thresholds (-120dB for best professional equipment), sensitive people still react to the harmonics, especially near their heads. Wraalsen's opinion is that these signals are generated inside the phone and radiated before they are filtered and fed to the amplifier section for antenna transmission. Although the filters are supposed to damp the unwanted harmonics, signals leak before they are fed to antenna and a small percentage does even pass through the filters and radiates through antenna! So, we get a mixture of signals: a weak unfiltered signal, a strong filtered signal that are still polluted because some unfiltered noise leaks. These are not the "clean" square pulses found in microelectronic circuitry; they are distorted, with irregular shapes, and themselves produce a "shower" of harmonic frequencies.

Solving the *Biophone* mystery

If the *Biophone* picks up this band, 2 things might occur:

- a) It may absorb incoming energy. The ability of crystals to function as antenna is often overlooked. Amongst designers this is a known fact. If this happens, the crystal heats up as incoming energy is converted into heat. We did not run tests to confirm this. Energy absorbed by a crystal may be a mere percentage and probably does not account for the dramatic Needle Drop removal.
- b) The crystal may absorb either the 1.8GHz harmonic band or the 0.9GHz carrier wave, and then somehow process enough of the absorbed energy to generate emissions picked up by the body to produce "phase-inversion". Such a situation would require that the crystal absorb a small percentage of the energy, enough to produce a "therapy wave"; as we have already seen. If this wave hits an acupuncture point, even a minute amount of emitted information in the form of an electromagnetic wave may trigger a considerable change in the body's bioenergetic field.

For the time being hypothesis b) seems most probable! But there another odd phenomenon associated with the *Biophone*: If one removes the *Biophone* from the cellphone and places it close to the sternum, that is, over the nerve centres that go to the heart and lungs (known in the Orient as "Heart charka" or the Heart Centre) the effect is the same as when you fit it to the cellphone. Since Danev originally produced this device for the cellphone, not for the body, two things are possible!

- a) The device picks up cellphone signals and feeds them into the heart area in a phase-inverted manner so that it works like an acupuncture device.
- b) The body picks up cellphone emissions and starts to vibrate in harmony with incoming signals, producing parasitic frequencies similar to the cellphone ones. These frequencies will then be phase-inverted by the *Biophone* and act as "healing" frequencies much like phase inverted therapy signals generated in Bioresonance Therapy. To determine which hypothesis is correct, further research will have to be done.

Can we have less harmful cellphones?

The current technology is probably unsafe in a worst-case scenario. According to pessimists, there could be so much ill health that there will be no one left to pay debts in the near future. Industrial designers should go back to the drawing board and cook up something better that does not harm people! Redesign may not take too much effort, but even priceless technical knowledge requires an investment.

First of all, one must abandon the electromagnetically "open" type cellphone enclosure that lets emissions to leak out in all directions - even into the user's brain. The electronic parts can simply be enclosed in a

¹⁴⁷ R. Bonewitz. Cosmic Crystals. Thurnstone Press, Wellingborough. 1983.

100% radiation-shielding material. Such materials exist at a modest cost compared to their protective capacity. Today it is easy to enclose an entire phone to give a 100% radiation-free environment.

The shielded antenna would transmit through a peephole, which would make the cellphone directive. The user would need to point the phone towards a base station. But by using a receiving antenna separate from the transmitting antenna inside the phone, the base station would produce directive signals that report to the cellphone microchip the direction to point your phone when talking. The user would need to be aware of the base station location. In cars, the antenna would be on the roof while the cellphone would be shielded in radiation absorbent material inside.

A stricter regulation on base station siting is another priority. In the urban setting, this could be a problem, and but it can be solved at the cost of less system flexibility. Outside cities, there should be proven safety - zone around each base-station. Another solution would be to use satellites and place the antennas in outer space - a completely feasible technology today, since such networks exist. A more exotic solution would be to use Tom Bearden's scalar wave technology. According to Bearden such energy transfer may be less harmful, but it still has to be engineered to meet market requirements.. Time will tell.

Finally a few quote from Morten J Bøgh's book: *Why stress and burn out is increasing: From facts to wisdom* (www.sundnyt.dk) to reflect on:

Professor Gerhard Hyland, United Kingdom. *If high frequency radiation were a food, it would never be allowed because there is so much uncertainty associated with it.*

Carsten Vagn Hansen MD, Denmark: *There is a serious reason to believe that the ordinary use of cellphone disturbs brain function, causes brain cancer in children and reduced mental capacities in adults.*

Lebrecht von Klitzing, medical physicist, Germany: *It is only a question of time and individual disposition before we get sick diseased from [cellphones].*

Nikola Tesla, Serbian-American inventor: *If you want to find the secrets of the Universe, think energy, frequency and vibration.*

Micael Ellner, author: Look at us! Everything is turned around. Doctors destroy health, lawyers destroy justice, universities demolish learning, government kill enemies, and mass media destroys information and religion harms spirituality.

Some technical terms

Electric Charge = a quantity to describe what generates electrical forces. Due to historical reasons one talks about negative (-) electrical charges and Positive (+) electrical charges. The smallest negative electrical charge is called an **electron (e-)**. The unit of positive charge is the **proton**; abbreviated **p+**. The proton is a heavy particle to be found in the nucleus of atoms, while the electron circles around the nucleus, and can also move freely outside the atom.

Electrical force = a force generated by electrical charges. Unit of measurement: **Volt/meter**. The electrical force is a vector, meaning: it has certain strength and direction.

Electrical current = electrical particles moving in a medium where they can flow/move freely are said to constitute an electrical current. The unit of measurement is Ampere. Ampere = number of electrically charged particles x their individual charge that is passing a certain point in space/unit/area/second. Ampere is a measurement of flow, like the flow of water in a river. Actually this was the idea when this unit was created and still is, but is an accurate conceptualisation?

Magnetic force = magnetism is a force "sensed" by an electrical charge, moving relative to another charge. The force felt by the two when one is moving relative to another and the other to the first, is called the **Magnetic** force, and the unit of measurement is **Gauss**. Magnetism is not created by the existence of magnetic particles, as in the case of the electrical force that is created due to the existence of electrically

charged particles. Magnetism is the consequence of moving electrical particles, and when movement stops, magnetism disappears.

Magnetic Flow = an idea similar to electrical current. Any electrical moving particle creates a magnetic force field that is thought to “flow through space”. Because the force “flows” with the speed of light, one talks about Magnetic Flux (flow) and the unit of measurement is **Henry (H)**. Henry is a vector, because the flow of things has a direction and strength.

Electromagnetic energy transfer (EM) = one of the truly enigmatic properties of electricity and magnetism. If electric current is constantly changing its strength over time, it will set up a propagation of energy that spreads through “empty space” at the speed of light $C = 300\,000\text{ Km/sec}$. The propagation of energy contains both electrical vector and magnetic vector. The problem is: “what is the medium through which energy propagates?” Early 19th century scientists suggested a solution: the presence of an invisible “ether”. In the 20th century trend-setting scientists like Einstein suggested that one should abandon the concept since, according to his opinion, it could not be measured in any way known to his time, however more recent experiments throw some doubt on Einstein’s decision to “scrap the ether” and many scientists are now trying to reintroduce the idea.

Waves = suggesting an oscillatory nature of energy transfer. When making mathematical models for EM energy transfer, Scottish scientist **James Clark Maxwell** theory of EM energy moving through the “ether” at speed of light, found that the simplest way energy was moving was transversal waves. 18th century French mathematician **Fourier** making a mathematical model of vibrating strings discovered something, any movement of a vibrating string it could be broken down into the sum of a number of independent **harmonic waves**. The fundamental frequency of the wave f_0 , plus the sum of harmonious waves with frequencies $f_2 = 2 \times f_0$, $f_3 = 3 \times f_0$...etc. The strange thing is that this is not only a mathematically useful theory; it is how things are in real life. But the strangest thing is that this also works for EM waves moving through space! Moving EM energy transfer behaves like a number of “packed” vibrating strings, once it hits material objects! But the problem is: what does it “look like” when we do not measure it?

Waves are described by **frequency** = how many packets of energy arrives in a point of space per second (unit of measurement: **Hertz = Hz** = times per second) and **wavelength**: distance between 2 points in space where energy – transfer behaves identical (unit of measurement = **meter = m**). When thinking about waves as you see them on water, the wavelength is the closest distance between 2 wave tops moving in the same manner. Useful relationship: Wavelength x frequency = speed of propagation. In empty space, speed of propagation = $c = 300,000\text{ Km/sec}$. Through material objects, the situation is not that simple, the speed may be less than c and may even depend upon the frequency!

EM energy = Amount of energy being transferred during a certain period of time measurement **Joule (J)**.

EM energy intensity = **Joule /second**, unit of measurement **Watt**. Hence: Joule = Watt X Seconds (abbreviated notation: $W = J \times \text{sec}$). Watt depends on the amount of energy” being transferred by a “package of energy” moving through space, and one often uses the notion: **amplitude** (from the word ample = amount of something) of E or B vector to denote the “strength” of the 2 components of the travelling wave.

NIR = Non-ionizing radiation. NIR is the same as electromagnetic waves, while **IR** = ionizing radiation is created by moving particles like moving protons, neutrons or electrons or other elementary particles. The word, NIR stems from the fact that if a particle is “shot” into a chamber filled with water vapour it leaves a “vapour trail” created by the moving particle. One speaks about the vapour being ionized (creating a trail of electrical charged water molecules) whereas NIR, electromagnetic waves do not create such trails, thus being said to be NIR.

Useful abbreviations and terms:

Kilo (k) = 1,000

Mega (M) = 1,000.000 = 1,000 Kilo

Giga (G) = 1,000,000,000 = 1000 Mega

Milli (m) = 0.001 = 1^{-3}

Micro = 0.000001 = 1^{-6}

Nano = 0,000000001 = 1^{-9}

Pico = 0,0000000000001 = 1^{-12}

EM: electromagnetism, whereby both electrical and magnetic forces go through (seemingly) empty space.

EMW: a wavelike transfer of EM

EMF: if waves have long wavelengths (low frequency), their zone of presence is called a "field".

True waves: both magnetic and electric component present.

Quasi-scalar waves: mostly electrical component is present; magnetic component hardly measurable.

Scalar waves: without magnetic or electric components, yet energy is in space and intercepts.

NIR: non-ionizing radiation - electromagnetic waves, not particles.

Watt: energy delivered per second to a certain place, equals intensity of energy at that place

Joule: total energy = Watt x seconds

Frequency: number of waves that arrive at a certain place per second

Hertz (Hz): 1(wave) /second, measurement for frequency

Volt (V) /meter: measurement for force emitted by an electrical charge

Gauss (G): measurement for the magnetic force accompanying an electromagnetic wave

Current: flow of charged particles, unit of measurement: **Ampere**.

Charge: accumulation of electrical particle in a certain place, unit of measurement: **Coulomb**.

BRT bioresonance therapy
SQUID super-cooled, super-
conducting magnetometers
EEG Electro-encephalogram
ENG Electro-neurograph
EMG Electro-myograph

ECG electro-cardiograph
geomagnetic field
EAP electroacupuncture
EAV electroacupuncture
according to Voll
EMSA nuclear spin of pure
substances

MWO Multiwave oscillator by
Lakhovsky
SAR specific absorption rate,
absorbed Energy per kilo of body
weight = Watt/kg