

## interview with helen hall

conversation with [brian carroll](#) of [electronetwork.org](#)  
 sept. 26-27th, 2007, minneapolis, minnesota  
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/ [part 1](#) / [part 2](#) / [part 3](#) /

"Ere many generations pass, our machinery will be driven by a power obtainable at any point of the universe ... throughout space there is energy ... it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature." - Nikola Tesla

'EXPERIMENTS WITH ALTERNATE CURRENTS OF HIGH POTENTIAL AND HIGH FREQUENCY' LECTURE DELIVERED BEFORE THE INSTITUTION OF ELECTRICAL ENGINEERS, LONDON, FEBRUARY 1892.

**bc:** *why make a film about Nikola Tesla and the aether? [0]*

**hh:** well, first of all, it's about new energy science and it comes from doing years of research for my earlier film, [Powerlines](#). [1] i kept coming across the work of scientists and inventors around the world who were tapping into a new form of energy and it wasn't really understood what the mechanism was that was making it possible for them to tap into it.

and this new energy seemed to have unique and unusual properties that couldn't be defined and understood in the current system of science. and so they were looking to other ways of understanding and a lot of this experimentation has been inspired by Nikola Tesla's work at the turn of the last century.

so, a lot of these scientists were influenced by Tesla. and i did not know that much about Tesla in the beginning. but as i read and learned more and more, it became clear to me that he also called this new form of energy the aether. but he had never discarded it because it was a concept he grew up with and it was commonly understood in the 19th century.

so when 20th century physics decided it didn't exist anymore, as a result of Einstein's theory of relativity, Tesla ignored that and he always looked to his own unique understanding which was based on other influences from the past.

**bc:** *what do you think of the Michelson-Morley experiment which (supposedly) debunked the theory of the aether. [2] what is your take on that, in terms of western science which says it doesn't exist, how can you pursue the aether in terms of science and scientists?*

**hh:** i personally do not understand how a single experiment can discredit an entire phenomenon - it doesn't really make sense to me.

**bc:** *is that because of the larger cultural context of the aether?*

**hh:** yes, because of the larger cultural context... i've always thought that there was an energy all around us and that this energy was also related to life energy, subtle energy, chi/qi in oriental systems. and it made sense to me that this was all part of the same energy that's been defined in many different ways across different cultures, [3] and also coming from fields of astrophysics and of biology - in what is now known as biophysics.

and, so a lot of the discoveries with new energy are basically pointing to the same energy. and there are many different understandings of it. but to me it makes sense that it's another level/field of energy that is not electromagnetic. [4]

**bc:** *what is the relationship between electromagnetism and the aether, in this approach?*

**hh:** when i began reading about Tesla and also Tesla's own writings, i discovered he describes his understanding of electromagnetism in acoustic terms. and i came to understand that when he talked about the energy he was tapping into that wasn't electromagnetic, he said it was non-hertzian and 'longitudinal'... [5]

**bc:** *...what do you mean by 'longitudinal'?*

**hh:** 'standing waves', as opposed to tranverse waves, electromagnetic waves. [6]

**bc:** *was Tesla alone in this thought at the time, or is this a general view...?*

**hh:** i really don't have the background and knowledge to answer that with any clarity but he was taking principles of the acoustic resonators of Helmholtz and combining them with elements of the work of Arago, Galvani, Volta, Boscovich, Faraday, and Lord Kelvin to arrive at his own unique understanding of the world.

**bc:** *so the relationship of electromagnetism to the aether, your understanding comes from Tesla's view which is based upon his experiments, in which he found there is something other than electromagnetism (organizing the cosmos)... the aether is something other than electromagnetism...*

**hh:** this new energy has very unique properties - it's basically mass-free, it's without charge, and it's behaving in ways that can't be predicted with laws of electromagnetism, so it's operating in a different realm, almost.

**bc:** *and is he alone in thinking this or was this the cultural thought, throughout the time, about the aether?*

**hh:** i think he was very much alone in thinking this, and i think that is why he worked in such isolation.

**bc:** *now, i want to get the focus away from Tesla to your understanding, because you are making this film...*

*so we're talking about Tesla, we're talking about the aether, and i am trying to get into your framework of what we're talking about, so you can say 'Tesla said this, Tesla said that' -- yet i am more interested in what you think -- i am trying to setup the situation, the perspective i am trying to capture - because i am interviewing you -- i am trying to get to what you understand...*

**hh:** okay, personally, i think this energy has always existed, and i've always felt at odds with a physics that didn't seem to understand it or to have a way of measuring it - and that actually seemed to be the problem - that it was so subtle that there were no instruments that were sensitive enough to pick it up.

and i think this goes through physics, astrophysics, medicine; whenever i've read any stories about dark energy, i've always thought 'that's the aether', 'there's the aether' - in physics, in biophysics, in biology...

**bc:** *how? is this, uh, like in Powerlines (your film), you mentioned 'tiny bodies' -*

**hh:** somatids. [7]

**bc:** *are they related to the aether?*

**hh:** well, i can't really make a direct connection, what Gaston Naessens had discovered was a tiny particle that he proposed was the most fundamental unit of life...

**bc:** *okay. so would that be concerned with, like in biophysics - there's a layer of things and beneath that layer is the aether?*

**hh:** {yes}

**bc:** *and so when you are talking about chi or life energy, that 'aetheric' energy might be mediated in acupuncture or homeopathy...*

**hh:** [exactly, yes] it's mediated in many different healing modalities that tend to be non-western... acupuncture and homeopathy are really good examples. there's all kinds of magnetic healing and use of magnets and that sort of thing that's working with this kind of energy.

**bc:** *would you say Feng Shui also? i mean, would it go into 'environments'? [8]*

**hh:** in the sense that it is probably tapping into geomagnetic fields and magnetic north and that sort of thing, yes...

**bc:** *but that it's not the aether necessarily, because magnetism is electromagnetic?*

**hh:** but it's a form of energy, it's aetheric energy, i would say, yes.

**bc:** *how can you say that, what is your logic? because you just said that Tesla said that it wasn't electromagnetism, it functions by different laws, {yes} - and then you're referencing things that might work on concepts like geomagnetic meridians or whatever and-or different types of...*

**hh:** well, there's other forms of energy that interact with the aether and that basically structure it in some way, and that make aetheric energy accessible...

**bc:** *and so is this something like the classic map and territory question: the aether is the territory and these different things (magnetism, electricity) are mapping it in different ways...*

**hh:** or structuring it. if you think about form and music, geometry might create structure in music. in fact, it's very similar principles.

**bc:** *is geometry related to the aether?*

**hh:** i think so, i think it's related to a way of structuring it.

**bc:** *is number related to the aether?*

**hh:** i think so. [9]

**bc:** *so; the relationship between electromagnetism and the*

*aether -- and then you mention 'sound'...*

*now, you've mentioned Tesla had an idea about sound and the aether, which is going to be the basis for your film, Pictures of Infinity, [0] that you've talked about -- that Tesla had this connection with sound that informed his understanding of physics...*

*and his physics, when you mention something like 'non-Hertzian', you have something like Hertz and radio waves, defining 'radio' through Hertzian waves, i imagine, but when you say 'non-Hertzian', Hertzian was a myth...*

**hh:** that's what Tesla said. [10]

**bc:** *and so how can that be -- is it that the concept of electromagnetism is wrong, or that it's not what's actually being dealt with at a more fundamental level?*

**hh:** it's not that it was wrong... but Tesla believed that when he was experimenting with really high radio frequencies with his Magnifying Transmitter in Colorado Springs, [11] that the radio frequency energy was actually accessing this very high frequency aether - it was basically ripping apart the current field of the ionosphere and revealing an underlying structure... which is partially revealed with those purple streams of lightning...



**bc:** *(emitted from Tesla Coils) [12]*

**hh:** that was the energy he called the aether.

**bc:** *what are they traditionally known as, those streamers, those purple or ultraviolet streamers, whatever color they are - are they known by Tesla people as a certain thing, glowlets or something?*

**hh:** artificial lightning. streamers. some say that it's a form of plasma. [13]

**bc:** *one of the things that we are kind of getting around is this idea of sound and the aether. and you gave a talk at the Bakken Library [14] and you described how harmonics, resonance, vibration, and frequency - all of these can be related to the aether. which (you said) Tesla did but you also do in your own work. {yes}*

*the thing that is interesting to me is that, um, what you are saying is that, in my talking with you before, is that there is an intuitive way to grasp this subtle realm. and that there's these highly abstract things like Special Theory of Relativity and these other things, uh, that make it incredibly hard to relate to things...*

**hh:** well, i think, it's almost as though it's not describing the reality that we know and understand.

**bc:** *implicitly, in terms of living beings, you are saying?*

**hh:** yes. and i think that is part of what's been motivating me for so long, because... something i've been very interested in as a composer is music's relationship to physics - and in particular (the physics of) tuning systems. [15]

**bc:** *so, what i am trying to get at is, we talked about sound... electromagnetism's relation to the aether which you said a couple times that Tesla said that it was inaccurate in terms of describing the aether. but then you said he referenced sound and you've referenced sound, and so you've compared, uh, you've said this aether (in your talk) could be related to musical concepts and principles {yes}, and okay, and that this seems to be a way of quote unquote 'grounding' -- 'of experience', of firsthand 'experience'...*

**hh:** yes, in the natural world or in the 'real world' or whatever.

**bc:** *so when something happens in the realm of phenomena, is that... are you saying that that is happening in the aether? {yes} and it is not just a manifestation of atoms and molecules in an electromagnetic field {right}, but that there is something underlying it and what-is-that-thing. {right}*

*and so you previously mentioned there is like a medium, and we've talked about this quite a bit... - and so electromagnetism -- its relation to physics would be like a layer atop of the aether -- i mean, would it be sitting on top of this other thing? {yes} -- and so, when we see fields and we see charge, {yes} that the aether is not charge {exactly} but it sustains charge {yes, that's it}, and so it's a structure...*

**hh:** it's a structure, it's an underlying structure.

**bc:** *and it's equivalent to sound or it is the basis for sound or it relates to sound?*

**hh:** it relates to sound.

**bc:** *but sound comes through it...*

**hh:** yes.

**bc:** *and so, what my question is...*

**hh:** i think sound accesses it. it can be accessed through sound.

[continued...]

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– notes, part 1 –

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[0] Pictures of Infinity (2)

[artoffrequencies.wordpress.com/pictures-of-infinity](http://artoffrequencies.wordpress.com/pictures-of-infinity)

[1] *Powerlines* is a poetic documentary film about the mystery of electromagnetic fields, the promise of new energy and the dangers of electromagnetic pollution.

[artoffrequencies.wordpress.com/powerlines](http://artoffrequencies.wordpress.com/powerlines)

[2] Michelson-Morley experiment (1887)

[en.wikipedia.org/wiki/michelson-morley\\_experiment](http://en.wikipedia.org/wiki/michelson-morley_experiment)

[3] for example, 'akasha' in Hindu philosophy is described as: "a supposed universal etheric field in which a record of past events is imprinted" (New Oxford American Dictionary) and "the ether, regarded as including material and nonmaterial entities in a common medium." (Random House Dictionary)

[4] Aether theories

[en.wikipedia.org/wiki/aether\\_theories](http://en.wikipedia.org/wiki/aether_theories)

[5] longitudinal wave

[en.wikipedia.org/wiki/longitudinal\\_wave](http://en.wikipedia.org/wiki/longitudinal_wave)

[6] standing waves

[en.wikipedia.org/wiki/standing\\_wave](http://en.wikipedia.org/wiki/standing_wave)

[7] somatids - Gaston Naessens

[en.wikipedia.org/wiki/somatid](http://en.wikipedia.org/wiki/somatid)

[8] Feng Shui  
[en.wikipedia.org/wiki/feng\\_shui](https://en.wikipedia.org/wiki/feng_shui)

[9] hh: in his experiments, Tesla applied the simple mathematics of the Ancient Greeks. Pythagoras, a philosopher and mathematician, discovered that properties of mathematical and physical objects have a direct 1:1 correspondence, such as the correlation of number to musical tone. the numerical relationship of vibrations to each other creates resonance, and Tesla applied this principle to his inventions to extract energy from the aether.

[10] Nikola Tesla - Non-Hertzian Waves  
[www.teslaenergy.net/intro4.html](http://www.teslaenergy.net/intro4.html)

[11] Magnifying Transmitter  
[en.wikipedia.org/wiki/magnifying\\_transmitter](https://en.wikipedia.org/wiki/magnifying_transmitter)

[12] Tesla Coil  
[en.wikipedia.org/wiki/tesla\\_coil](https://en.wikipedia.org/wiki/tesla_coil)

[13] Tesla Coil - Air discharges (streamers, leaders)  
[en.wikipedia.org/wiki/tesla\\_coil#air\\_discharges](https://en.wikipedia.org/wiki/tesla_coil#air_discharges)

[14] The Bakken Library and Museum  
[www.thebakken.org](http://www.thebakken.org)

[15] Tuning Systems  
[en.wikipedia.org/wiki/musical\\_tuning](https://en.wikipedia.org/wiki/musical_tuning)

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"Long ago he recognized that all perceptible matter comes from a primary substance, or tenuity beyond conception, filling all space, the Akasha or luminiferous ether, which is acted upon by the life giving Prana or creative force, calling into existence, in never ending cycles all things and phenomena. The primary substance, thrown into infinitesimal whirls of prodigious velocity, becomes gross matter; the force subsiding, the motion ceases and matter disappears, reverting to the primary substance."

MAN'S GREATEST ACHIEVEMENT BY NIKOLA TESLA.  
 PUBLISHED IN NEW YORK AMERICAN, JULY 6, 1930.

**bc:** *we were talking about sound and the aether. now, um, you're making this film and traditionally, in electromagnetism and especially in electricity there's an analogy to water: pipes, flows, current, waves, this sort of thing. {right}*

*and i've heard you mention that you are interested in vortices, vortex, in water. is that a fair thing to say, or, in relation to the aether? i'm wondering is there any relation between water and the aether in a conceptual sense? [16]*

**hh:** yes, in the sense that they are both mediums for natural phenomena.

**bc:** *so what is the relation between water and the aether in terms of a vortex?*

**hh:** oh, it's the form of the vortice i'm interested in. they occur in air and water but it just happens to be a little easier to try to film vortices in water. vortices for me describe the movement of aetheric energy...

Lord Kelvin modeled the electron as a vortice of energy. [17]  
 and so did Boscovich, an 18th century natural philosopher. [18]

in the film, i'm exploring that kind of whirlpool movement of energy. (which is also true of tornados.) [19]

**bc:** *my question is this. there's a symbol of a vortex... [20]*

**hh:** uh-huh

**bc:** *what is it going from -- is it an issue of going from one layer to another? is it related to scalar energy in some way? [21]*

**hh:** yes it is.

**bc:** *what kind of waves, scalar waves? {yes} or standing waves? my question is, if you take a vortex, it would seem to be going from one thing to another thing, as if it is some kind of weird inversion...*

**hh:** i think it is inter-dimensional...

**bc:** *and so, for example, when you mention the relation between sound and the aether or electromagnetism and the aether... is it the interaction between these that establishes or forms the vortice?*

**hh:** i think it probably is. [22]

**bc:** *and so, when there are electromagnetic waves, or let's just say that there is acupuncture...*

**hh:** my understanding is that the aether, aetheric energy, in order to tap into it - it has to be destabilized...

**bc:** *so it is an issue of equilibrium in a medium... [23]*

**hh:** so the vortices would be the activity of an energetic aether that's been destabilized.

**bc:** *and so, you've mentioned this previously... it's like sound: sound is going through something or is pushing against something to transmit itself, right? {yes}*

*and you're saying there's this thing, this stuff...*

**hh:** this other layer, yes...

**bc:** *this other layer, okay... so when there is a vortice, vortex, whatever... let's say somebody puts a cup down on a table, like this: (knock) [bc puts cup down on the table]*

**hh:** um-hum

**bc:** *so you could say that the sound is occurring in a realm both of electromagnetism and the nervous system hearing that, (i.e. the sound traveling through air, that we're hearing that) - but it also maps into the aether at a fundamental level...*

**hh:** it disturbs it

**bc:** *to create that. {yes}*

*the cup, the sound, and the nervous system. and it all exists in the same medium. (the aether)*

**hh:** yes.

**bc:** *i am trying to get at a question that is really difficult to say because i have never thought about it before - it's about this mapping idea, of the concepts involved, you know, there's many different concepts involved... i'm trying to think of an example where something occurs and it might happen on one layer, and then it may fall into the aether... (via the vortex)*

*i mean, is the aether at the bottom of the vortex, or is it sinking to the vortex? [24]*

**hh:** i think so.

**bc:** *it would seem like it would have to, if it were to exist in a realm of this aether. like, in terms of: if it is established there, it would need to find its way there - every event.*

*and so it would seem that what is being said is that vortices could be, you said it could be related to interdimensionality or something... but this might be a way that one layer maps into another, in a complex topographic or topological relationship... but it might be a different type of vortex than just what you see, visually, -- i mean, it would be a complex flurry of vortices everywhere... [25]*

**bc:** *is that... is there any relation between the vortices and music? have you ever encountered anything, or is that beyond the dimensionality of traditional approaches?*

*i mean there is a lot of 3D spatialization (of sound) but i'm wondering, compositionally, has a vortex ever been...*

**hh:** there is at least one composition i can think of, related to the vortice as a natural phenomenon [26] and i've long been inspired by the movement of vortices, and the idea of a vortice which is created by both an inwardly-moving spiral and an outwardly-moving spiral... [27]

**bc:** *that are simultaneous?*

**hh:** that are combined, that are simultaneous.

**bc:** *so that's what is going on?*

**hh:** yeah.

**bc:** *so it is counter-revolutions?*

**hh:** yeah, and it's similar to the yin-yang symbol you've described too. [28] you know it's that inner spiraling, in one sense energy is created by that inner spiraling path and then it dissipates through the outer spiraling...

**hh:** and as you know i wrote the piece *~Of Radiant Streams* in which the energy dissipates in the end... [29]

**bc:** *through a Fibonacci spiral... (which attains equilibrium) [30]*

**hh:** through a Fibonacci spiral. in Infinity Maps, which is the music for my film Pictures of Infinity, i'm exploring a form, and of course i'm doing it through music, not literally but metaphorically, and also to a certain extent with geometry. i'm exploring the notion of an inwardly-moving spiral and an outwardly-moving spiral that are complementary. [31]

**bc:** *interesting. did you ever relate it to the aether or is it something you just needed to do as a piece by piece working-through of various...*

**hh:** you mean did i ever think of it that way?

**bc:** *uh-huh*

**hh:** no, no i didn't. but i was thinking about music as streams of energy when i wrote Of Radiant Streams (1985) - and radiant energy is considered to be aetheric too... i wasn't consciously thinking of that although it's always inspired me. i think it's connected to music in ways i do not completely understand... and i've always felt this (connection) and wanted to be closer to it, through music.

**bc:** *how did you get started in music? short answer...*

**hh:** short answer - the Beatles. (laughs)

how did i get started in music? it was a gradual process... i learned to play guitar when i was twelve. i learned to play by ear and was playing most of the music i heard on the radio... and then as a teenager i wanted to...

**bc:** *so you had a natural ability and you just picked it up?*

**hh:** i picked it up by ear, it wasn't unusual at that time. and there was so much great music that, you know, it was natural i think to want to play an instrument. um, and then later in my teens i wanted to learn to read music. and then i became more and more interested in classical music and it was really hard to

play by ear, to learn it by ear... so this led to many years of formal study.

...

**bc:** *what got you into film, what started you in film? did you have to make a film or did you decide to make a film, or did you decide to enter into filmmaking, i mean, was it some answer, was it some solution to a problem? or, you know, i guess the larger question is this, i have many questions i am thinking of, you can skip any of them...*

**hh:** no, it's fine...

**bc:** *the one i am trying to get to is, you define yourself as a composer and a filmmaker, what does it mean to you to do that in terms of categories? and then, how does it influence when you try to get grants or to fit into funding structures for your work?*

**hh:** i think of myself primarily as a composer. i made a film because i got to a certain point where i thought of writing music as a form of willful autism - because, music is a very particular thing, it's very... you know, when you consider the whole realm of human experience and sound is only one part of that - and for me it's always associated with a very deep internal experience.

i made a film because i reached a point where i really felt limited... i needed to extend my music into different media...

**bc:** *what has it been like to get funding for your work or what is it like to go through traditional approaches where you are doing something non-traditional?*

*your work is challenging certain presumptions. does it work against you when you are trying to find funding?*

**hh:** it can be difficult and challenging.

**bc:** *and so what has your experience been. have you... any ideas, any issues you want to explore? i don't want to get into politics, but i am just wondering- if you need to say something what would it be?*

**hh:** i think it's that when i made my first film (Powerlines) it was possible to do this only because at that time there was an openness to funding interdisciplinary work... but at a certain point in the '90's that changed and now it seems as though most of those doors have been closed...

**bc:** *but they are open for certain projects, aren't they?*

**hh:** well, if they fit in. i think the whole funding process has become very bureaucratic.

**bc:** *and categorical?*

**hh:** yeah, it's very narrowly-defined categories and anything that doesn't fit into those categories either simply isn't understood or can be considered to be of lesser importance than whatever it is that defines the category. at the same time, though, there are individuals working within organizations who are actively challenging these limitations and are committed to making it possible for unique interdisciplinary projects to move forward.

**bc:** *who's the audience for your film, Pictures of Infinity? who are you looking to communicate about these ideas with?*

**hh:** i'd like to say everyone or anyone. i really don't like to define my audience.

**bc:** *do you need a Ph.D. to understand?*

**hh:** absolutely not, of course not. (laughs)

**bc:** *are you saying that there is a basic issue of literacy here, that people can be aware of these things, (i.e. the aether) and that it is part of... that it is as apprehendable as sound yet as abstract?*

**hh:** i believe it is, and i think that it's very intuitive. and i really don't think of it as a scientific subject, i think it is a subject that has to do with everything we experience in our everyday life.

**bc:** *so what do you think when people categorize this phenomena in terms of, let's say, mediate this in terms of physics -- you know, and then they might say: "well, we can only talk about this in terms of an orthodox physics-based approach", to talk about energy in terms of numbers and things like that.*

*also, there are a lot of issues of fringe science involved with investigating the aether, experiments of perpetual energy or free energy. and what is the threshold for, um, you know... experimentation, like Tesla said, that this was the approach - that it is through experiment that knowledge is gained. but what happens when science is (pursued) in a post-modern realm where everything is relative... what you are trying to get at is bigger than 'science'...*

**hh:** exactly, yes it is.

**bc:** *and so, what you seem to be saying is that it's actually an issue of culture and energy, it's not just science and energy...*

**hh:** very much.

**bc:** *it's a larger thing. and so this goes back to, you said, for example, you referenced language. what did you say about that in terms of energy systems...*

**hh:** i referenced in my talk (at the Bakken Library) a linguistic text that influenced me many years ago called Language, Thought, and Reality, a collection of essays by Benjamin Lee Whorf. in one of his essays he describes how the Hopi language has many different words for different kinds of vibration. it reveals an understanding of energy which is very subtle and refined. and then Whorf went on to say that their language describes natural phenomena in a way that is more true to our current understanding than our own language is...

**bc:** *than the English language,*

**hh:** than Western European language is, yes.

**bc:** *and potentially even science...*

**hh:** and, through his collection of essays, he's basically saying that our language does not map to our present understanding of the world, that it's inaccurate - and that it's in fact false, in many ways it's false. [32]

**bc:** *so what do you think of the issue of fringe science and the aether? what do you, how do you deal with traditional scientists who may view this as a fringe science, the people who explore the aether?*

**hh:** well, it's easy to consider it a fringe science because, of course, most of the people who are exploring this are doing it without funding and it's usually out of an absolute passion for the subject and a drive - you know, a lot of people are absolutely convinced that this exists, and this is their life's work in many ways; their inventions and their explorations.

on the other hand, a lot of these people have day jobs and often they are electrical engineers or they are working within the academic structures or whatever.

but then of course there's the people who believe Tesla was from another planet and that he was sent from another civilization, to impart this knowledge to other people. Tesla's legacy attracts a large contingent of fringe activity, that's for sure.

**bc:** *and it seems like a lot of energy research is shrouded in mystery... energy research is shrouded in a type of mystery... [33]*

**hh:** science fiction.

**bc:** *well, that there is danger involved and there's an edge to this type of research, and so do you think this is going on whether or not it's, via governments and things, whether or not it's 'public' - that people may be pursuing this research behind a shroud or something...*

**hh:** i'm not quite sure what you mean by 'behind a shroud', could you be more specific?

**bc:** *i mean, this is a central question for everybody, and yet it is only mediated publicly via...*

**hh:** in very mysterious ways?

**bc:** *what i am trying to get at is, uh, it seems that Tesla and the aether are central questions and yet they're perceived of as irrelevant in the popular approach. and so that seems to set up a kind of odd situation to question something that's supposedly so central and yet it has no place in the current order - so it seems shrouded in mystery in a way.*

*and also, that there's a lot of drama in these areas where people lose their jobs, or they don't get funding, or their funding gets cut, or whatever it might be...*

**hh:** i think it goes to the heart of many many issues, and i think wherever there's an issue of energy that all of those dynamics exist... when there's an issue of one system or even a system of knowledge that - if it were to become accepted would completely throw / discredit a whole other system, that's very much a part of it.

**bc:** *and so that's the danger.*

**hh:** of course it is, yes.

**bc:** *and that's been throughout the story of energy, i mean, in the 20th century with Westinghouse, Tesla... [34]*

**hh:** very much, very much... it's all been politics, and science, and history... there's so many different forces at play. but at the heart of any energy issue it seems there's issues of power and politics and control. the use and abuse of power.

[pause]

**hh:** so - what i'm trying to do in the film is to take this concept of the aether that comes from Tesla's understanding, it comes from a lot of different cultures... and i'm trying to compile a sort of common understanding, and to interpret it through music and sound and visual images...

[continued...]

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– notes, part 2 –

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[16] vortex  
[en.wikipedia.org/wiki/vortex](https://en.wikipedia.org/wiki/vortex)

[17] On Vortex Atoms  
By Lord Kelvin (Sir William Thomson)  
[zapatopi.net/kelvin/papers/on\\_vortex\\_atoms.html](http://zapatopi.net/kelvin/papers/on_vortex_atoms.html)

[18] Roger Joseph Boscovich  
[en.wikipedia.org/wiki/Rudjer\\_Boscovich](https://en.wikipedia.org/wiki/Rudjer_Boscovich)

[19] the tornado in the Wizard of Oz which transports Dorothy and Toto between different worlds could be considered symbolic of an aetheric vortex.

[20] 2D spiral symbol  
[symbols.com/encyclopedia/14/149.html](http://symbols.com/encyclopedia/14/149.html)

[21] 'scalar' refers to longitudinal/standing waves and also the 'scalar electromagnetics' of Tom Bearden's and others' work. for more information, see:

What is "Scalar Electromagnetics"? - Rick Andersen  
[twm.co.nz/Beard\\_scalem.html](http://twm.co.nz/Beard_scalem.html)

[22] hh note: in this interpretation, the negative charge of the earth and the positive charge of the ionosphere interact to create rotating positron-electron vortices. Tesla thought of the electron as a self-sustaining vortice of aether. electron charges form longitudinal standing waves. sound waves are also longitudinal, and form standing waves.

[23] Transmission medium  
[en.wikipedia.org/wiki/Transmission\\_medium](https://en.wikipedia.org/wiki/Transmission_medium)

[24] bc note: 'sinking' as it may relate to grounding.

[25] in other words, there is not one giant vortex and instead many little vortices, potentially occupying every point in space (e.g. every 'atom').

[26] 'Vortex Temporum' - Gérard Grisey  
[brahms.ircam.fr/index.php?id=8977](http://brahms.ircam.fr/index.php?id=8977)

[27] bc note: the singular use of the plural of 'vortices' has been used in this text as a more accurate description of this dual nature of 'spirals' inside a single 'vortex'. this interview was transcribed from recorded speech, whereby it sounds more natural and correct to use the singular 'vortice' than the word vortex, which is then reflected in this written text. the concept described at this footnote should provide clarity as to the technical reason the decision was made to retain its original use.

[28] yin and yang  
[en.wikipedia.org/wiki/yin\\_and\\_yang](http://en.wikipedia.org/wiki/yin_and_yang)

[29] Of Radiant Streams, composition, Helen Hall  
[artoffrequencies.wordpress.com/of-radiant-streams/](http://artoffrequencies.wordpress.com/of-radiant-streams/)

[30] Fibonacci spiral  
[en.wikipedia.org/wiki/Fibonacci\\_spiral](http://en.wikipedia.org/wiki/Fibonacci_spiral)

[31] Infinity Maps, composition, Helen Hall  
(music for the film ~Pictures of Infinity)

[32] Sapir-Whorf hypothesis  
[en.wikipedia.org/wiki/Sapir-Whorf\\_hypothesis](http://en.wikipedia.org/wiki/Sapir-Whorf_hypothesis)

[33] for instance, how energy research is depicted in Hollywood movies, especially in terms of government secrets and conspiracy theories.

[34] War of the Currents  
[en.wikipedia.org/wiki/War\\_of\\_Currents](http://en.wikipedia.org/wiki/War_of_Currents)

Wardencllyffe Tower  
[en.wikipedia.org/wiki/Wardencllyffe\\_Tower](http://en.wikipedia.org/wiki/Wardencllyffe_Tower)

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## interview with helen hall

conversation with [brian carroll](#) of [electronetwork.org](#)  
 sept. 26-27th, 2007, minneapolis, minnesota  
 recorded & transcribed, published 11/07

[/ part 1 /](#) [part 2 /](#) [part 3 /](#)

"Nature has stored up in the universe infinite energy. The eternal recipient and transmitter of this infinite energy is the ether. The recognition of the existence of ether, and of the functions it performs, is one of the most important results of modern scientific research. The mere abandoning of the idea of action at a distance, the assumption of a medium pervading all space and connecting all gross matter, has freed the minds of thinkers of an ever present doubt, and, by opening a new horizon new and unforeseen possibilities has given fresh interest to phenomena with which we are familiar of old. It has been a great step towards the understanding of the forces of nature and their multifold manifestations to our senses. It has been for the enlightened student of physics what the understanding of the mechanism of the firearm or of the steam engine is for the barbarian. Phenomena upon which we used to look as wonders baffling explanation, we now see in a different light. The spark of an induction coil, the glow of an incandescent lamp, the manifestations of the mechanical forces of currents and magnets are no longer beyond our grasp; instead of the incomprehensible, as before, their observation suggests now in our minds a simple mechanism, and although as to its precise nature all is still conjecture, yet we know that the truth cannot be much longer hidden, and instinctively we feel that the understanding is dawning upon us. We still admire these beautiful phenomena, these strange forces, but we are helpless no longer; we can in a certain measure explain them, account for them, and we are hopeful of finally succeeding in unraveling the mystery which surrounds them." - Nikola Tesla

"EXPERIMENTS WITH ALTERNATE CURRENTS OF VERY HIGH FREQUENCY AND THEIR APPLICATION TO METHODS OF ARTIFICIAL ILLUMINATION"  
 LECTURE DELIVERED BEFORE THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS, COLUMBIA COLLEGE, N.Y., MAY 20, 1891.

**bc:** *how does the aether relate to art?*

**hh:** to art?

**bc:** *like certain (kinds of) blanket or basket weaving with symbols of spirals, i wonder - are these referencing, when they reference energy - are they referencing the aether? cultural symbols. do you think 'the spiral' references the vortex?*

**hh:** yes, i think it does.

**bc:** *is this the most primitive, ancient, or extra-terrestrial of...*

**hh:** i really think it is. you know, i was at the Minneapolis Institute of Arts earlier today, [35] and i wrote something down that was from, there's an Egyptian tomb...

**bc:** *actual coffin? {yes}... i know which one you're talking about...*

**hh:** yes, and in the inscription describing that piece they say that the Egyptians believed in this energy called 'ka' - which is the life-spirit. [36] and they believed that the life-spirit of the person was preserved through their embalmed body. and this is why they had such elaborate funeral rituals, because it was honoring and preserving the basic life energy or spirit. which, i think, and again, i should probably look into this, but i think this is probably the same as a universal energy too.

**bc:** *but i don't see how you can relate 'ka' to aether, just as equivalent, i mean, i don't understand...*

**hh:** i think that this energy permeates everything, on many different levels.

**bc:** *okay, let's get to something more fundamental...*

*what is the relationship between being and the aether? are they equivalent or does being function within this medium of the aether - is it some organization within the aether? and you mentioned music in terms of organization -- is everything that exists some form of organization in the aether?*

**hh:** yes.

**bc:** *and how does music relate to that, then?*

**hh:** i think music both reflects it and is accessing / disturbing it. i think music creates vibrations which disturb and interact with the aether.

**bc:** *so, does it establish itself through organization? this aether...*

**hh:** it does. i think it makes itself available to us, through organization. and i think there's certain principles that can organize it.

**bc:** *such as harmony and scale and proportion and things like this?*

**hh:** *yes, yes...*

**bc:** *so my question is; so what is the relation between aether and religion? is that why there is religion - to explain it?*

**hh:** *i think it's always been a concept in religion, in various religions.*

**bc:** *how does it relate to 'spirit'?*

**hh:** *it's often equivalent to 'spirit'.*

**bc:** *hmm. but what you're saying is the aether is a medium. so 'spirit' is not the medium itself, though...*

**hh:** *no, but 'spirit' interacts with the aether...*

**bc:** *i mean, "spirit" quote unquote. whatever that might be, you know... the concept. {uh-hm}*

*and so, when you talk about the aether, it sounds like things are manifest through and with and within this realm.*

**hh:** *yes.*

**bc:** *i mentioned previously the Japanese concept of space of the 'ma', {yes}, as it could be related to the idea of 'filled' space... i.e. it's not necessarily empty -- 'the void' is not (entirely) void. 'the vacuum' is not a (total) vacuum.*

**hh:** *it's not a vacuum, it's filled with energy. [37]*

**bc:** *and so, what you have said previously is that the aether is a structure within the vacuum. {yes} or it's a more fundamental...*

**hh:** *yes, it's a level of structure within what is perceived as the physical vacuum of space.*

**bc:** *and so on top of that you have particles, waves, atoms, light, and electromagnetism...*

**hh:** *yes...*

**bc:** *yet, it would be possible in a realm of multiple universes - if there were different dimensions or if there were different physics even, that the aether would be constant, in the way it connects the different realms... is that an accurate statement?*

**hh:** *yes.*

**bc:** *and so you could have any number of things that would be different [in each universe] but they could be mediated by this fundamental structure, [the aether], that contains them.*

**hh:** yes. and when you say the aether's relationship to religion, my understanding is that there was a time - and again it's really hard to generalize - but in Western science there was a time when science and religion were in agreement... and then they became further apart over issues like this - the existence of this energy that couldn't be measured and described... or proven to exist.

// end of the main interview session;  
// follow-up question on highway overpass...

**bc:** *okay, so what were you just saying, you were saying...*

**hh:** i said, i was having a hard time putting my ideas into words, expressing / articulating what was driving me to make this film, and what was the whole, underlying motivation for the research; and i realize that what's driving me to do this is the fact that this is really true, there is (scientific) truth to what Tesla discovered about this energy that exists all around us. and these 'new energy' experiments all over the world are evidence, over and over again, and everything that's being discovered from astrophysics to biophysics - they're finding evidence of this aetheric energy and they're starting to develop the instruments that can measure it. and it's been known about for thousands of years, it's just that in the past, in (western science of) the 20th century it was discarded as a notion, but, it's always been there.

**bc:** *discarded or denied?*

**hh:** well, both. denied and then discarded i guess.

**bc:** *so is this almost a religious issue?*

**hh:** it can be considered a religious issue because it functioned in the realm of religion, when religion and science were considered to be aspects of the same truth, until science went too far off into abstraction, and away from realities (such as existence of the aether) that couldn't be measured or proven, scientifically.

// final interview session...

**bc:** *so, Helen, what is the relationship between quantum-level stuff and the aether - is it the same as electromagnetism, in terms of what's going on?*

**hh:** i don't understand the question.

**bc:** *well you say electromagnetism is not the aether. are quantum events any closer to the aether? that approach... which seems to be a layer further down... [38]*

**hh:** my understanding is that there is an aspect of the electromagnetic wave -- that there are three components, and that it's possible to access the energy of the aether by separating two other components and then you're left with the one that's the element of the aether. i don't know if that's any closer to explaining it...

**bc:** *do you know what those two things are?*

**hh:** well, if you look at a wave - a sine tone - there's a positive phase (peak) and a negative phase (valley) and then there's a zero, ground state. [39] and it's through the ground state that the energy of the aether can be tapped into. i don't have a clearer understanding than that. that's how i understand it.

**bc:** *so my question is, when you get to something like experience of space and time in this universe or this experience, where it's built upon electromagnetic perception via the physiology of nervous systems...*

*is space and time even related to the aether, or does it breakdown at the aether? is it something that is defined atop the aether?*

**hh:** i think at some point it's going to be understood that space and time are the aether.

**bc:** *and so, that these may be ways of mediating the aeth... you know, this medium?*

**hh:** yes.

**bc:** *so it could change from place to place or universe to universe?*

**hh:** i think that's possible.

**bc:** *what were you saying about your work or how you approach this or how you got into this?*

**hh:** oh, i was saying that one of my greatest motivations for exploring this subject has been my own sensitivity to artificial electromagnetic fields such as those created by powerlines and microwaves, computers, etc. [40]

and i became completely convinced that there was something fundamentally wrong with our understanding of our relationship

to nature... because, in the science there didn't seem to be any consideration of the adverse effects of electromagnetic fields on living (human) organisms. [41]

and yet this was something that Tesla understood: he did a lot of experiments on himself using electricity and he had a lot of knowledge and understanding of both the adverse and healing qualities of electrical currents. [42] also, because the existing system of alternating current is based on what is essentially his high-voltage system, he wasn't satisfied with it... he believed there were much better ways to transmit and use energy.



**bc:** *so how does Tesla's wireless transmission of energy translate into acoustic principles? [43]*

**hh:** it's based on principles of resonance and vibration...

**bc:** *how is power transmitted through the ionosphere, based on what approach?*

**hh:** well, it's using the Earth-ionosphere cavity as a kind of circuit. [44]

**bc:** *and so the ground, something with the ground, in terms of frequency or resonance?*

**hh:** yes.

**bc:** *so what's he do with the ground?*

**hh:** Tesla discovered that the resonant frequency of the earth is 7.8 hertz, which is now known as the Schumann resonance

[45] -- so what he's doing is basically working with activating the resonant frequency of an object so that it vibrates sympathetically -- so he's vibrating the earth by sending pulses - very short pulses at 7.8 hertz - to set it in motion, and then creating harmonics off of that. [46]

this amplified the natural standing waves of the Earth-ionosphere cavity and set them in motion, and then he tapped into this resonant energy of the Earth.

**bc:** *is the ionosphere also being related to at 7.8 hertz, then?*

**hh:** the ionosphere has frequencies that are, in terms of musical principles, harmonics. [47]

**bc:** *so they're octaves above or something?*

**hh:** yes, that's right.

**bc:** *and that's where the movement starts?*

**hh:** yes. *{and that creates a type of circuit...}*

**bc:** *and so - wireless transmission of power... is it the transmission of power or is it the tapping into power?*

**hh:** it's really the tapping into...

**bc:** *so you don't have to go from transmitter to receiver - the transmitter is the receiver.*

**hh:** yes. (in the sense that both are grounded in the earth and when one oscillates, the other oscillates sympathetically since both are tuned to the same resonant frequency.)

**bc:** *because that's what i don't understand, i haven't understood that. i thought it was about moving power from point A to point B.*

*and instead you're saying it's about tapping (into) a difference in power that is then moving an electromagnetic engine, motor, or generator, right? so it is the harnessing of electromagnetic fields based on this (dynamic and destabilized) aetheric movement?... [48]*

**hh:** yes.

**bc:** *i mean... the aetheric isn't necessarily fields, it is like (an) acoustic structure or something, but it can be brought into a state of disequilibrium...*

**hh:** that's right.

**bc:** *and then, by doing that, it's like electrons flowing - that's*

*current, so it gets some kind of current moving... [49]*

**hh:** yes.

**bc:** *that's motive power.*

**hh:** it's essentially setting something in motion that exists naturally, and then tapping into it.

**bc:** *and so to apply that power in this world, you'd still put it into an engine by hooking it up to electromagnetic-wound... [generator or motor]*

**hh:** yes, and then it would be used to run machinery and that sort of thing, yes.

**bc:** *but the power being tapped, is it orders of magnitude different than the type of power gotten from an electrochemical battery then?*

**hh:** my understanding is that it is, and that it's absolutely limitless.

**bc:** *so in movies, is this the type of power that is being tapped? like when a sci-fi movie has plasma weapons - is that the same thing, or is it a different concept altogether? i mean is it quote unquote "The Force"?... [50]*

**hh:** i think it's... (laughs) - it could be. it's very possible. a lot of these concepts also exist in a lot of computer games and that sort of thing. and certain forms of literature.

**bc:** *like what?*

**hh:** gothic sort of stuff. if you look at the aether as a concept, it exists in a kind of gothic underworld, too.

[the end]

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– notes, part 3 –

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[35] Minneapolis Institute of Arts  
[www.artsmia.org](http://www.artsmia.org)

[36] Egyptian soul - Ka  
[en.wikipedia.org/wiki/egyptian\\_soul](http://en.wikipedia.org/wiki/egyptian_soul)

[37] vacuum energy  
[en.wikipedia.org/wiki/vacuum\\_energy](https://en.wikipedia.org/wiki/vacuum_energy)

zero-point energy  
[en.wikipedia.org/wiki/zero-point\\_energy](https://en.wikipedia.org/wiki/zero-point_energy)

[38] bc: this attempts to get at the issue of defining 'electricity' at the scale of the 'electron' for the flow of charge, versus incorporating the interactions of other charged fundamental particles at smaller scales (or across scales) which compose physical matter, which could call into question this model or conceptualization. e.g. string-theory and charge.

[39] sine wave  
[simple.wikipedia.org/wiki/sine\\_wave](https://simple.wikipedia.org/wiki/sine_wave)

Ground state  
[en.wikipedia.org/wiki/ground\\_state](https://en.wikipedia.org/wiki/ground_state)

[40] A Primer On Electromagnetic Sensitivity  
by Michael P. Milburn, PhD. Winter 1997  
[www.environmentalhealth.ca/w97primer.html](http://www.environmentalhealth.ca/w97primer.html)

*"It is ironic that the first reported case of electrical sensitivity was that of Nikola Tesla, the Croatian-born American electrical engineer who played a crucial role in the development of modern electronics."*

[41] Bioelectromagnetics  
[en.wikipedia.org/wiki/bioelectromagnetic](https://en.wikipedia.org/wiki/bioelectromagnetic)

[42] hh note: Tesla discovered certain high frequencies have medical applications and subsequently developed technologies for the sterilization of wounds, electro-surgery, and whole-body heating or 'diathermy'.

also, a standard international unit of measurement was named after Tesla to honour his discovery of the rotating magnetic field in 1882. The 'Tesla unit' is used in MRI (Magnetic Resonance Imaging) machines to measure the strength of the magnetic field. 1 Tesla = 10,000 gauss.

[43] Wireless energy transfer  
[en.wikipedia.org/wiki/wireless\\_energy\\_transfer](https://en.wikipedia.org/wiki/wireless_energy_transfer)

[44] The Earth-ionosphere cavity  
[people.bath.ac.uk/eesm/cavity.html](http://people.bath.ac.uk/eesm/cavity.html)

Atmospheric electricity

[en.wikipedia.org/wiki/Atmospheric\\_electricity#Earth-Ionosphere\\_cavity](https://en.wikipedia.org/wiki/Atmospheric_electricity#Earth-Ionosphere_cavity)

[45] Schumann resonance  
[en.wikipedia.org/wiki/schumann\\_resonance](https://en.wikipedia.org/wiki/schumann_resonance)

[46] Tesla also discovered that alpha brain wave frequencies (7-12 Hz) are in resonance with the 7.8 Hz frequency of the earth's magnetic field. i.e. brain wave frequencies in what is known as the 'apha region' are in phase, or resonance, with the earth - which could be why we are drawn to natural environments such as oceans and forests."

[47] Harmonic series  
[en.wikipedia.org/wiki/harmonic\\_series\\_\(music\)](https://en.wikipedia.org/wiki/harmonic_series_(music))

[48] in other words, electromagnetic lines-of-force are geometrically aligned with the movement of a destabilized aetheric vortice, which brings these elements into phase and shared resonance.

[49] this potential for harnessing aetheric movement in a universal medium to do work (i.e. power source) directly relates to the concepts of the 'aetheric wind' or 'aetheric ocean' - where fluid motion is captured by an aetheric windmill, paddle wheel or waterwheel constructed to interact with and engage this flow via alignment of electric and magnetic lines of force.

[50] Force (Star Wars)  
[en.wikipedia.org/wiki/the\\_Force\\_\(Star\\_Wars\)](https://en.wikipedia.org/wiki/the_Force_(Star_Wars))

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