

Transcript - Making Sense of Bioelectricity Research

Welcome. And as you come into the zoom room today here for one of our community lectures, invite you to have your camera on if it's camera appropriate. So thanks to our presenters today. We got Todd, John and Prana. They got their cameras on and now I see.

Let's get started. I'm one of your host moderators, Lorne Brown, and this is a community lecture, and our topic is on making sense of bioelectricity, and we got our presenters today, Prana Gogia.

I'm going to be joined by John Hubacher and Todd Luger. All three participated in the healthy horizon symposium that we had in December that we're doing again in June.

I'll mention that a bit more, but I just know what caliber all three of these individuals are so fortunate that we are doing this today.

So I mentioned our community lecture talk today is making sense of bioelectricity and Todd Luger is going to lead this session because this was actually part of his brainchild here.

He wanted to do this. And then he brought on John Hubacher and Prana for this, as I mentioned, or maybe I haven't mentioned. Todd is an acupuncturist as well, and he's going to do an introduction of himself and our presenters today. I'll also share that he is the co-chair of the PASS and the upcoming Healthy Horizons Symposium and he did an excellent job of creating the program that we had in December and that we're doing again in June and it's been a pleasure to work with him.

And he's a big fan of biofield sciences and consciousness. So I'm glad to have Todd here. and he's going to introduce John Hubacher, who I know from Pantheon Research, who's also a Healthy Horizon speaker and, and now Prana Goya as well, Ayurvedic practitioner, acupuncturist, and also an incredible human being.

So Todd, please take it over. Everybody, post your questions in the chat, we'll moderate those to our presenters today. Looking forward to this discussion.

Thank you, Lorne. I'm just going to share my screen now.

So today we're talking about making sense of bioelectricity. And the reason that we decided to talk about this subject is because there's been some incredible research coming out for the past 20 years or so on the role of bioelectricity in physiology. We actually had a speaker at the original, Healthy Horizons Symposium who gave a detailed presentation on this subject and she connected a little bit, a few dots, with the profession of acupuncture in her presentation.

She's a, she's a member of the research team at a laboratory where they're doing a lot of this research and today we're going to take it a step further and we're going to connect the dots between some of this research And where we come from. So with concepts like, Chi and, and Prana and so forth, we're going to try and make connections that make sense of this bioelectricity research from the perspective of the work that we do on a regular basis.

As Lauren mentioned, I'm the co chair of the Healthy Horizons Symposium. I have a background in acupuncture, Chinese herbal medicine, instructional design, and technology. Pranagogiya is trained in inner alchemy and Ayurveda in the Siddha tradition since childhood, so he has a very long tradition in that area.

he's also a licensed practitioner of acupuncture, which he got early in this century. He's a And certified in craniosacral therapy and Reiki as well. In addition, Prana is an electronic engineer with extensive experience. developing electrotherapeutic devices for use in his clinic. And John, as Lauren mentioned a couple of times as the founder of Pantheon Research, he's also a Kirlian photography researcher with an emphasis on the phantom leaf phenomenon.

He also has, quite a bit of expertise in, some metaphysical. traditions as well that he will be able to, add to this presentation. So I wanted to give you a little bit of, background and some context for what we're going to talk about today. Although what we're talking about today is very cutting edge, what's lesser known and somewhat disappeared into history is that over a hundred years ago, there was actually a battle going on in the world of biological sciences between the early geneticists and what were called the field biologists.

The field biologists had hoped to develop a biology that was analogous to the findings of modern physics, where biochemicals and genes in the human body were understood. as both particles and fluctuations within a biofield. A lot of early geneticists didn't like this idea because they felt it was a slippery slope to mysticism, which it actually is, but we consider that a good thing.

The molecular genetic model advanced more rapidly because of limitations in the technology of that era, and as a result, the role of the field biologist somewhat disappeared into history. Thank you. But not completely.

there were some pioneers of field biology, one of whom was a man named Harold Saxton Burr, who was an anatomist who did extensive measurements of the electric fields of living organisms starting in the 1930s. And he developed a model of electrical fields guiding development. by the way, the last slide in this presentation, which will be available to download as a PDF resource, includes links.

To a lot of the people that I'm talking about here so you can get hold of their books, and other publications, Saxton Burr has a great book from 1973 that is actually outside of copyright. So you can just download it as a PDF. another important field biologist of the day was a man named Joseph Needham.

He was a leading embryologist of his day. you may be familiar with his name in the world of Chinese medicine because he's well known in this field because later in his career, he became very fascinated with Chinese culture, spent a lot of time exploring all the work that had been done in China and various aspects of science and wrote a massive 27 book compendium called science and civilization in China.

Interestingly in his volume on Chinese medicine, and he has a whole volume on Chinese medicine. He speculated that the Chinese concept of chi would have a Was an example of the biofield that regulated physiology. So what, what he was trying to figure out as a field, biologist in his day, and by field biologist, I mean, interested in, like a biofield, not a field biologist who goes out and counts birds.

Nothing wrong with that valuable thing to do as well, but, so he's, he, he did some really interesting stuff and he, he kind of planted a seed for future generations. Another well known person in our field is Robert Becker. Mid 20th century researcher in the role of bioelectricity and regeneration and wound healing.

Becker also did extensive research on acupuncture channels in the 1970s and firmly believed they were related to his research on bioelectricity. So it is interesting that, you know, several of these people in the history of field biology, stumbled on, to Chinese medicine and saw something important there about this subject.

and now we get to, Really, I would say that the cream of the crop in some respects, because, Because he's managed to publish so many papers, and his work is indisputable at this point. Michael Levin, a 20th century researcher, has published over 100 papers on the role of bioelectricity in physiology.

And his work has firmly established that there is a non molecular regulatory mechanism in the body that plays a key role in gene expression, embryological development, pathogenesis of cancer, wound healing, and regeneration. And to start off this, this discussion today, I'm going to play a short TED interview that Michael did a couple of years ago.

It's a really great introduction to his work. So here we go with that.

Mike, welcome. It's good to see you. I'm excited for this conversation. Thank you so much. I'm so happy to be here. So, most of us have this mental model in biology that, DNA is the property of every living thing, that it is kind of the software that builds the hardware of our body. That's how a lot of us think about this.

That model leaves too many deep mysteries. Can you share with us some of those mysteries and also what tadpoles have to do with it? Sure. yeah, I'd like to give you another perspective on this problem. So One of the things that DNA does is specify the hardware of each cell. So the DNA tells every cell what proteins it's supposed to have.

And so when you have, tadpoles, for example, you see the kind of thing that, most people think is a sort of, a progressive unrolling of the genome. Specific genes turn on and off. And a tadpole, as it becomes a frog, has to rearrange its face. So the eyes, the nostrils, the jaws, everything has to move.

And one way to think about it used to be that, well, you have a sort of hardwired set of movements where all of these things move around and then you get your frog. But actually, a few years ago, we found a pretty amazing phenomenon, which is that if you make so called Picasso frogs, so these are tadpoles where the jaws might be off to the side, the eyes are up here, you know, the nostrils are moved, so everything is shifted.

These tadpoles make largely normal frog faces. Now this is amazing because all of the organs start off in abnormal positions and yet they still end up making a pretty good frog face. And so what it turns out is that this system, like many living systems, is not a hardwired set of movements, but actually works to reduce the error between what's going on now and what it knows is a correct frog face configuration.

This kind of decision making that involves flexible responses to new circumstances. In other contexts, we would call this intelligence. And so What we need to understand now is not only the mechanisms by which these cells execute their movements and gene expression and so on, but we really have to understand the information flow.

How do these cells cooperate with each other to build something large and to stop building when that specific structure is created? And these kinds of computations, not just the mechanisms, but the computations of anatomical control are the future of biology. And so I guess the traditional model is that somehow cells are sending biochemical signals to each other that allow Development to happen, you know the smart way, but you think there is something else at work.

What is that? Well, cells certainly do communicate biochemically and via physical forces, but there's something else that's going on. That's extremely interesting And that is that, it's, it's, it's basically called bioelectricity, non neural bioelectricity. So it turns out that all cells, not just nerves, but all cells in your body communicate with each other using electrical signals.

And what you're seeing here is a time lapse video for the first time. We are now able to eavesdrop on all of the electrical conversations that the cells are having with each other. So think about this. We're, we're now watching, this is an early frog embryo. This is about eight hours to 10 hours of development, and the colors, are showing you actual electrical states.

that allows you to see all of the electrical software that's running on the genome defined cellular hardware. And so these cells are basically communicating with each other who's going to be head, who's going to be tail, who's going to be left and right and make eyes and brain and so on. And so it is this software that allows these living systems to achieve specific goals, goals such as building an embryo or regenerating a limb for animals that do this, and The ability to, to, see these

electrical conversations gives us some really remarkable opportunities to target or to rewrite the goals towards which these living systems are operating.

CA OK, so let me, this is pretty radical. Let me see if I understand this. What you're saying is that when an organism starts to develop, as soon as the cell divides, electrical signals are lost. a shared between them, but as, as you get to what, a hundred, a few hundred cells, that somehow these signals end up forming a kind of, essentially like a computer program, a program that somehow includes all the information needed to tell that organism what its destiny is.

Is that the right way to think about it? yes, quite. Basically what happens is that these cells form electrical networks, much like networks in the brain, they form electrical networks and these networks process information, including pattern memories. they include representation of large scale anatomical structures where various organs will go, what the different axes of the animal front and back, head and tail are going to be.

And these are literally held in the electrical circuits across large tissues. In the same way that, that brains hold, you know, other kinds of memories and learning. So is this the right way to think about it? Because it, this, this seems to me such a big shift. I mean, when I first got a computer, I was in awe of the people who could kind of programming, do, do so called machine code, like the direct programming of individual, bits in the, in the computer, that was impossible for most mortals to have a chance of controlling that computer.

You'd have to program in a language, which was, you know, just a vastly simpler way of making big picture things happen. And if I understand you right, what you're saying is that most of biology today has sort of taken place, trying to do the equivalent of, of machine code programming, like understanding the biochemical signals between individual cells.

When. Wait a sec. Holy crap. There's this language going on, this electrical Language, which if you could understand that, would give us a completely different set of insights into how organisms are developed. Is that metaphor basically right? Yeah, this is exactly right. So if you think about the way programming was done in the 40s, in order to get your computer to do something different, you would physically have to shift the wires around.

So you would have to go in there and rewire the hardware. You would have to interact with the hardware directly. And all of your strategies for manipulating that machine would be at the level of the hardware. And the reason we have this now amazing technology revolution, information sciences and so on, is because computer science moved from a focus on the hardware onto understanding that if your hardware is good enough, and I'm going to tell you that biological hardware is absolutely good enough, Then you can interact with your system, not by, tweaking or rewiring the hardware, but actually you can take a step back and give it stimuli or inputs the way that you would give to a reprogrammable computer and, cause, cause the, the cellular network to do something completely different than it would otherwise have done.

This bioelectric, the ability to see these bioelectrical signals is giving us an entry point directly into the software that guides large scale anatomy. Which is a very different approach to, to medicine, than to rewiring specific pathways inside of every cell. And so in many ways, this amazingness is that you're starting to crack the code of these electrical signals, and you've got an amazing demonstration of this.

in, these flatworms. Tell us, tell us what's going on here. So this is, this is a creature known as a planarian. they're flatworms. they're actually quite a complex, creature. They have a true brain, lots of different organs and so on. And the amazing thing about these planaria is that they are highly, highly regenerative.

So if you cut it into pieces, in fact, over 200 pieces, every piece will, rebuild exactly what's needed to make a perfect little worm. So think about that. This is a system where every single piece knows exactly what a correct planarian looks like and builds the right organs in the right places and then stops.

That's one of the most amazing things about regeneration. So what we discovered is that if you cut it into three pieces and amputate the head and the tail, then you just take this middle fragment, which is what you see here. Amazingly, there is an electrical gradient, head to tail, that's generated. That tells the piece where the heads and the tails go.

And in fact, how many heads or tails you're supposed to have. So what we learned to do is to manipulate this electrical gradient. And the important thing is that we don't use electricity. What we do instead was turn on and off the little transistors. They're actually ion channel proteins that every cell natively uses to set up this electrical state.

And so now we have ways to turn them on and off. And when you do this, one of the things you can do is you can shift that circuit to a state that says, no, build two heads, or in fact, build no heads. And what you're seeing here are real worms that have either two or no heads that result from this, because that electrical map is what the cells are using to decide what to do.

And so what you're seeing here are live, two headed worms. And having generated these, we did a completely crazy experiment. You take one of these two headed worms, and you chop off both heads, and you leave just a normal middle fragment. Now, keep in mind, these animals have not been genomically edited.

There's absolutely nothing different about their genomes. Their genomic sequence is completely wild. So, you can amputate the heads, you've got a nice, normal, fragment. And then you ask, in plain water, what is it going to do? And of course, the standard paradigm would say, well, if you've gotten rid of this ectopic extra tissue, the genome is not edited, so it should make a perfectly normal worm.

And the amazing thing is that that is not what happens. These worms, when cut again and again, in the future, in plain water, continue to regenerate as two headed. Think about this. The pattern

memory to which these animals will regenerate after damage has been permanently rewritten. And in fact, we can now write it back and send them back to being one headed without any genomic editing.

So this right here is telling you that the information structure that tells these worms how many heads they're supposed to have is not directly in the genome. It is in this additional bioelectric layer, probably many other things are as well. And we now have the ability to rewrite it. And that of course is the key definition of memory.

It has to be stable, long term stable, and it has to be rewritable. And we're now beginning to crack this morphogenetic code to ask, how is it that these tissues store a map of what to do and how we can go in and rewrite that map to new outcomes? CAWTHORNE WILLIAMS, MD I mean, that seems incredibly compelling evidence that there's a You know, the DNA is, is just not controlling the actual final shape of, of these organisms. So there's this whole other thing going on.

And boy, if you could crack that code, what, what else could that lead to? By the way, just look at these ones. What is, what is life like for a two headed flatworm? I mean, it seems like it's a kind of a trade off, like the good news is you have this amazing Three dimensional view of the world, but the bad news is you have to poop through both of your mouths So the worms have these little tubes called pharynxes And they extend the tubes are sort of in the middle of the body and they excrete through that These animals are perfectly viable.

They're completely happy. I think the problem, however, is that the two heads don't cooperate all that well. And so they don't really eat very well. but if you manage to feed them by hand, they will go on forever. And in fact, you should know these worms are basically immortal. So these worms, because they are so highly regenerative, they have no age limit and they're telling us that if we crack the secret of regeneration, which is not only growing new cells, but knowing when to stop, you see, this is, this is absolutely crucial.

If you, if you can continue to exert this. really profound control over the three dimensional structures that the cells are working towards. You could defeat aging as well as traumatic injury and things like this.

Okay, that's all I'm going to show you of the video right now. So I think everybody probably gets the point. There's some pretty amazing implications of that research. And I'm going to hand the stage over to Prana now, so he can begin to make the connections with Chi and Prana from the yogic traditions that connect with Michael Levin's work.

It's all yours, Prana.

Thank you, Todd. I'm just going to share a screen to kind of go through the discussion we will have to prepare it for as well. So here it comes, the slideshow. Can you guys see the screen with the slides on it and then go to share the sound? Okay.

So can you guys all see it? Yes. No? Yes. Oh, perfect. Thank you. So I'm gonna quickly kind of do a gentle, fast summary of what Leavenworth did and then through that guide you into the next level of how we connect this with, or what we already know in Chinese medicine and Aveda. So first thing you already saw, he kind of challenged the traditional dogma.

Genes alone are sufficient. And he basically said genes are like a hardware, only one part of the story. There is another part of the story. And it's the second part of the story, which is the bioelectricity, I think is the most important, because I think someday he'll probably get a Nobel Prize for that.

Why? Because let me give you a little bit of a problem domain, a little bit more before I tell you what bioelectricity implication means. This is an embryo, a human embryo. It's planted in the uterus wall about 8 to 21 days, somewhere between that, about 3 weeks, and you can see on the right side that attached to the uterine wall it has a sac, an amniotic fluid, and it has 3 distinct layers.

Those are called, you probably already know, endoderm, ectoderm, and mesoderm. The problem is, these three layers are exactly the same other than the density and the size of their cell wall. They're all stem cells, undifferentiated. At some point during the journey of being a human from this stage, they will change and shift into becoming a digestive system, liver, lung, pancreas, circulatory system.

Now the problem is, in the human body. Somebody needs to tell them who, how to go about doing it. In other words, the cell has to decide, and as Levin pointed out, the protein in the cell is only a hardware. There has to be some way to communicate to these cells to say, you go become a liver. They're basically bricks, and somebody has to say, this brick goes in the wall, this brick goes into the foundation, this brick goes into the window, like that.

So, who does that? Now, if you know human biology, there are two communication systems. Can anybody tell me in the chat what those two communication systems are?

When I move my hand, my brain is telling the hand muscles to kind of contract and elongate so I can move my hand. That's the central nervous system. When I'm driving I see deer in the headlights and suddenly my blood rushes from organs to the muscles so I can push on the brake fast. That is the endocrine system.

So as per the current science, there are only two communication systems in the human body. Central nervous system and endocrine system. But when it comes to human embryos, those two are missing. So take a second. There is no communication system inside the human embryo. There is no nerve coming from the mother's central nervous system going into the embryo, and the only hormone that goes from mother to embryo is growth hormone.

So how does this cell communicate or who is communicating with them? And that's where Levin's work is saying that the bioelectricity or bioelectric field around the cell is actually that medium of

communication. And he actually used the word information processing. When you talk about information processing, you're now talking about two things.

One, that there is a third communication system in the body that is prenatal. Take that second for a moment to think about it. That we are human and all living beings, because he's done an experiment on the platforms. So all living beings have a third communication system. And he actually said non neural bioelectricity.

That was his exact words, which means it's the electrical system or electrical field or bioelectric field that is not connected with the nervous system, because the human embryo at that time has no nervous system. So there is a third communication system in the body. This is why I said he will someday get a Nobel Prize for that.

To find, it's bigger than finding an organ. It's like discovering a whole new system of communication in a human body or in the living organism that is responsible for morphogenesis, organ generation, and also is intelligent. Because it knows which organ goes where. Can you imagine the amount of data it has to process?

Which cell, which organ, which protein it should take from, and where it should go, how to become an eye or a brain nerve, or a neuron in the central nervous system, or peripheral, all of that information is inside that system. Metaphorically, you can think about, having pixels on the screen to be rearranged, so there are channels and conduits that goes to the pixels, But there is software which makes the shape of a word or a face using those pixels.

And that's what he's saying. There is a third intelligent communication system. And his work is based on Robert Baker's work. He actually extended Robert Baker's work. Although Michael Levin has not done any human trial, Robert Baker actually did the human trials on human bones, to regenerate human bones using the same electrical system that he also said is outside of the nervous system, and that was in a full grown human person, an adult.

So only the other person who was talking about the field actually governs. What becomes of the cell because now we are saying there is a field which is an electrical field or a bioelectric field and there is a cell and a gene and a protein that is a hardware. So it's not the gene or a cell or protein that decides what it becomes.

It's actually the field deciding what becomes of that. The only other person actually has said that is actually in the context of quantum physics. Albert Einstein said the field is the sole governing agency of a particle. And in this case, the bioelectric field is the sole governing agency of a cell, of what it becomes in terms of embryology, in terms of disease, in terms of organ regeneration, all of it.

So that's like a quick summary of what Levin was trying to point out. So what does it mean to us? How does it connect to where we come from? Chinese medicine and Ayurveda. So if I were to

poetically say intelligent communication system as a command, and immediately in your mind what I'm trying to say.

There is something that is commanding cells. In our case, we say Qi is the commander of blood. And that's where I'm going. In Chinese medicine, we know about Qi, but not much detail is given in terms of embryology or organ generation. And we only know there is organ Qi and there is some other Qi. But if you go into Ayurveda.

It talks a lot about it. Ayurveda has a whole detail of which channel grows at what time and in the embryology and how it becomes an organ channel and all of that. But I'm going to summarize all of that into three, into one simple thing. It describes that we have a three level pranic field. So what Levin is talking about is one level.

What we learn in Chinese medicine as Qi that flows through organs and channels is another level. Those three pranic field in yoga and Ayurveda are called, and in this picture I'm showing you is like the three different graphics. On the left side is Alex Gray's graphics showing the cosmic body or cosmic field, which is the matrix like going through infinity.

And there is an envelope around the body, and that's the envelope of what we call subtle body, or subtle prana. And the cosmic one is called maha, or the great prana. And then there is inside the body, the channels, that we call suk, gross prana, or sthula prana. And those are the three levels of prana.

You can think about three levels of field that we are talking about in terms of generation of the human body from birth, conception to all the way to adulthood and maintaining and regulating. In Buddhism, they are called three bodies, actually. They are called trikaya, which means three bodies, the first body is called the nirmanakaya, which means the construction body, which is the physical body.

The second body is called the sensual or senses body. This is where the psyche comes in and sense is coming. And the third body is the cosmic body or dharmakaya. So we have in the East, these three. And there's a lot more detail in Sanskrit, but I'm going to correlate them now to the Chinese medicine perspective of where these correlates.

So if you think about it, before I correlated them, Dr. William Garner Sutherland, who kind of discovered cranial osteopathy, he also discovered that there is another system of communication outside of the central nervous system. And he called that as a breath of life. And then Franklin Sills in UK took his work and described that that outside the human body that tie that breath of life has three levels and he called them the one that is in a physical level as cranial rhythm and then one that is outside around the body as mid type and then there is a whole cranial rhythm system.

He said it comes from infinity, which is equivalent to calling like Great and Maha and that he called it a long type. So what are these three chronic fields we are talking about? So is what in Chinese

medicine we know as organ and Channel G. Think about that. I was talking about metaphorically pixels on the screen.

These are the conduits that go to the pixel that turn on and off. That will be what we call the gross prana, equivalent to that supports our health and vitality in physical form. It links to the subtle form, and that subtle prana is called suksham prana. Now in Levin's case, the hardware falls in what we call gross prana, an aspect of bioelectricity that it connects to the ion channel.

That will fall into what we'll call sthulu prana. Then he talks about intelligence. that regulates which cell goes where and creates an organ and maintains it. In Ayurveda, we call it Suksham Prana. It's there before even conception begins. It contains our emotions, dreams, Now, all the things that we weave as psyche and destiny, all of it, in Geoffrey Yuan's term, this is what we call extraordinary channels.

This is where the Yuan Chi flows. So extraordinary channels are prenatal, before even the organ and the channels of the bodies were built, they were there. They are the ones that are called like an ocean. And that's what craniosacral people also talk about, like an ocean of tides and movements of rhythms that's regulating and regenerating the body and connecting with our own destiny and ancestry and giving us distinct, but at the same time still human.

I still have 10 fingers, but my accent, color of the skin, my destiny, my eyes. how I talk is very distinct. So that distinctness at the same time connecting to the same person, they're still like a human being or a homo sapiens, that relationship of intelligence is in that subtle suksham prana or in Chinese medicine Yuan Chi.

And the third is what we call the cosmic or maha or great mind. And that is universal. Cosmic goes beyond the lifetimes, eternal bridges our life from multiple reincarnations. If you are a Buddhist and in Chinese or in the IC world, we talk about, I've been here before, I have been through this. My desires have gone through linking.

All of that is recalled in ve, and it also relates to galaxies and cosmos. In Chinese medicine, we don't have that concept, but if you extend into Taoist medicine, we have what is called Tian Chi or Heavenly Chi. And that's on the three levels. What Levin's work is pointing to is that these now are becoming part of science.

Science is talking about stool patterns as gene and ion channels and is now talking about a software that is independent, which is modulating those to actually create organs and places to regenerate things and even to help us to stay as we are and still be distinct. Form that I can distinctly see from me, but at the same time, I'm not separate from all of humanity.

I'm still part of the humanity. but I still have the distinctness. All of that comes from the suction that he calls as the software part of it. So how does we use this into clinical trend? Well, at the suction level, and there is a gross level. We already know how to use gross level. We have been using organ G and channel G.

But at the suction level, at the subtle level, like he said, if you create a two head platform for the next generations forever it has two heads. Although the genes are the same. So at that level, how do the two generations mix and connect with each other? We say when our awareness goes from sthul to suksham, we still maintain our distinctness, but when we connect with other people at that level, we can actually feel what is happening in them.

Where am I going with that? Two levels, connecting with how to understand a person as a diagnosis, because if you understand the diagnosis of what is happening to another person. Treatment becomes easy. And in the Karenya Sekkal world, we also say that you have to actually shift your awareness from physical to mid type.

There you can see a person's all things, because now you're connecting the person's psyche. You're connecting with their destiny, their ancestry, and also knowing what troubles them now. And you may think I'm talking of some kind of high level yogis or some kind of teachers. Yes, my teacher, who was a Siddha teacher, when he used to take a pulse, people used to say, I can feel him in my body.

And yes, I also sat with D. H. D. and I had the privilege of sitting with him, who was the Dalai Lama's physician. And you can feel his, like, literally his body, subtle body, enveloping yours, and you can feel almost like his smell and everything in him. So I'm not saying that it's not possible, and I'm also not saying that you have to be very high on Lama or Yogi to do it.

Here is one thing I want to show you from our own medicine. Now, this is from a paper that was published early last year by Walker Scheid. Walker Scheid, I'm probably not pronouncing his name right, but he's the author of, along with Bensky for Materia Medica, for Formula. He wrote a paper on the neglected role of Buddhism in the development of medicine in late imperial China.

In it, he talks about a practitioner called Yu Chang. And Yu Chang says, from youth to old age, I paid close attention to what my ears and eyes told me about a disease. I never failed to quieten my chi and reduce the activity of my mind. So he's pointing to you that he's shutting down his ordinary mind, and he's using his senses.

Basically, he's shifting from an ordinary physical level of thinking to non thinking, which is what we call suksham or subtle. And then he says attuning our breathing, which means Practitioners breathing and clients breathing. I first transform my body to that of the patient. Becoming their shadow. Groaning with their grief.

Faint and indistinct to begin with. I gradually transform my heart into the heart of the patient. Now he's a physician of Imperial China. You might think he might be well practiced and of course he was a Buddhist and Taoist. And heart literally means chitta, which is the Sanskrit word for heart and mind, which is the same in the subtle body.

That's in the subtle body. We talk about destiny and ancestry. All that is in the chitta or heart. And you may think it's probably for very extraordinary people. But here is another one minute of video I want to play and listen to this guy's words.

It has become so straightforward for me now to picture myself in the shoes of other people, even animals. Sometimes it's easy for me now, at least I imagine it to put myself in the shoes of a cat. I have cats. I've had cats all my life. I'm very familiar with feline ness,

if you know what I mean. so that is that ability. To imagine yourself being someone else makes it so clear that what you are is just this, it's this pure subjectivity. Everything else is ancillary. It's what happens to be happening, within that subjectivity. How do I put in words how you can make that differentiation? I think this is the best exercise. If you come to the point where you can truly feel yourself in the skin of someone else and yet recognize that I am still me, that's when you realize the distinction between The seeming separate self of, or a narrative, a story, of the ego and an individual point of view.

Because it's the same in every individual point of view. Fundamentally, it's the same as you.

So he's not even a healer. He's actually a computer researcher with a PhD in computers. And, he's a PhD in philosophy. So we can reach that level. And that's what I'm getting to clinical implications of Levin's work. Yes, you can directly use a bioelectric field using a pulse magnetic field. connecting with ion channels, and it's very well known it helps in neuron regeneration, or even the TENS machine using electroacupuncture, or with PMF using magnetic pulses, which open and close the gate channels for ions, for pain reduction, spinal health, migraine relief, it's known.

But I'm also saying cultivate the other side, link directly to that subtle level. where you can get that intelligence connected with you so you know what the other person is going through. And for that, I'm saying we need to learn more about extraordinary channels. Cultivate our understanding of extraordinary channels as a subtle body, with Taoist stillness practices, deeper aspects of yoga, beyond the postures, and whatever helps to quieten chi and reduce the activity of mind, as Yu Chang said.

I call all of that together as Inner Alchemy. And to make it real, I actually use PMF devices and I also use in our alchemy in my own clinical practice. I make them, I create my apps for them, and I suggest that go more into understanding the linkages. Acupuncture are actually at the best place. They can understand the subtle.

They can also use the physical or the direct version of bioelectric using electro acupuncture or PMF. So we are actually at the bridge between the two worlds. And we can connect them together. And people have been doing it. We just have to bring it back. That's all I have for you guys. And I hand it over to John.

John, why don't you chime in, from your perspective on, another, another metaphysical tradition, and you can explain about that. Well, thank you for that. It's, it's deep. There's a lot of learning to do and it's a lot of self development to get to the point of fully living what you're talking about.

And I thank you for that. So much to learn. I think that the contribution I wanted to mention, Todd asked me to, speak up on Alice Bailey's work. Alice Bailey's work is, I think, a very important thing that everybody tries to understand, get into. I've looked at it since college days, and I'm still a beginner.

It's volumes of work, and to talk about it in five minutes is like trying to put the ocean into a teacup. With respect to the etheric body, with respect to the energy body, or bioelectronic system, or bioelectric system that Levin has talked about. He's elucidating some very, I think, important principles scientifically and objectively measuring what the esoteric systems have described, and he's doing exactly, exactly what Alice Bailey actually was suggesting to do, which is to, to take these teachings and bring them into the medical community and the scientific community with research.

And one of the fundamental principles of the etheric body enunciated by, the Alice Bailey books, by the way, the Alice Bailey's books were, Not written exactly by Alice Bailey herself, but they were restored in 1920. She was a secretary in New York. A Tibetan master named Jwal Kul telepathically contacted her, asked her to participate, and she said, I'm not going to do this.

It's nonsense. She tried it out for a month, thought it was good, and continued for 30 years and wrote the 25 to 30 books of the tradition, which are still extant today. And the objective was to make a contemporary presentation of the esoteric teachings to take the audience. The, the classic scriptures of the East and present them in a way that is in the vernacular of the West.

And so, this is what's done. And so such things as, pranas and cosmic forces and, and such, and Ananda or the various gods are reduced to, electrical vernacular with respect to, say, electrical forces. That permeates the cosmos and the etheric system, the etheric body and living things is one of those.

And so one of the, as I started to say, one of the, one of the, fundamental principles is that the etheric body is the template or the archetype or the, the, the thing into which the physical body forms. It's responsible for morphology of all things living, and that there's nothing in the universe that doesn't have an etheric substrate to it that is responsible for the functions and forms of that particular thing, be it a planet, a sun, an atom, an ant, or a human being.

And so when we talk about Levin's work, he has documented the bioelectric fields in living things. Are responsible for their morphology from the embryonic state all the way up to the whole organism state. I wanted to bring out one, so this is consistent with the esoteric theory. And if you read Bailey's works about medicine, I recommend getting into the book called Esoteric Healing, which is an awesome book.

By the way, that book is meant to be a template for the next two to five hundred years of healing and medicine. So it's visionary. And I was trying to reduce that to some simple principles here and I can't, but there's, there's larger principles that we could discuss if we had more time.

I want to bring up two points because they, they are, I think, important in a larger perspective. And in Levin's work, I love Levin's work. It's extraordinary. They're brilliant. Their teams are brilliant. They're, they're so revolutionary in what they're offering biology, but it goes well beyond biology.

And for instance, he's talking about how the electrical gradients of the body are, are controlling, physiological functions. The source of the electrical gradients is not defined by Levin. He sometimes refers to, oh, the cells are creating electrical gradients and they're talking to each other. I don't think that's what's going on, and I don't think he thinks that's what's going on.

The source of the electrical gradients, if you want to look and get correspondences with some of the esoteric writings of Bailey, for instance, and others, would be the etheric system, and the etheric system itself is a transmitter of the energy. Of the soul, the mind, the emotions, all the chakras have their own forces, and those are also transmitted through the etheric system.

The etheric system is like a, a wire system or an optical, communication system that transmits energies. And when you have congestion, Somewhere in the etheric system, you have disease. If you have overstimulation in the etheric system, you have also problems and disease and these things that are extremely closely with chakras and this and she goes into this and extraordinarily extraordinary detail.

the, the energy of the planet interface interfaces with the energies of the cosmos, the sun and external of the solar system, and all these are continual flow throughout the entire universe. And the etheric system actually exists throughout the cosmos, and it's a model for. Contemporary cosmology, which cosmologists, can certainly create their models from if they look at it closely, cosmologists and astronomy, that is, but the source, the electrical gradients is an important problem.

And. When you have the planaria, for instance, which are cut and they maintain their memories, even though you've cut their heads off and heads grow back and they still have the memories, where is the memory located? Is it in the, in, he says it's located in this, in the, in the electrical system of the body.

But what is that? Is that an electron? How can, think about how an electron holds a memory, holds information? How can an electric field, like a magnet, hold information? It really doesn't. We have information in electronic systems and circuits in terms of. Analog oscillation, which we then interpret because we attribute meaning to that, or we have digital communications on zeros or ones.

And those become information because we attribute information to it. How do you hold information in a single electron? or electric field, you know, and there's something more than that. The

electrical fields are dominated and influenced by higher levels of the etheric system. Now, she describes, in *Living Things*, four levels of the etheric body, which is really instructive and great to know, because it's a model that we can start to work with.

And there's, there's the first, the second, the third, and the fourth level of the etheric systems, and they have different specific functions And probably are quantifiable and measurable, according to the specific types of measurement systems. Now, the lower electronic measurement of the first etheric system is probably electricity itself, which would be electrons and ions.

Light is probably, according to Bailey, conducted through the third, etheric level sound through the second. So, she's got these gradations that she's actually bringing into electromagnetics as we know them today. She also says the etheric system actually radiates, doesn't radiate, but emits light in both the UV and the infrared, which is not visible generally to the human eye, but could be visible to the human eye, where we take the time to develop it, which currently all have the capacity to do.

And something else I think is really important is that the understanding of the etheric system and the chakras. is so complicated, and it's so complex, and there's so many types of pranas that are present. Prana being defined, according to her, I was reading it this morning, as all the life forces that are present on all the seven levels of our consciousness, which includes the four levels of the etheric, the astral plane of the emotional body, the mind or the mental body, the soul, which is just above the mind, and then beyond that is the monad, and they'll see these are levels of consciousness, which are consciousness forces.

The A theoretic body, according to Bailey, is not so much a field as it is particles. It is physical, plain matter. Now this flies in the face of most biofield theorists who call it physics. A biofield is, is a rather new thing, but she says it's actually physical plain matter. Now, it may be that it's a new form of elementary particle that we can discover.

And one of the things we're trying and with our group of researchers where we photograph the phantom leaf, and I'll do that, talk about that in one second, is passing laser beams through the phantom leaf region to see if it distorts And measuring it sensitively through interferometry to determine if there's any particles there.

And it's something that is, it's a pretty cool experiment to try, and hopefully we'll get some good results on that. I want to show you a picture, which is our research. It's a leaf photographed in an electric field. It's been cut in half. There's no physical leaf above here, yet we do get a picture of the anatomy of the leaf.

It's a very close anatomy, and you can almost see the cellular structure if you look closely. This has been published, and we're working on, replicating this with some good success, but if that's the etheric body, if that's the biofield, it exists independently of the physical body, and when you couple that with Levin's work, we're starting to get hard research to show the nature of how the

etheric body exists independently of the physical body, and then you lay that on the physical body for it to regulate physiological functions.

That phantom leaf is conducting electric currents, conducting electrons, which would be a principle that Bailey says is happening where the etheric body conducts force, conducts electrons, conducts light, conducts sound, and all the other pranas, and so we have a hard piece of data to document what is heretofore esoteric knowledge.

And I think I'm getting my time's up sign, Todd. Is that correct? Yes, John. Thanks a lot. thank you for bringing that other perspective into this. So some people may find Alice Bailey's work, to be very accessible, even though it was written quite some time ago, it was written for a Western audience and attempted to, translate between Eastern concepts and Western audience.

it's definitely very interesting stuff to look at. I want to, I want to. Throw a couple of questions out there that we've collected already. Oh, it looks like somebody did find an audio version of the Alice Bailey book. So how about that? Oh, great. It's in the chat there. So the very last chat that came in.

So Lauren, if you see that, I know you were looking for the audio version. Let me ask a question. Prana, this one, this one I think is directed at you. It wasn't really posed as a question. It was posed as a statement, but I think getting your, your take on it would be interesting. do you correlate the three pranic fields that you described with the, concepts in medical qigong or Taoist alchemy of jing, qi, and shen?

So in, if I have to correlate in Taoist terms, the relationship will be closer to, so Jing is considered substance. It'll be closest to OES in Ayurveda would not be, it won't be co. It won't be correlating to this stool. Prana. What moves this stool? OES in the body will be this stool, prana, and then Q correlates to what we call the channel on organ prana, which goes through normal channels and organ genes in the human body.

And then the shen, now she is more related to what, yang's quote was Heart mind. Chitta in Ayurveda, and that's what the Shen correlates to. It won't correlate to the Sukshan Prana or the Mahaprana, but the Shen needs a way to go in and out. That's where the Sukshan Prana, where the Shen is kind of put into what I am now here as a person, embodied.

And then Shen has to now become a cosmic when this time of this person is over. So that movement of Shen from embodied, becoming me as this person, and then I'm dead, I become the cosmic, that's the two different pranas, the subtle prana or yuvanchi. And the Mahaprana, which is the Tian Chi. So they correlate that way, not directly to the way we describe it.

Hope that answers the question. Thank you. And then there's another question that is, I think specifically related to, I think your understanding of Chinese medicine, with regard to Levin's work on electrical network regeneration. Would you say that, would you say that that plays a role in the way the liver organ regenerates?

Because I guess the liver organ has a greater capacity to regenerate than the other organs. do you think there's been any work done on the electrical activity involved in liver organ regeneration? So on the human, only Robert Baker had done work on bone regeneration. We haven't done any human trial beyond that because of all kinds of political ramifications of doing it.

but yes, what Levin is talking about, the software part, which is regulating the regeneration, is active in two places, human biology mostly noted, is actually in the bones and the liver. Bones also regenerate, and that's where the marrow and the blood is all there. So yeah, it is connected with that, but we don't have any significant data other than what Robert Baker did with bones of the human body as an adult.

Okay, thank you. There is something interesting in electrical, bioelectrical studies where, with the electroactive puncture, research is showing, that you can, stimulate the proliferation of stem cells. And those could be closely related to future regeneration studies. Also, young children can, if you cut off just down to the first digit, they will regenerate that digit, which is an interesting quality.

Yeah, good point. And even the PMF is known to regenerate nerves and other aspects, but it's not the way Levin is doing. We've, we've, there has been some regeneration. I know I have a colleague who's regenerated spinal cord nerves and actually cured two examples of quadriplegia. And there was a cervical vertebrae subluxation.

And this is using electroactive puncture on the spinal nerves. And so this is some extraordinary stuff that's possible. We've also seen psychic healing examples where people have regenerated spinal nerves, people that have been paraplegic. and other forms of tissues that would normally regenerate so the possibilities of psychic healing actually working with the biofield, are examples where you can cause regeneration in human beings.

Absolutely. I mean, there's some data out there when you look for it. Yeah, you know, john, I came across a paper. that Levin co authored with somebody just last year, a particular interest of mine. Levin's work has focused on, you know, embryological development, you know, regeneration of, amputated limbs.

They've, they've actually, as John, you know, and Prana know, but maybe some of the audience don't, they've actually successfully regenerated an amputated frog leg, which does not occur. In the natural world. And so that's they're going to be shifting to mammals very soon, but that's pretty amazing work. what, what the work that he's been doing on regeneration sort of teases out the possibility of and this was a paper that he co authored just last year is the Human rejuvenation like actually rejuvenating our organs to their former youthful state which is really the You know, I mean literally, you know, the the fountain of youth right?

It's the holy grail of regenerative medicine, and there's been a lot of attempts to do this working on the molecular and biochemical and genetic level. And, you know, certainly nothing that's going

on at that level has ever resulted in regenerating a frogs. Leg. the idea being that development occurs.

And when we're younger, the vast majority of us are in, you know, quite good health. you know, assuming that we take care of the things that you need to do to be in good health when you're young. And at a certain point, the body's not recreating itself in exactly the same way. as it did for, for all those years and over time gets, you know, worse and worse, but the genes don't change.

You know, the genes, the genes are the same. you know, that, that's why, and that's why stem cell therapy is considered potentially also another Holy Grail, because there is a pristine set of genes there, but again, hasn't really been working out so well, but if the genes are there that can produce the hardware, they are.

It's something that's gone sideways with the bioelectric code over the course of aging. And this recent paper, it's highly speculative, but it reviews existing research to date that Levin and other people have done. And it really holds out the possibility of, of a future world where the use of the bioelectric techniques that he's currently using for regeneration of limbs could actually be restoring the function of human organs.

to their earlier healthy state. So, you know, just amazing stuff. John, I have a question here that's specifically for you. it's asked if you have any pictures or diagrams of the four fields you mentioned for Alice's work. I'm not sure if this question is directed at whether you're visualizing these fields in Kirlian photography or if there are pictures available.

does, I, I imagine they're not photographs, but Chubby has diagrams in her works. He doesn't have many diagrams you can pick up, as it's our Keeling treatise on cosmic fire. It's very good, demonstration of those, those principles. there's, there's, there's definitely diagrams in her books that elucidate the level of consciousness, and, so those can be found.

Absolutely. I, I don't have them personally, but there are, they are there with respect to do we see this with curling photography? I think the curly and photographs are, in fact, looking at probably the lower level of the system. I think that is exactly what they're looking at. It, it, it is, of course, looking at the.

electronic discharge itself. But the electronic discharge itself, which is called corona discharge, electrical sparks, essentially. Electrical sparks are conducted through that quarter inch or half inch of atmosphere around the fingertip or toes through some sort of medium or field or etheric body. And that's modifying the pattern.

Those patterns can be quite distinct depending upon, for instance, we have seen relationships to acupuncture very clearly. where the meridians that are, you would expect with the TCM diagnosis would be effective. For instance, if you have a lung problem, your thumbs will not show up as brilliantly on the Kirlian photograph.

If you have a large intestine problem, the index finger goes away. Those particular meridians are represented in the Kirlian photographs, and it's, extraordinary research. Potential diagnostic and very interesting. It's also corroborated in biophotonic research. Biophotons is the measurement of weak, ultra weak light emission from the body or tissues.

And they have done acupuncture and following acupuncture, those points are more brilliant. Terms of the light emission. there's also the asymmetry or symmetry of the body. The left can be brighter than the right. The right can be brighter than the left and following acupuncture that balances out the body energy balances out.

You also see that with curling photographs. So these are correspondences with acupuncture theory that really are important. It shows its relationship to biofield research. Thank you, John. And I'm exactly 140. Lawrence. So how about that? Guys are awesome. So, where we go from here. One is we're going to have, John and Prana and Todd want to do these regularly, at least monthly.

So stay tuned and we'll let you know about follow ups. In the chat, would you like to have more discussions around the biofield and conscious healing and how it connects to Chinese medicine? Let us know. We're probably gonna do it anyhow, but we want to know if you're interested because we want to talk about it and then go into the resource page.

We're also going to add it to Healthy Horizons Symposium website, so if you're looking for that website, if you go to the resource page, just scroll below the calendar, it will take you there, and then you'll see on the page, if you want to get notified when registration opens for the June 8th and 9th event, please put your name, email number here, and we'll follow up and connect with you.

Again, it's going to be about building bridges between classical Chinese medicine, biofield science, and consciousness. It's an Encore event. It's the same, lectures from the December event. We just shrunk it. So rather than two days, it's three days. So not all the lecturers made it, but we got two days worth of great content.

Thanks everybody. John, thank you. Prana, thank you. Todd, thank you. See ya.