

SCALAR FIELDS - THE KEY TO THE PARANORMAL?

Perhaps the hottest topic in the field of bioelectricity is that of the mysterious, seemingly paranormal "scalar" (quantum) fields, and the development of devices that generate such fields and use them to modulate and, it is claimed, to heal biological systems.

Mega Brain (MBR): Could you explain what "scalar" means?

PETER LINDEMANN: Scalar is a terminology that's been popularized by the work of Thomas Bearden. It is used in the scientific vocabulary to denote the opposite of vector. A vector is something that has both velocity and direction. A scalar is something that has neither velocity nor direction. A crude way to suggest the nature of scalar phenomena is to compare wind and air. Wind is a vector phenomenon, because it has velocity and a direction. But air is a scalar phenomenon. It has neither. No matter what direction I go or how fast or slow, as long as I'm on the surface of the planet, there's air. So air would be analogous to scalar phenomena. A scalar is something that is direction-and-velocity *independent*.

ELDON BYRD: In this field there is a lot of controversy over what scalar is all about. My definition is very simple. A scalar is something that isn't a vector. As such it doesn't have a direction. A scalar field would be one which isn't moving either in time or space. Once you take something like an electrostatic charge and move it up and down space and time, it then becomes a vector. It's really tough to get scalars out of electromagnetic vectors. It's almost impossible.

I think a much better description of a scalar is that it is a piece of information. For example, consider voltage. Voltage doesn't have a direction. Current has a direction, but voltage doesn't have a direction. It's a potential, "scalar" quantity. And, if you can induce voltage at a distance, that's a scalar field. We have no instruments, for example, that will measure voltage directly. We have indications on meter faces that say so many volts, but what they are really doing is sucking current out of a source, or measuring current coming from somewhere, and running it through some kind of known resistance that enables the meter to calculate voltage. But it doesn't measure it directly. So, voltage is a scalar quantity. I look at scalars strictly as information. I have written a theoretical paper on this which has been published now. It describes scalars straight out of the textbook. The scalar form of Maxwell's Equations. I just took this information and said, Could it be that we live in a sea of information? Not in the form of electromagnetic energy, not acoustic energy, but a whole other form of energy which we currently have no instruments to measure. It's a sea of information. It's just there, it is. It doesn't take any time for it to propagate from one point in time and space to another because it has

nothing to do with time and space. Scalars are just information, and they are not bound by the same laws that govern matter or energy. It's just information. It has no mass; it has no direction; it's not a vector; it's not a physical quantity. It's information. I think this is a sea of information that we are floating in.

MBR: That sounds suggestive of Rupert Sheldrake's "morphogenetic fields".

BYRD: Yes, it does. Sheldrake's "morphogenetic field" might be a scalar type of field, an information field.

BOB BECK: A scalar wave would be a first cousin to the terms in the Maxwell equations, " dC/dT " and " dA/dT ". A stands for area, dA is a change of area of the propagation of the signal as it travels from the source. Now in electromagnetics as it is used in the Maxwell equations and in all radio communication, power transmission, etc, the terms dC/dT and dA/dT have long been considered imaginary, like the square root of -1 , or the "J operator," which is an imaginary term in electrical engineering, but without which we could not have had streetcars or power transformers.

There is a component in electromagnetic technology which does not carry power, per se, you can't warm up a toaster with it. It carries information only. This is the scalar component. Scalars are a perhaps imaginary perhaps not imaginary vector that carries information without power. To get power you need voltage and current. The way that we measure power in watts is amperes multiplied times voltage. But the scalar has none of that at all. There is no energy in it, just information. It's a very rich field for exploration. With scalars we are about where the Wright Brothers were with their flying box kite at Kitty Hawk. I've read all of Tom Bearden's magnificent mathematically constructed speculations in this area. They're fascinating, but nobody knows quite what to make of it altogether. The jury is still out.

REIN: Conceptually we are talking about a more fundamental field than an electromagnetic field. Mathematically, *electromagnetic fields are just derivatives of the scalar field*, so that the scalar field is a more fundamental form of energy. The scalar field can be looked at as a component of the electromagnetic field which is always there but is swamped by the electromagnetic field, so we haven't noticed it in the past. It's traditionally considered much weaker in amplitude, but it's where *all the information* is carried. Because of this, experimentally, you can actually cancel out electromagnetic fields, eliminating the strong outer shell and leaving behind only this scalar information matrix field, which is the underlying field behind the electromagnetic field.

In theory, this scalar information field can be measured. Electrical engineers who are attuned to this way of thinking claim that we can measure them. But in practice we have problems being able to distinguish between measuring electromagnetic and measuring the scalar. My particular approach was to use biological systems as detectors for this kind of energy.

MBR: Do scalars have different biological effects from ordinary electromagnetic fields or

waves?

LINDEMANN: I believe so. Most of the attention about these pulsed electromagnetic field devices has been focused on how the magnetic field is affecting the body. From my research I think that's the wrong question. I don't think it is the magnetic field that is keying the body. I think it's this scalar propagation that's keying the body, and when you take the magnetic components and you make them infinitesimally small, and these scalar propagations quite large, you get very large biological responses. The body feels very relaxed with it. You can get these types of propagations with ordinary coils, but the rise time on your wave - in other words, how fast the transition is between on and off - has to be very large. So you get a very sharp transition. And you can get biological responses with very sharp transmissions in ordinary magnetic field propagations. But you tend get these irritating side effects along with it. And of course what I'm talking about is subjective. It's only an indication that there's something to look for. I think science is lagging pretty far behind in its understanding of these things simply because we can propagate these scalars very easily, but we don't have any way to measure them directly. So the instrumentation for the phenomena haven't been developed yet.

MBR: Could we call your BioPacer and Centron devices scalar generators?

LINDEMANN: Yes. If you take a wire and wrap five turns around a core, clockwise, and you put a direct current pulse on this, it will propagate a magnetic field with a north pole at one end and a south pole at the other end. If you then turn the wire around and wrap five turns in the opposite direction and put a current through it, the first five turns produce one magnetic field in one orientation, and the second five turns create another magnetic field oriented exactly opposite the first. You can project these two magnetic fields in the exact same place. If you don't have a metal core, so there's no tendency to magnetize in either direction, the two magnetic fields can be made to propagate in exactly the same place at exactly the same strength, apparently cancelling each other out.

This creates what you might call a "compression wave in the inertial frame", or in the "life force". It can also be called a "scalar field" or a "third order effect". Simultaneous self-cancelled magnetic fields were studied pretty extensively in the 60s by a man named Hooper. He called this effect the "motional electric field". That is the field caused by the motion of electricity. And he said that it had a lot of characteristics which made it look similar to gravity, or a simulated gravitational field. I had studied a lot of these things and found that, when you pulse these motional electric fields, or cancelled magnetic fields, these third order effect get very large very rapidly while the magnetic effects can remain very small.

In electrical science, if you have the simultaneous propagation of more than three fields in the same place you have what is considered by definition a scalar propagation. And in a flat backwound spiral coil of the kind that I have described, we have by definition four fluxes in the same area: The self-induction of the coil; the mutual induction between the windings; the self-capacitance of the coil; and the mutual capacitance between the

windings. And these show up as four specific fields of either dielectric or magnetic field strength. In these flat wound coils (which Tesla was the first one to experiment with) you can get a high degree of interaction between the inductance and capacitance, creating what is called a scalar.

My devices put a DC pulse through the spiral, creating what would technically be called a "space scalar", which is AC, or alternating in time. So it's not a time scalar. It's a space scalar which is either there or not, depending what moment in time you're talking about. So it's alternating in time and scalar in space. That's the technical definition of the types of propagations which seem to have caused fairly large biological responses in these so-called pulsed electromagnetic field generators.

MBR: Are scalars fields then, or waves?

LINDEMANN: It's an area of influence, really. Waves, by definition, have velocity and direction, so waves are vector, not scalar. Some of the literature talks about the propagation of scalar "waves." This is an oxymoron. If you go back to the actual definitions of these terms, you can't have a scalar wave.

BYRD: What it takes to produce a scalar at a point in space is simply to take two signals and have them intersect and cancel each other out. If you have scalar information riding piggy-back on the electromagnetic information, when you cancel the electromagnetic signals, all you have left is the scalar information. That is the way that we think the Soviets were communicating with their submarines. The Soviet "woodpecker" signal was really two transmitters (eventually they had up to 12) beaming information to a point in space. If they have the information riding on just one of the electromagnetic signals, where does that information go when they cancel the carriers? It just dumps right there locally where the cancellation occurs. If you have the right instrument, you can pick it up. It made their transmissions rather secure, because we had no idea what they were doing, and I don't think we understand it fully even now.

BECK: There is also a growing class of diagnostic devices that in the hands of a proper operator will do miraculous diagnostic routines on a computer. I have in mind the Interro, which was designed by a top scientist I worked with, Roy Curtin, who claims that the information is carried by means of a scalar, not current or magnetic line of force. There is another machine called the Vega which is the German first cousin to the Interro, and there's Doug Lieberman's Computron. There are also the Indumed, a very famous German device of Wolfgang Ludwig and the Mora device, all of which use similar technology. [Some of them seem to be inconsistent. They either work for the particular operator or they don't. When they work, however, they seem to be able to generate highly accurate, detailed, and exotic information about each particular patient.](#)

MBR: These devices are getting information from the human body?

BECK: Yes. They're getting information from the acupuncture points on the fingers and toes.

MBR: You think the body can generate and sense these so-called scalar information fields?

BECK: Yes, I believe there are ways of generating demonstrable scalars. In fact, I've done this in the presence of Robert O. Becker, and he's observed the effects on a subject in my hotel room during the World Research Council Conference several years ago. The subject was Brendan O'Regan, the Director of the Institute of Noetic Sciences. Brendan asked what a scalar felt like. So I took a pocket comb out my shirt pocket, combed my hair and put an electrostatic field on my polyester pants leg about at the knee, and I got another few electrons on the comb by combing my hair again, and I moved the comb back and forth at a certain frequency that we won't talk about. It darned near knocked him off the bed! He was sitting on the bed, and for two or three days he was saying he had never felt anything so strange in his life. You can demonstrate this effect on perhaps 35% of the population by manipulating an electrostatic, not electromagnetic, field. The only thing that measures this is an electrometer, an impedance volt meter that sees static charge and not electrical or magnetic.

I used to demonstrate this at lectures, and standing at the podium holding an ordinary pocket comb or plastic pen I could influence about one-third of the audience back to about the fifth or sixth row. They would describe very strange sensations. This was not placebo or suggestion, because even when the person's back is turned to you, they can immediately identify when you are waving that charged object and when you aren't.

Have there been any applications of this to medical instruments? To my knowledge, there have not. The only things in the electrostatic domain with which most people are familiar are negative ion generators. And that's the only contemporary device I know of myself, excepting museum pieces from the turn of the century, which used electrostatic effects as a direct medical modality.

However, it's an extremely rich field. There is a great potential here for destructive use as well as constructive. I've done a number of briefings relating to this for the Pentagon and Joint Chiefs of Staff. I briefed the Senate Committee on Science & Technology several years ago about an effect discovered in 1936 by the British Admiralty. The entire ionosphere can be charged with an electromagnetic signal in a way that can be used to influence the behavior of people over a very broad area. But that's semi-dark, and I'm not comfortable about talking about that publicly, in detail.

MBR: To pursue the concept of scalars, if this is an information field of some sort, then devices that generate scalars could conceivably be used to induce information *into* people, or influence behavior.

BECK: Absolutely.

MBR: Are you aware of any research in this area?

BECK: Yes, I am, but it's pretty dark. Dark meaning that unfortunately our government looks at any new technology for possible use as weaponry, a typical example being the atom bomb. Any new discoveries are looked at for military purposes rather than what they can do for people. Yes, I am familiar with some work in this field.

MBR: Eldon, you say we exist in a scalar "sea of information." Is there some way of translating this information so that it becomes apprehensible by our senses?

ELDON BYRD: Well, there are certain talented people who seem to be able to tap into it, like some very gifted psychics I've run across. I have no other explanation for how they can access information other than to presume that they may tap into this field. These are people who can take the most meagre information about a person and come up with all kinds of things that only the person themselves knew about. The best psychics that I've run across don't even know what they're saying. They go into some channelling information-gathering mode and they have to tape record what they've said because they have no idea what they are saying. It is as though they are being used as a channel for the information, from wherever it is to the "real world" here. But, I don't know of any way to measure scalars using instruments.

It's been done indirectly by Glen Rein. This was the first time I have seen any evidence of an interaction of scalars with human tissue. That's pretty good because we don't have instruments to measure scalars directly, but he still came up with a way of showing a cause and effect relationship. So he can say. "Well, I can't measure the scalar, but if I produce it and it interacts with a living process, that tells me that it's real and it does something." These were human neuronal cells. He put a neurotransmitter in the petri dish that the cells would normally uptake if they were triggered to do so. He wanted to see if the fields would slow the uptake and leave more neurotransmitter behind. And they did! - An elegantly simple experiment, but profound in its implications.

MBR: How did you come to do this experiment Dr. Rein?

GLEN REIN: I've been interested in the idea of using electromagnetic fields to modulate and heal biological systems for a long time. Therefore I've been looking at a wide variety of effects both with electromagnetic and unconventional, non-electromagnetic or nonhertzian fields.

MBR: Would these be scalar?

REIN: Yes. There's a lot of words going around for these non-electromagnetic fields and scalar is certainly one. Quantum fields is another. My approach is to use biological systems to detect these subtle non-electromagnetic or scalar energies, with the hope of being able to understand the mechanism of action, and thereby being able to distinguish between the two types of fields. We know that biological systems are sensitive to these subtle quantum non-hertzian fields, but there really had been no proper scientific studies.

There are different ways of generating these kinds of fields. The first series of experiments that I did was working with a healer, because a lot of people hypothesize that healers give off more than just electromagnetic fields since psychic healing can occur over distance and time. The operation of psychics has properties which are very similar to the nonhertzian quantum fields. So, the first series of experiments that I did was working with healers.

Then I met up with an engineer, Ted Gagnon, who had designed a special modified "caduceus" coil [*Ed. note: Named after the staff wound with two intertwined snakes carried by Hermes*] which cancelled the electromagnetic fields. I've been using that system to investigate what's commonly referred to as scalar fields and their biological effects.

In the third series of experiments I did, was working with the Teslar watch, the watch originally designed by Andrija Puharich, and now marketed by ELF International. The difference between all these three sources of subtle energy is in frequency, and, of course, healers are complex and I have some evidence that different states of consciousness can have different biological effects. We know that different frequencies cause different biological effects. Therefore it's logical to conclude that in different states of consciousness a healer can generate a different frequency spectrum, which then in turn affects the biological system differently. And you could even get an inhibition of a biological effect based on the kind of energy output. This applies to the electromagnetic fields as well. So we don't know that the frequency specificity is a big issue. And 60 Hz turns out to be not such a good frequency.

Conceptually, the work that I have been doing is the first application of these kinds of quantum non-hertzian fields to biological systems. The implication from the research, aside from showing the fact that they do cause biological effects, is the fact that I've been able to show the same set of frequencies are more biologically effective in non-electromagnetic fields. In comparing a signal delivered through a conventional electromagnetic field using a Helmholtz coil, for example, versus the same sort of frequencies where the electromagnetic field is cancelled out and you have the non-hertzian or scalar left behind, even using the exact same set of frequencies and keeping all other variables constant, the scalar fields turned out to be anywhere between *three and five times more biologically active*.

That's also the first time a direct comparison like that has been done. The critics of the bioelectromagnetics community have looked at the effects due to conventional electromagnetic fields and said, "These effects that are observed are so weak, and the body is in a state of homeostasis. If you give such a tiny bit of a push to the body, you're not really going to have any profound healing going on." Now the evidence is suggesting that these scalar fields are much more biologically active and could be what's causing the actual healing process, or activating the physiological changes!

In that regard I advanced a theory I call the "crystalline transduction theory", which

proposes that electromagnetic fields in the environment can be converted into scalar fields in the liquid crystals of the cell membranes around each cell. Therefore, the electromagnetic fields are just a first line information carrier, and when that field hits the cell it gets converted to the scalar, and that's what in turn causes the profound physiological changes that are associated with my experimental data as well as phenomena of psychic healing and psychotronics and radionics, and all of the devices which generate scalar fields.

MBR: Could you give us a brief summary of your research in that context?

REIN: Okay. The biological endpoints that I've been measuring are two types of cells, nerve cells and immune cells. I'm classically trained as a neurochemist, and came to Stanford to study neuroimmunology, the interaction between those two systems. In studying the response of biological systems to these subtle energy fields, the responses of just one isolated system are interesting, of course, but the body is a holistic, complicated interaction of many different systems. So it seemed to me that the interaction between the nervous system and the immune system was really a key way in which you could study *in vitro*, with tissue culture cells, the simulated events that occur in the body.

I am using the tissue culture model system because of the complicated problems that you get into when you work with clinical patients, placebo effects as being one of the main complicating factors, also diet and emotional states. It's hard to be able to definitively say that *this* subtle energy or even electromagnetic energy that you expose a person to is causing the effects, when we know that there are so many things that can also cause profound biological effects. So the advantage of working in tissue culture is that you can eliminate all of those variables. If you can measure an effect at the cellular level, you can certainly make some pretty definitive statements.

In practice, what I've actually done is to measure the ability of a nerve cell to "take up" a neurotransmitter. When extra neurotransmitter is released into the synaptic cleft, the nerve cell takes it back up and metabolizes it. It's a way of controlling the levels of the neurotransmitters. In previous work I had actually measured the levels of the neurotransmitters in healers, which led me to become interested in how the amounts of these neurotransmitters are regulated. One of the ways is by this uptake mechanism.

I was able to show that both electromagnetic fields and scalar fields inhibit the uptake of neurotransmitters into nerve cells. **And the scalar fields were three to five times more biologically active than the electromagnetic.** It's interesting to note that tricyclic antidepressants as a general class of drugs also work in the same way. In other words, if someone is depressed, they would very possibly have lower amounts of the neurotransmitter in their brain. So by preventing the uptake, you allow more neurotransmitter to be present in the nerves in the brain.

MBR: So it's stimulating or arousing.

REIN: Right. The circular system that I've been looking at is the noradrenaline or norepinephrine system. There are many different neurotransmitter systems in the brain, but these studies have been directed specifically at one particular neurotransmitter system. It's very complicated because they all interact with one another and obviously this kind of research has to be continued if we are to understand the interactive nature of the systems, but as a first step, it's certainly encouraging that we could observe effects of this magnitude in the first place!

The next experiments I did were with the immune system. In this case I took some human lymphocytes or T cells, which are a member of the white blood cell family that's primarily involved with fighting off infections and protecting the body from foreign invaders and is definitely involved with all kinds of depressed immune system diseases like cancer and AIDS. In both of those cases, there is a depressed amount of the lymphocytes and a decreased response. Normally these cells grow when the right stimulus comes along, and in the absence of the stimulus or with an altered, sick cell, they cannot rejuvenate themselves, so the amounts keep going down. So what I did in tissue culture was to activate these cells and add the natural substance which would normally cause them to divide and see whether or not I could enhance that process with an electromagnetic field and with a scalar field. These experiments were done with normal people, because I didn't have access to blood from diseased individuals. [The first step was to see if there were any effects with normal blood. And the effect that we observed was a very, very pronounced stimulation of the growth of these lymphocytes or T cells to the tune of *twentyfold* with the scalar field!](#)

MBR: Twentyfold with the scalar field compared to the electromagnetic field?

REIN: Compared to nothing! The scalar field actually stimulated the cell growth to that kind of magnitude. This is basically unheard of in the bioelectromagnetics community, where typically you would get effects in the range of 20 or maybe 40 percent. Twentyfold is in another category entirely. So I was quite intrigued.

I was interested in knowing whether we might have just bumped across the right set of frequencies which really turn on the lymphocytes. Maybe everybody else in the bioelectromagnetics community was just looking at the wrong frequencies. There's a lot of work done with 60 Hz because the power line companies fund the research. There's a lot of work done with 16 Hz because Ross Adey had discovered that had an effect on calcium release from nerve cells. Maybe these people were just using the wrong frequencies, maybe we just happened to get lucky these right sets of frequencies which trigger cells to go crazy!

I therefore took the same frequency information and put it into a regular Helmholtz coil - which does not generate a scalar, but generated a regular electromagnetic field. In that case the biological response of the cells was very strong, but again three to five times less than the response to the scalar field. Obviously the electromagnetic field by itself will do some good, but when you add the scalar component, the biological system really takes off!

MBR: And what frequency were you working with?

REIN: The frequencies were actually designed and predicted by my colleague, Mr. Gagnon, but he ended up giving me a very complex series of sine waves in an RF kilohertz frequency range, a very complicated signal. The short answer is that it's a radio frequency modulated by very low frequencies, one to two cycles per second, so we have the best of both worlds.

MBR: What are the most intriguing implications of scalar theory?

REIN: The theoretical quantum physics has developed a very elaborate mathematical and physical description of scalar fields and their properties. The implications of the mathematics are very unusual and intriguing. Scalar fields have rather...*paranormal* properties. They travel faster than the speed of light; they're distance and time independent (unlike electromagnetic fields which fall off at one over the distance squared); they act at a distance; they can have negative energy; they even have the characteristic of being able to travel backwards in time!

Some of these concepts may seem a little far out, but quantum physics has started to address these kinds of questions, and it turns out that there is actual experimental evidence for time reversal. for example. Although these are theoretical and the physicist has this complicated theoretical model to describe the properties of these fields, it turns out it's more than theory. They actually are beginning to be able to measure some of these bizarre properties.

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