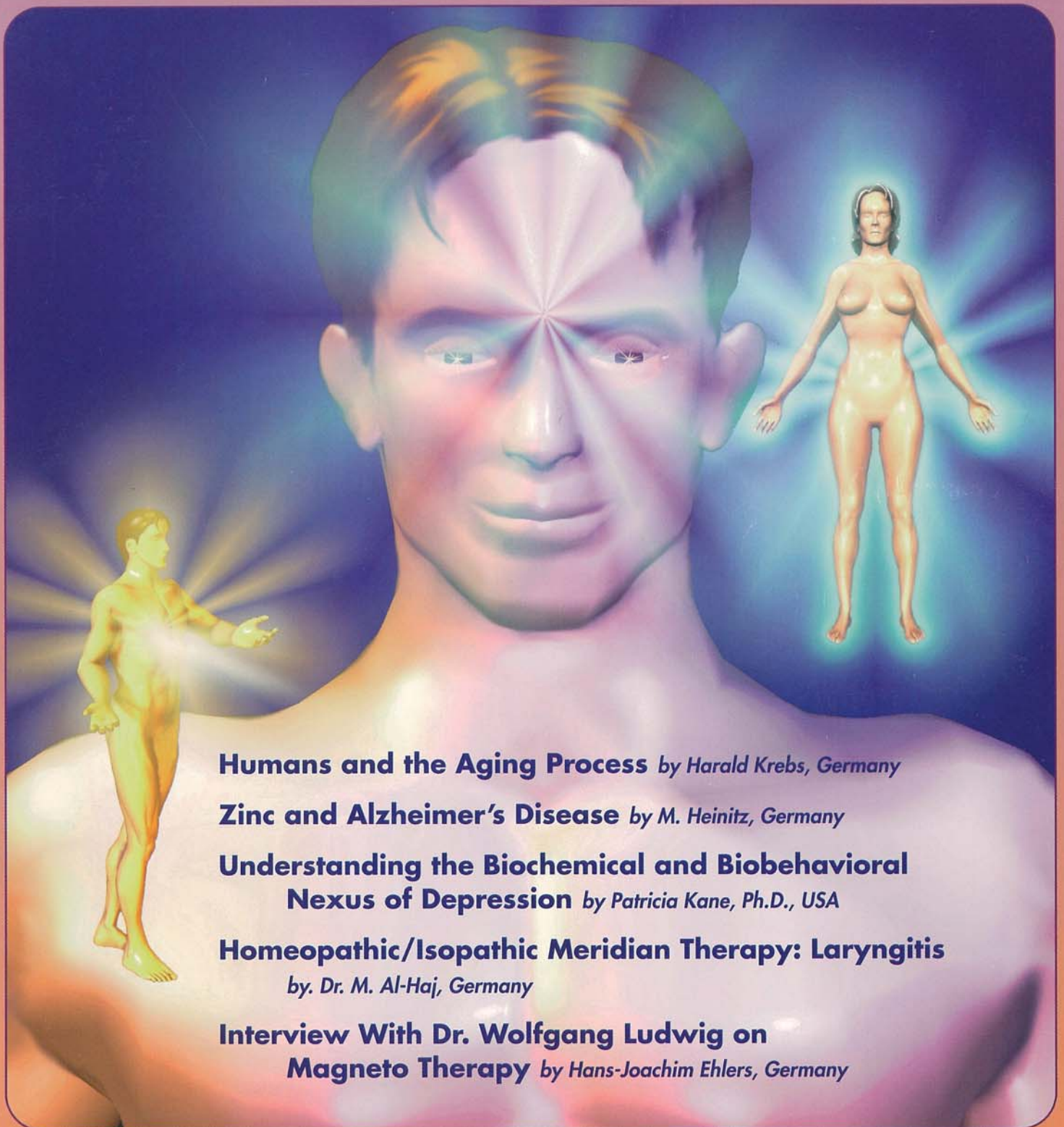


EXPLORE!

For the Professional



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Magneto Therapy** *by Hans-Joachim Ehlers, Germany*

EXPLORE!

For the Professionals
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Interview with Dr. Wolfgang Ludwig on Magneto Therapy
by Hans-Joachim Ehlers, Germany (raum & zeit)
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What Everyone Should Know About Magneto Therapy

Magneto Therapy has become well established in the field of Biological Medicine. Today, various manufactures are offering a range of pertinent devices and many physicians are reporting substantial healing successes worldwide. Over the past years, the importance that Magneto Therapy is enjoying can be attributed to physicist Dr. Wolfgang Ludwig and his research. Magneto Therapy is a fairly new modality in Alternative Medical treatment in America. There is a requirement to constantly integrated today's new technologies on an ongoing basis. Dr. Ludwig is leading the path in this development.

raum & zeit (r&z): Dr. Ludwig, like it or not, in Biological Medicine, you are considered the "Father" of Magneto Therapy and someone with extensive knowledge in the field of bioelectronics. Has electronics always been your hobby, or how did this happen?

Dr. Ludwig (Dr. L.): That's a long story. Among other things, the War (WWII) and the resulting living conditions played a part in it I studied for more than 24 semesters, and that was not just an "eternal student syndrome", but was simply caused by a number of circumstances. I graduated from high-school as late as 1947, after the war, but was very much involved in electronics already during the war.

r&z: And what happened then?

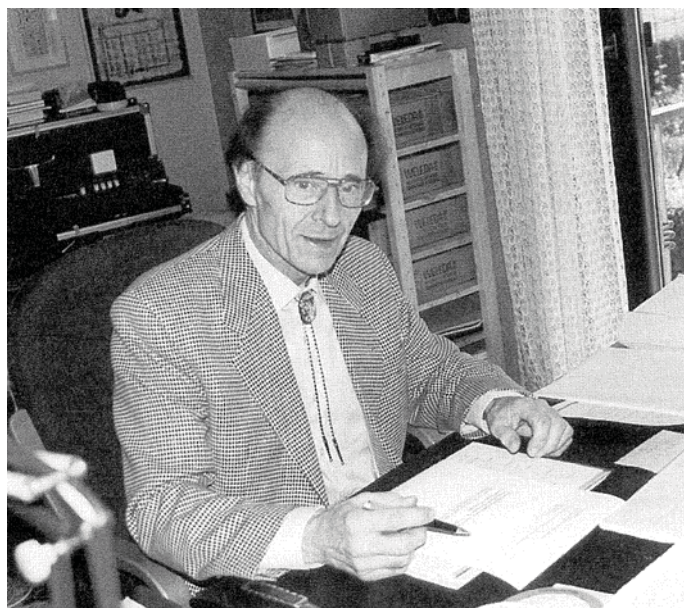
Dr. L.: After the war, EDP, i. e. electronic data processing, was a completely new concept. So I said to myself, "That is really exiting. I'll have to study mathematics." At that time, Professor Walter, who also happened to be from Dresden, held a teaching position in Darmstadt. At his "Institut für Praktische Mathematik" [Institute for Applied Mathematics] Professor Weber's equipment was an analog computer, while Konrad Zuse (Who developed the first program controlled computer on a mechanical basis in 1941, Dr. Ludwig worked with him as well) was working with a binary system and binary encoding even then.

Well, I had studied mathematics for four semesters at the Darmstadt TH [Institute of Technology], when I heard that Professor Walter had difficulties finding positions for his graduates in the industry. He advised the mathematics graduating from his course to "switch over to physics."

r&z: And that's what you did then?

Dr. L.: Yes. When I studied math, I also took four semesters of physics. At that time, the Darmstadt TH was not a especially good school for physics, so I went to the Technical University in Berlin, which was then, and I believe is still today, a very good school. There I

took up semiconductor physics under Professor Heinrich Gobrecht – I believe that was his name. Then I changed to the University of Freiburg in Breisgau for personal reasons, since my mother lived there. I had received the so-called pre-diploma in Berlin. Since I had to finance my own studies, I always worked during semester breaks. Actually, I never had a problem finding a job, since I was trained in electronics and always found a good position in the course of my studies, I became interested in physical chemistry and studied with Professor Mecke in Freiburg. He had written his own doctorate thesis about water. The first project he assigned to me for my work toward a diploma was a dipole meter for the determination of the electrical characteristics of liquids. I realized at that time that water deviated significantly from the usual standards. Professor Mecke had also published some articles on the abnormalities of water. It was then that I became interested in homeopathy for the first time.



Exiting Doctorate Theses

r&z: If we recall correctly , your various doctorate theses were very exciting.

Dr. L: Yes, I guess you can say that. I worked on several, but was able to complete only one. Anyway, Professor Mecke was known for always having the best equipment. Therefore, industry naturally made the best and newest equipment available to him. Thus, he covered the entire frequency range with his devices. As you know, all of chemistry, the structural knowledge, everything is measured with spectrometers.

There were only two gaps in the entire frequency range, where measurements were not possible at that time worldwide. One gap was in the ultra-short wave range, which is used for ultra-short wave radio and television transmissions today, that is, about 100 to 300 megahertz. The second gap was in the range between microwaves and infrared, called far infrared in English. Therefore, Professor Mecke said to me: “Why don’t you build a dipole meter in the ultra-short wave range?” All measuring devices I have developed up to that time were in the low frequency range.

Professor Mecke was the director of two institutes: one at the university, the “Institute für Physikalische Chemie” [Institute of Physical Chemistry] and the other was the “Fraunhofer Gesellschaft” with a budget a hundred times that of the university institute. Of course I went to

the Fraunhofer institute at his recommendation. The Fraunhofer Gesellschaft was committed to applied research, that is, contract research, and one had to do whatever work was prescribed by Bonn [Former capital-city of Germany]. I had been working on the development of a measuring device for about one year – and it was structurally functioning very well. – when a letter arrived with orders to discontinue this project. Apparently, Bonn was not at all interested in an ultra-short wave measuring device. Therefore, I was not able to pursue this project for a doctorate.

r&z: Was that the end of your research work?

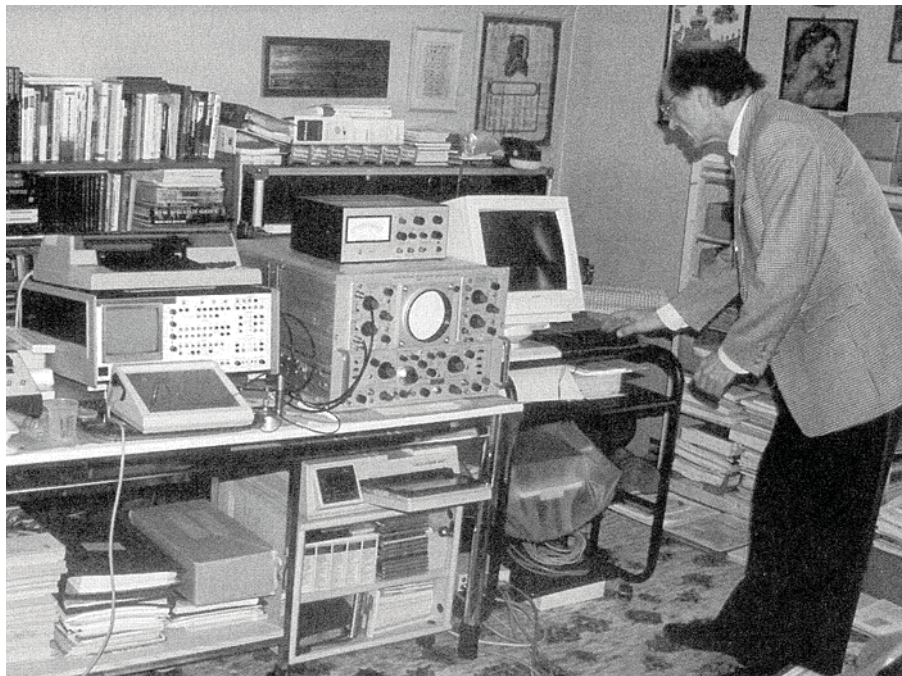
Research Competition with the Japanese

Dr. L.: Not at all. Professor Mecke just told me to work on the second gap, the infrared spectrometer. So I spent three years on that. But I did know that the big industry was also close to developing an infrared spectrometer; for instance Hitachi in Japan, Perkin Elmer and Beckmann Instruments in the USA etc. I told Professor Mecke that it'll take three years (which turned out to be accurate), the industry will probably get there ahead of me.”

r&z: Weren't you able to claim research priority?

Dr. L.: Unfortunately, that was not possible at this time. It was not allowed then to publish at the doctorate exam, and the topic of the thesis had to be something new.

[...]



The Third Doctorate Thesis

So I proposed to Professor Mecke that I would do a third doctorate thesis with bioclimatology as the topic, to be started at the same time as the infrared spectrometry project. He said, “Sure,

you can do that, but I don't know anything about it. You'll have to find someone in the medical field to be your doctor father." There was a Professor Göpfert at the "Institut für Klimaphysiologie" [Institute of Climatophysiology], a physicist as well as a physician, a Dr. rer. nat. at med.; he took me under his wing, together with Professor Mecke. So I had two doctor fathers, and that was rather unusual.

r&z: And what happened to the infrared spectrometer?

Dr. L.: Well, thing turned out exactly as I had anticipated. It took me three years to complete the spectrometer. It is still in the institute today and functioning. It was not very easy to develop this instrument. You needed a monochromator in order to break light into different frequencies. I created a so-called echelette grating to grade these surface waves. You must understand that the problem with the far infrared is that it has very low intensity, whereas actual infrared radiation is very strong. When you filter it out you are left with less than one percent of the entire radiation spectrum, that's all that's left after filtration, and of course, that is an impossible proportion; that's why I had to develop a grate to remove these surface waves.

Just before I had completed the spectrometer for far infrared, I came to the institute one day and found a publication from Hitachi on my desk. The Japanese had been faster than I. Exactly what I have been afraid of! So I took the publication to Professor Mecke and told him, "See, now I can't do my second paper either." And he replied, "Well, you still have the third one." I had been working on that subject all along and had obtained positive results at that point. That's how I ended up with the topic: "The Influence of Electrometric Signals on the Nervous System". It became the title of the doctorate thesis, which received the grade "very good", and I passed my examination with a "very good" evaluation as well.

r&z: So we owe the fact that Magneto Therapy was introduced to naturopathy by a Dr. Ludwig one day more or less to a series of unfortunate circumstances?

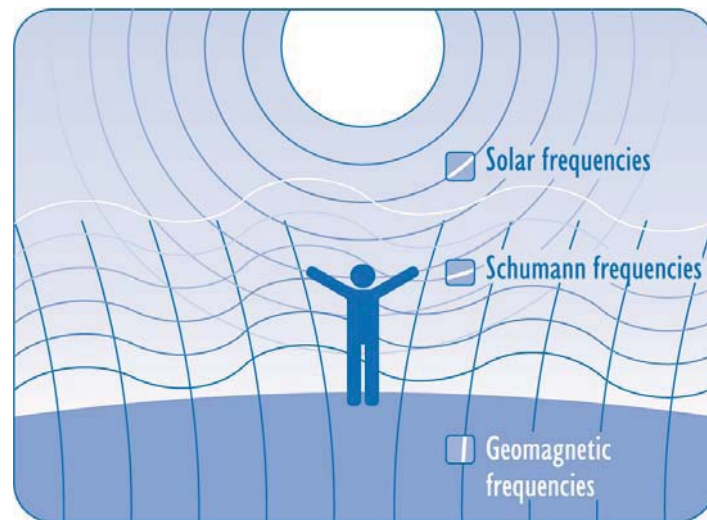
Dr. L.: Well, I wouldn't exactly call these circumstances "unfortunate", since they forced me to get into electronics, mathematics, semi-conductor physics, chemical physics etc. This interdisciplinary education was and still is again and again beneficial to my research work.

r&z: And how did you eventually arrive at Magneto Therapy?

Dr. L.: That requires a little more background information. In my opinion the history of Magneto Therapy is important for everyone working in this field today. If you don't know its basics and development up to the present, mistakes can be easily made.

The Schumann Waves

Dr. L.: First of all, let me tell you that my doctorate thesis “The Influence of Electrometric Signals on the Nervous System” was a big hit. All universities institutes requested my paper, since until then only Professor Schumann, who has become famous in the meantime, had been working in this field. (In the 50’s, Professor Dr. W. O. Schumann of the Munich University discovered the resonance of the cavity earth-air-ionosphere, named after him (see fig. below).



In physics they are called transverse magnetic waves. These waves named Schumann waves after their discoverer, are in the same range as the brain waves of humans and mammals, that is at 7,8 Hertz (Hz). Although orthodox physics is generately silent on the subject, Schumann waves are secretly used for experiments in large projects. The most dangerous among these is the HAARP project of the US military.

At the time, Schumann worked spherically symmetric potential projects with his students. He had posed the problem of calculating the potential of two spherical shells at a known distance from each other, both able to conduct electricity. And he said, more or less whimsically: “Well, we do have earth and the ionosphere. Why don’t you take the diameters of the earth and the ionosphere, the lower layer, the heavy side layer, as an example, and calculate the natural frequency.”

Of cause, he had to calculate it himself, too, in order to check if his students got the correct result, and he came up with 10 Hz.

For some reasons, he published the results in the journal Technische Physik and as it happened, the article was read by a physician, Dr. Ankermüller, who was very much interested in technical matters. Of cause, he immediately realized that 10 Hz is the alpha-rhythm of the brain waves, that is, a very characteristic frequency. Dr. Ankermüller immediately called Professor Schumann and said: “What an exiting thought! The earth having the same natural resonance as the brain, that is 10 Hz! I think we’ll have to check this out by measuring (since until then it had just been a calculation).” And Professor Schumann said: “Well, if this is medically interesting, I’ll get a doctorate candidate to work on it.” And the name of the candidate was Herbert König, who later became Schumann’s successor at the Munich university.

I don’t know why König did his measuring in the city, in Munich, of all things. I went to the Black Forest later to take measurements. In Munich, of cause, there are very strong rail frequencies of $16 \frac{2}{3}$ Hz, caused by long distance trains, the rapid transit (S-Bahn), subway

(U-Bahn) and streetcars, etc. Therefore, he was able to measure only the dominant waves, since he had to use filtration, so that only the lower frequencies came through, while the upper, interfering frequencies, caused by the rail system, were eliminated. It is interesting that his measurements really approached 10 Hz, as the students and Schumann had calculated. 10 Hz has an approximate calculated value. Eventually, König, arrived at exactly 7.8 Hz. And it is even more interesting that 7.8 Hz is the only frequency that applies exactly to all mammals. While the alpha-rhythm varies between human beings, fluctuating around 9, 10 and 11 Hz, this 7.8 Hz frequency has become a biological norm, in modern terms.

I read Schumann's and König's papers while working on my thesis, and I said to myself, "I really have to measure what kind of natural signals actually exist in a healthy environment." So I went to the island Sylt, which has no industry and a very favourable climate. The sea has got electrical conductivity as compared to a city with poor electrical conductivity, and where the Schumann waves are not very strong. Then I had the idea to take underground measurements in mines. You see, when you register the magnetic field of the earth, you realize that it isn't constant, but fluctuates, too. This aspect was also investigated by Dr. Robert Becker in America, who has written books like "Electricity and Vitality: The Spark of Life." Today we call them geomagnetic waves.

Schumann and Geomagnetic Waves

Taking measurements at the earth surface, you always measure two things: those coming from above and those coming out of the earth. You can't separate the two. However, when you measure underground you can use difference measurements to separate what is measured above and below.

And just at the time when I conducted these separate measurements for earth and ionosphere, I came across a Chinese paper, where I read that the Chinese claimed already thousands of years ago that Man needs two environmental signals: A Yang-signal from above and a Yin-signal from below. This is certainly true with the respect to electro-magnetic signals: The Yang-signals, the Schumann waves from above are relatively strong, while the geomagnetic waves from below are relatively weak; but they have a different, broader frequency spectrum, and both must be in balance.

In order to find out exactly, I let registration devices run day and night for two years. And I came to the conclusion that this frequency is always present, but that a lot of others, lower and higher ones, are always present as well, and that the geomagnetic wave spectrum is fluctuating. I noticed significant differences that were also related to the weather. I coordinated these measurements with patient case histories and noted that specific complaints occurred always when the levels fluctuated abruptly in this natural field of frequencies.

Mother as Test Person

My mother was my first test person. She was 70 years old at the time and had serious circulatory problems during every period of low atmospheric pressure with high winds. She felt the effects already when the system was still over Iceland or England, since these wave fronts, the so called atmospheric, were moving at the velocity of light. She suffered from bradycardia, which means, her pulse became very weak and the systole and diastole, that is, the lowest blood pressure amplitudes collapsed, leaving her completely without strength, and she literally had to lie down when she was away from home. She simply could not go on. I built a little device inside a soap container for her, a magnetic field device with a magnetic antenna. With this device, these abruptly fluctuating levels could be blocked out. And then I said to my mother, "As soon as you feel the first signs, you switch it on." This really helped

her in a great way. We noticed only later that this device could also be used to prevent problems, so that she didn't have any more trouble at all.

At the time we lived in St. Peter in the Black Forest, and of course other people wanted to have a device like that, too, so I built a small series and everybody was happy.

r&z: Where were they the forerunners for your present-day devices?

Dr. L.: Yes and no. Yes because today's devices were developed from the first beginnings; and no because today's devices have no similarity to the early ones anymore. I learned in the course of my research that stable health in humans depends on a lot more than just a magnetic field.

No Viability Without Schumann Waves

r&z: And how did you arrive at that conclusion?

Dr. L.: I'll have to summarize my answer, or I'll get far off the track. First, I constantly attended important conferences, of course. There is an international society for biometeorology, with headquarters in Holland, and on those occasions I always met people who were also working in this field. In addition to a number of physicians, physicists and NASA employees, I also met Professor Wever from near Andechs. He built an underground bunker that completely screened out magnetic fields, and he locked up student volunteers there for four weeks. He noted that the students' circadian rhythms diverged and that they showed emotional distress, e. g. migraine and headaches. However after a brief exposure to 7.8 Hz that had been screened out previously, the volunteers were stabilized again for several days. Strangely, these highly interesting studies by Professor Wever were not published. But I learned from him that the first astronauts and cosmonauts had the same complaints, since they were also exposed to 7.8 Hz frequencies while being outside the ionosphere.

This knowledge led to a small device. Since I am commercially a complete babe-in-the-woods, I never thought of marketing it. But one day I visited a firm for some other reason and got into a conversation with the manager. He told me that he just survived a cardiac infarction, which forced him to cancel a meeting. Strangely, four other participants, also older gentleman, had to cancel for the same reason as well. I said to him, "That's probably because of the weather," which was a new thought for him. So I told him about my work, and he said, "Well, that is really something! You absolutely have to market your device."

To make a long story short, I noticed again and again at different occasions that my little device worked, and since I am first of all a scientist, I experimented with it at a number of conferences and meetings. In addition to providing interesting inspiration, the result was that my devices were copied. However, the copycats were not very successful, since they argued among themselves, and their devices produce magnetic fields that don't occur in nature, often caused more damage than benefit.

The Side Effects of One-Sided Magneto Therapy

By then, I had worked with a number of physicians who noticed one day that the patient whose migraines had been treated successfully with Magneto Therapy showed symptoms of stress. Their blood coagulated, that is, their blood platelets were sticking together, and the amount of adrenaline released was increased. In brief, the symptoms of stress were dramatic in some cases.

That happened around the time when I first read about the Yin-Yang-forces. So I said to myself: "You made an error here. You used only the Schumann waves (Yang), but neglected

the geomagnetic waves (Yin).” In my continued work with scientists, I learned that 24 trace elements are present in the crust of the earth, in the same composition as they occur in our red blood corpuscles. Further scientific work showed that the magnetic field of the earth – imagined as a static field – is modulated by the natural frequencies of the trace elements. Thus the magnetic field of the earth plus natural frequencies of the trace elements results in the geomagnetic wave. I determined later that not 24 but 64 trace elements are important for an organism.

With considerable technical effort, I then had the natural frequencies of the trace elements applied to an antenna and built a coil with the Schumann waves around it. I had the physicians, whose patient showed the stress phenomenon, test the device, and they confirmed that there were no more stress problems after the treatment with it.

r&z: The application of natural frequencies – this went by me too fast. Could you discuss it in a little bit more detail?

Dr. L.: There was a scientist at the institute where I was working then, who was investigating the theory of position-exchange. This theory shows that a crystal, for instance iron, consists of iron crystal lattices with free electrons in between. What’s why iron can conduct electricity. This iron lattice has an almost cubic structure and allows the placement of an iron atom at in-between space, for instance in the centre, or one may be missing – there are imperfect spots. When imperfect spots are created in the lattice through a forced exchange of positions and atoms are placed at in-between spaces, the crystal structure is changed.

As you know, the structure of iron is determined through all the tiny elementary magnets that are always oriented in the same direction in the so-called Weiss’ domain; then there are other Weiss’ domains, where they are orientated in the opposite direction with separating walls in between, called Bloch walls, that can be measured. The Weiss’ domains as well as the Bloch walls can be restructured through the application of energy. The Bloch walls have low frequencies that also oscillate, and the Weiss’ domains have higher frequencies. The frequency spectrum of the iron can be completely reprogrammed. With the help of some equipment I developed by myself, I managed to program all the natural frequencies of the 64 trace elements into the iron. And there they stay. They can be removed only through considerable energies.

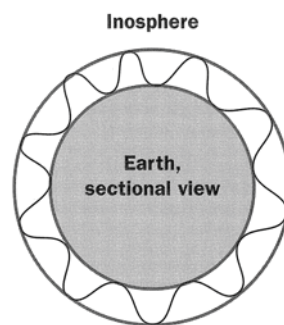
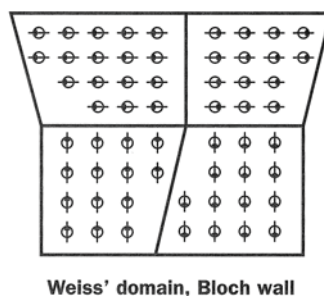


Figure 7:



I wanted to register this technique at the patent office, however, an inventor friend advised strongly against it. Evidently, techniques such as this can be copied relatively easily and are often “sympathetically recreated”, if patented. But if they remain undefined, nobody can imitate them. My technique has been existence for 25 years, and nobody has been able to copy it to date.

Numerous Imitations

r&z: You are calling your therapy “Soft Magneto Therapy”. What exactly do you mean by that?

Dr. L: Magnetic field therapy devices have been on the market for a long time now, working with strong fields that don't occur in nature at all. This method produces some side effects and can be compared to allopathy. The fields used by me are imitating nature, have no side effects and can be compared to homeopathy. Unfortunately there are numerous imitations of my devices, but they contain only the Schumann waves. Not only they are weaker, they also have all the disadvantages. I recognized during the initial steps of their development I used these imitations to test them in physicians' practices as placebos against my devices. When I brought my newly developed devices to Dr. Jacobi so that so that he could conduct a double blind test for another year – and that was probably the only physical double blind test ever – I told him that I hoped that there would be more side effects. And as a doctor of orthodox medicine, he replied: “Well, if they don't have side effects, they aren't effective.” And then his entire world crashed. Prior to using my devices he had about 65% success with migraine cases, compared to a 95% success rate with my devices, and no longer any side effects. And I told him, “Doctor Jacobi, the theorem ‘no effect without side effect’ comes from chemistry. It does not apply to energetic medicine.”

r&z: And then you put your devices on the market?

Dr. L.: Yes. We had various distribution partners at first. But now my wife and I are doing everything ourselves, including distribution. At first, I only had these small devices that were actually intended for the patient himself. And then the physicians told me that the patients would laugh at me if I treated them with a small device, that I needed something big. So I built big devices, about 700 were sold.



Dr. Ludwigs devices at one glance. Some of the of instruments available at this time

I always said from the very beginning that my devices contained Schumann waves and geomagnetic waves at the right proportions. Initially, the devices had only one fixed frequency. I selected 9 Hz, since that is the mean of 10 Hz and 7,8 Hz; this frequency occurs in the hippocampus of the brain. Later we also constructed adjustable devices and found that their effect is even better and that sooner or later every patient discovers whatever is the right frequency for him.



METRONOM solar, is a Magneto-therapy-device, delivering a balanced blend of high and low frequencies (balanced Yin-Yang-ratio);



The CEPES-Laser is used in acupuncture, it combines red-light, magneto-signal and substrate transient



MEDISEND super for endogenous and exogenous information therapy, the easy to handle device has a bipolar electrode input where two hand-electrodes and a medication cup can be attached to.

This was too complicated for the Americans, and they asked me to install an automatic frequency transit, which means all frequencies pass through automatically within a specific period and that's what I did. In the process, I found that there has to be a pause during the therapy. In other words, the frequency pulse in intervals.

r&z: Dr Ludwig, this was a brief history of developments in modern physics and above all of bio-physics, which will be of great interest to anybody, not only younger readers. We sincerely wish you continued good success in all your scientific work.

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