

John Hagelin - BATGAP Interview #213

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{BATGAP theme music plays}

Rick: Welcome to Buddha at the Gas Pump. My name is Rick Archer and my guest today is Dr. John Hagelin. John Hagelin is a world-renowned quantum physicist, educator, author and leading proponent of peace. Dr. Hagelin has conducted pioneering research at CERN – the European center for particle physics and the Stanford Linear Accelerator Center.

He is responsible for the development of a highly successful grand unified field theory based on the Superstring, a theory which was featured in a cover story of *Discover Magazine*. In addition, Dr. Hagelin has spent much of the past quarter century leading a scientific investigation into the foundations of human consciousness.

He is one of the world's preeminent researchers on the effects of meditation on brain development, and the use of collective meditation to diffuse societal stress, and to reduce crime and social violence.

In recognition of his outstanding achievements, Dr. Hagelin was named winner of the prestigious Kilby Award, which recognizes scientists who have made "major contributions to society through their applied research in the fields of science and technology." The award recognized Dr. Hagelin as a – quote – "a scientist in the tradition of Einstein, Jeans, Bohr, and Eddington."

Dr. Hagelin was featured in the hit movies *What the Bleep Do We Know?* and *The Secret*, for his cutting edge research in physics, higher states of consciousness, and the peace promoting effects of large meditation groups.

Dr. Hagelin has appeared many times on *ABC's Nightline*, *NBC's Meet the Press*, *CNN's Larry King Live!* and *Inside Politics*, *CNBC's Hardball with Chris Matthews*, and others. He has also been regularly featured in the *Washington Post*, the *New York Times*, the *Wall Street Journal*, *USA Today*, and other major metropolitan newspapers.

John and I first met 42 years ago?

John: Well, I think yes, actually, in many moons – 514 moons to be precise.

Rick: Quick math! And that was in the infirmary in the Taft Prep School in Watertown, Connecticut.

John: That's right.

Rick: Where John was in a body cast and I was sleeping while teaching a course in Transcendental Meditation. After graduating from Taft, John received his A.B. summa cum laude from Dartmouth College in 1975, and his Ph.D. from Harvard University in 1981.

He is currently Director of the Institute of Science, Technology and Public Policy, Professor of physics at Maharishi University of Management, and President of the Global Union of Scientists for Peace. And also you are President of the David Lynch Foundation.

John: That's true.

Rick: And aren't you, sort of, administratively the head of the TM Organization in the US?

John: I am now, head of the organization that oversees the teaching of TM in the United States.

Rick: Okay, great. Most of you who listen to this show know that I learned TM in 1968 and haven't missed a meditation since.

John: Wonderful, good for you!

Rick: It was one night where it was questionable but...

John: You have me beat by a small margin. That's really good.

Rick: So, by my reckoning it's been over a quarter century since you first published a paper equating consciousness and the unified field. And I suspect that a lot has happened in the world of physics in that quarter century, and I also suspect - and I'll have you elaborate on this - that whereas you may have gone out on a limb in publishing that paper, you've been vindicated, to a great extent.

The physics community as a whole, you were an outlier, but they've been catching up, and also your own experience, I'm sure has deepened. So, comment on what has transpired in all this time in the field of physics to corroborate your theory. And in process, please define consciousness in the unified field.

John: Well, that's a lot before lunch.

Rick: It's just a snack.

John: Oh, good. Well first of all, definitely I was an outlier in those days, because back then if you were a physicist - and to some degree a medical scientist, certainly an engineer - you weren't really supposed to talk about consciousness, at all. Consciousness was almost a taboo. And it's because physicists are brought up under the assumption that we're studying physical reality, or "reality," as physicists call it, which are things you can see, touch, smell, taste, measure, and consciousness is something that can't be seen; it's the seer! And for that reason there's just never been a slot or word in science for - in physics anyway - for consciousness.

Since that time, consciousness has been emerging more and more as a subject, not only of dignified discussion, but of a *central* discussion. And there are conferences, scientific conferences, held every year, that are dedicated to moving forward the cutting-edge of understanding about consciousness - like towards the science of consciousness, in Tucson.

So it is now an area where some of the really great, innovative, most innovative neuroscientists, physicists, medical physicists, get together and really start to push this frontier forward. So still, I would have to say, consciousness is at the very least cutting-edge, and maybe even *beyond* the edge, of what a run-of-the-mill physical scientist is likely to talk about. They may understand today that it's important, but they probably don't know much about it.

Now of course, as you asked with your question about consciousness and the unified field, a lot has been learned – a *little bit* about consciousness, and a *lot* about the unified field. So now physics has to accept the near-fact - nearly established fact, certainly accepted by leaders in the field - that at the basis of the physical universe, far beneath the atom, even beneath the nucleus of the atom, there are deeper levels of reality that are increasingly unified, increasingly subtle, certainly more and more abstract, more holistic, more comprehensive, more powerful in a sense.

And that inward exploration of deeper and deeper levels of nature culminates in the discovery of unified field theory, in particular, Superstring Theory and M-Theory, which are two versions – one a little more sophisticated - of the same thing.

So now if you asked a leader in physics, certainly a theoretical physicist, 'Is there a universal field of intelligence at the basis of all forms and phenomena in the universe, at the basis of the four forces of nature and all the particles in which they act?' they would say, undoubtedly, 'Yes!'

There's still very interesting progress and discussions about the precise details and the mathematics of that ultimate unity and unified field, but the fact that there *is* such a unified *source* to the diversified universe is well accepted within the leadership of physics. That's new. Because when I wrote that article, *Is Consciousness the Unified Field?*, not only was consciousness completely novel, and it remains novel right now, the unified field was *also* completely novel at the time!

The leading theory of it was called 'Super Gravity' and that theory had great strength, but it certainly had its limitations and is ultimately replaced by Superstring Theory and by M-Theory. And with those far more successful theories, even more mind-blowing theories, honestly – what they tell us about the nature of reality – the unified field is very established. Not so established that every run-of-the-mill physicist or solid-state theorist, or fluid-dynamics ... that they would all know about it. They've heard of it but they wouldn't have much conviction or knowledge about it.

But certainly the theorists who work in the world of fundamental forces and elementary particles; the theorists, absolutely, experimentalists move a little more slowly, but they're

involved in a very important process of subjecting these theories to experimental tests, at CERN especially, today, in Geneva, at the so-called large “hadron collider”. And so far, there are certain *types* of evidence that support this fundamental unified field, but there’s very *key* types of evidence we’re still waiting for.

And hopefully when that machine goes back online in about a year, at twice the energy that it was running, we’ll have the energies required to produce the more massive particles. That will be the smoking gun for what’s called Super Symmetry, and on that basis Superstring Theory and M-Theory.

So unified field theory has come a long way since I wrote that paper, understanding of consciousness is *coming* along, but it is still be very nature an *utterly* abstract reality. Consciousness is the most abstract possible reality, the most abstract experience. In fact, it really almost defied what we normally *mean* by experience, which typically means there’s something, some substance, some structure, some quality, some flavor, some taste, associated with an object of experience. All of those specifics are transcended when consciousness is left on its own, in its pure state, Samadhi state.

And it’s that pure consciousness, that Samadhi, that’s the core of consciousness, the essence of what it fundamentally is. It’s the inner life, the inner light, the inner seer. And that’s still so abstract that even many of the scientists who are involved in exploring it - neuroscientists, even physicists - don’t quite all get it, but it’s moving in that direction.

Rick: As you’re speaking I’m reminded of what you say about “Virtual universes popping up and then bubbling down,” because that’s what happens in my mind when I hear something like that. Little questions start to come up: ‘Which one shall become manifest?!’

John: Yeah, there are many.

Rick: But a couple of things, so I guess when we say unified field, we’re talking about sort of the ultimate foundation of everything, you can’t go any deeper than that. This would be the sort of essential constituent of reality or the universe, if you want to call it that.

John: Right.

Rick: When we talk about consciousness, at least from the Vedic perspective, they say pretty much the same thing. And whereas it may be abstract from the perspective of someone who isn’t experiencing it, from the perspective of someone who is established as that, there’s nothing more concrete. In fact, it’s called the ‘rock-like *tatasta*’ in Sanskrit. So we have things kind of turned around...

John: An interesting rock, isn’t it? Because that rock, to quote Maharishi Mahesh Yogi, “Pure consciousness is *structured* in nonconcreteness.” I mean yes, we become familiar with it, it becomes familiar with itself, it begins to stand on its own as an unperturbable, immutable reality that witnesses all the activities of mind and speech and action.

But even then, it is in a sense abstract in that – you could say attributeless. It is devoid of relative specifics and yet it is concrete in the sense that we experience that to be the self, or a vantage point from which we see everything else.

So yes, it is the rock, it is the one unchangeable, immutable aspect of our nature. Everything else is changing, typically for the worst.

Rick: Now we say that it is nonconcrete and so on, but so is this (pointing to his hand), you know? It seems concrete, you look at my hand and it [seems] pretty solid, I wouldn't want you to stick a knife in it or anything. But you go deeper...

John: Well said.

Rick: ...And the deeper you go, the less there is there, to the point where there is no hand. I mean even at the molecular level there is no hand anymore, the atomic level there is no molecules, on the subatomic level there's no atoms, and down you go.

John: No, that's true.

Rick: And so, I don't know the analogy but it's something like: if an atom were the size of a pea or something, the next atom would be two football fields away. So we're 99.99999% empty space.

John: Yes, and even the very concept of the pea, the atom, that turns out to be wrong. That so called nucleus at the center of the atom is just *wave* of an abstract field, so called the Universal Proton Field, or basically 'field of pure potential proton-ness,' and just a fluctuation of that we call the proton.

So you try to get your handle on the elementary particles, they slip through your fingers. Actually, take it a step further, if you try to really say, "Okay, there are no particles, just abstract, all-pervading fields," you try to get a handle on those fields – like the proton field or the quark field, or the electron field, even the fields slip through your fingers because the concept of a classical field is too gross to describe what is a quantum field. Because a classical field, like the surface of a pond, has some shape, whether it's flat or whether it's wavy, whereas a quantum field can't exist in any specific shape at any instant; it has to exist in a quantum co-existence of superposition of all *possible* shapes. So you try to get a handle on the shape of the field, and even the field slips through your fingers.

All the concepts the intellect can come up with fail to grasp the remarkably subtle nature of reality. So you're quite right, if you look at the history of physics over the last century, it's been an effort to reach *deeply* to grasp the ultimate building blocks of the universe, which used to be molecules, then atoms, then nuclei. And you just keep on reaching it and it keeps on slipping through your fingers and ultimately you get to the superstring field, or unified field, which is abstract, unbounded, unchanging, immortal.

Rick: If there's all these levels of manifestation, more and more complex, diverse, concrete, if you will, levels of manifestation, the question is: for whom are they manifest?

Ramana Maharishi said that when the mind is destroyed - meaning, I guess, utterly transcended - the universe disappears, and of course we understand that in terms of transcending, where all sensory input ceases, but I think he also meant it in terms of waking experience; that you know, he was sort of apprehending the universe at a level prior to its manifestation, while in the waking state. Maharishi said, "Nothing ever happened," then in the next breath he went on acting as if something *had* happened. In fact, that was also a title of Papagi's biography, *Nothing Ever Happened*.

And you know the old saying, if a tree falls in the forest and there's no one there to hear it, does it make a sound? There are many people in the spiritual community who say there is no forest and no tree, unless there's someone there to perceive it. And yet, we have this consistency to things. If you go carve your initials in a tree and then come back 30 years later, somehow those initials were retained.

John: Not only that, but another person passing by will recognize the existence of those initials too. So there is that.

Rick: Yeah, so to me it doesn't hold much weight when people say, "The universe only manifests when it's perceived," because there seems to be a *larger* consistency to it. And I was wondering actually ...

John: I agree with that.

Rick: I don't even know, perhaps this ties in with something physicists have said, Von Newman said, "The wave function collapses in the consciousness of human beings," and I don't know if that relates to the point I was just making.

John: It does relate to the point. The wave function *does* collapse due to the observation of, in perhaps in the consciousness of human beings. I think most physicists, most scholars, most quantum mechanics would say that in the absence of human perceivers, there are other perceivers. And to some degree, the broader environment acts as a perceiver.

So that for example, when a photon travels from the sun to the earth and falls upon a clump of trees, even a single tree which has a thousand leaves, or a million leaves, that photon, which is a spread out wave function, almost like a flashlight coming in as a wave, that individual photon which is spread out in this quantum mechanical sense of a wave function, will collapse when it strikes one of the leaves. Because that leaf is going to stay green -it's capturing the energy, the light is able to transform, create energy, keep chlorophyll; the other leaves will turn brown.

Rick: So when you say collapses, it becomes a particle?

John: Yes, its position which was *unlocalized* will now get localized to within the individual molecule in chlorophyll, and so forth, where it's going to be transferred into energy, transformed into chemical energy.

So a collapse is taking place and somebody could argue, "...well wait a second, so one of those leaves stays healthy, the others turn brown, maybe that doesn't happen until an observer strolls by and glances at it."

Most physicists would say, "No, the existence of the leaf and the tree to which it is connected is enough to collapse the wave function from nonlocalized to localized, enough to collapse the particle from a wave to a particle." And it's hard to prove that because in the absence of any observer, who's to tell? But it becomes quite awkward to push that too far.

So it seems to be the case that the simplest way of thinking about it is that the environment itself, the macroscopic environment, if that leaf weren't a leaf but was just a molecule, floating in empty space, and the photon wave function went past it, would it absorb, or collapse, the particle or not? And the answer is probably, not. That molecule would both absorb and not absorb the particle, and that molecule would be in a quantum coexistence, basically, of green and brown – in a quantum coexistence, a superposition.

When that molecule is embedded in a broader environment, in a pool of water, or something that otherwise connects to the broader macroscopic world, that kind of quantum coexistence or quantum superposition doesn't seem to survive - it doesn't survive - and the collapse occurs. Does it take a human observer? Probably not.

Rick: *And*, if Big Bang theory is correct and it was billions of years before stars had formed and exploded, and formed heavy elements, and eventually there were life forms that could actually have some perceptual mechanism, so somehow all that evolution of the universe took place without any sentient observers as we would understand them.

John: You're right, and perhaps in my short response before I said something short. *Something* is collapsing the wave function, even if human consciousness isn't. That something is not a "thing" like a molecule, because you know, that molecule would be in a coexistence if it were allowed to be.

There is apparently some kind of universal level of mind, universal consciousness, who is observing when we're not. It's a question of, 'who is the first to observe something?' Does it happen to be a human observer? It could be! Does it happen to be the broader environment and the intelligence or consciousness at the basis of that? It typically is, can be.

So the reason, I guess, I would say that it's a universal intelligence that's doing that kind of collapse in the *absence* of a human observer is because we know the mechanics of the collapse of a wave function is nonlocal and acausal. That it is simultaneously everywhere, and no local real thing, object, molecule, leaf or tree, is capable of collapsing anything universally,

instantaneously. So there is an element in this equation, if it's not human consciousness, it's some kind of universal consciousness that's involved in that observing process and the choices that come out of that kind of observing process.

Rick: This leads us into something very interesting. You know the Upanishads say, "Tatvamasi," – that thou art, and "Sarvam Khalvidam Brahma" – Brahman is all there really is. So you know, we make concessions with relativity, with limited values - and we talk about human beings and trees, and chlorophyll and suns, and all of that - but again, in the same breath, you can almost boil it right back down to its fundamental reality, which is, "that alone is." And so, what's *really* going on here?

Maharishi talked a lot about self-referral or self-interacting nature of consciousness, and he spent *years* elaborating on how that self-interaction sequentially gives rise to manifestation, or at least apparent manifestation. So, riff on that a little bit.

John: Well it's interesting, because everything in a discussion sort of depends upon what perspective you're taking, in terms of what level of consciousness we're addressing it from. And ultimately, in waking consciousness, our experience of life is very localized and very individualized, and expression like 'thou art that,' 'I am that,' is a little bit hard to grasp.

In samadhi, transcendental consciousness, the mind isn't functional; just awareness alone exists. And awareness therefore isn't necessarily having the thought, 'I am universal, I am unbounded, I am that, I am all that there is,' but it's having the experience of it, whether it's reflecting on the experience or not. It typically will reflect on the experience *after* the fact, when the intellect is able to look back and recall what just happened. That's a different state of consciousness.

In a more established, permanent samadhi, what Maharishi calls "cosmic consciousness," and almost every tradition has a name for it too, you have the stabilization of inner unboundedness, inner universality, sort of distant from, in a sense, and witness to all the activities of mind, body, speaking, action. So that's a different state, in which case you could say, the mind could say, "I am universal, I am immortal, I am that," on the inside, and on the outside I don't seem to be that. I seem to be very local, very small, I'm aging, you know, I have good days, I have bad hair days.

But in the ultimate state of enlightenment described in the Vedic literature, for example, the Yoga Sutras of Patangali, the Upanishads certainly, from Maharishi's description of higher states of consciousness, we'll call it unity consciousness or Brahman consciousness, in there, what has happened is that from the state of absolute abstraction of the unbounded nature of the Self in samadhi emerging into activity, and then submerging back into the silence and emerging into activity, you get more familiar with the fine mechanics through which one's abstract consciousness manifests into precipitated thoughts.

And the more familiar – the physicists could go through the same routine using mathematics, in a rational, intellectual way - experientially get more familiar with the mechanics of how thought

emerges, how the Self, which is unified and indivisible starts to divide itself to a knower and a known. And the moment you have this Self observing the Self, this state of Self awareness, you already have, in a sense, the beginnings of the emergence of the diversity of mind, an intellect that can discriminate Self from Self, in this case a knower from known.

So the whole diversity of intellect and mind emerge, but at the same time *see* it for its reality. But wait, the Self, the knower is me, and the known is also me. The process of knowing is me, it's all consciousness. And going through that rigmarole many, many times, it starts to dawn on you that all of this world of thought, and ultimately this world of perception, this whole universe, is just precipitated states of consciousness. And there you could say, "I am that," and "Thou art that," and "All of us is that," and "That alone is."

So it's interesting to reflect on that, we could if you want, in terms of cosmology and the Big Bang and what have you.

Rick: That's what I was thinking, because leaving aside human experience of all this, I always got the impression that Maharishi was talking about the manifestation of the universe itself and, you know, SCI* Lesson 8, when existence becomes conscious, then consciousness becomes intelligence and assumes the role of creative intelligence.

And so there's this self-interacting dynamic that in his cosmology, or philosophical understanding, presumably experiential understanding, actually is *responsible* for manifestation. And I've heard you describe it, what was it called... spontaneous sequential symmetry breaking ... where because of the innate or inherent nature of pure existence to be self-referral, to be aware of itself, that sets up this whole dynamic which results in all the diversity that we see.

John: Yeah, so the Big Bang theory, which we'll update in a minute to what is called "Inflationary Cosmology," you start with a bubble universe, which is infinitesimally small. Where it comes from, we've only started to understand now with Superstring theory and M-theory, but you start with a tiny bubble universe. We don't know where it came from but due to its initial *momentum* of expansion, it expands and even continues to expand until this day. And as that bubble universe expands, all the incredible energy – heat within it – simply gets diluted, and diluted and diluted, and the universe becomes cooler and cooler and cooler, from what was an astronomically inconceivably high temperature in the beginning, to about 2.7 degrees above absolute zero today. Of course the sun is hotter than that, the earth is hotter than that, but on average, the temperature of empty space is 2.7 degrees above absolute zero.

In the process of cooling, you could say the universe freezes in stages, and the laws of nature, actually kind of freeze from a, you could say, gaseous phase to a liquid phase to a solid phase. Not *literally* gas liquid and solid, but what I'm saying is the appearance, the function, the structure of the laws of nature go through these types of phases. Phase transitions in which we end up ... we start with a universe that is unified, where all the particles and all the forces are one, basically only one unified field, but the appearance of that one starts to become fragmented into separate gravity, and strong force, and electromagnetism, and radioactivity.

And the particles start to fragment into certain types of electrons, neutrinos and quarks and everything.

Rick: And that's because of cooling that it happens, at that level?

John: Cooling, yes.

Rick: Hmm, I didn't realize it had anything to do with temperature. Or maybe it just correlates – there's a cooling going on but there's also this sort of ...

John: The cooling *causes* the transition, just like when you cool steam, it will become water, and that cool water will become ice. Just like that, the temperature causes it. And that's still correct, but what the inflationary cosmology and string theory, unified field theory sheds light on is, how did this get started? And, did it actually ever happen?

So firstly, how it gets started? It gets started because you have a universal field, all-pervading field, which in the Vedic sciences [is] ultimately the field of universal consciousness. In the physical science it's just some field of pure existence, maybe pure intelligence, not necessarily wakefulness, because physicists don't talk about wakefulness, but intelligence, yes. Intelligence because, that is the one field that is the origin of all the laws of nature that govern the universe, and uphold order throughout the universe, and because it's the source of all order in the universe, it's what makes the universe knowable, intelligible, it, in a sense, is a very concentrated field of intelligence.

But *quantum* mechanics tells us something that we already know from the consciousness's perspective, that this ocean of pure existence, or at best – pure intelligence, is a lively ocean, it's a lively field. It is not static, it's not dead, it's not inert, because quantum mechanics is about more and more dynamism at deeper and deeper levels. That's the uncertainty principle. The more you can find a particle, you take its wave function and you *squeeze* it with a pair of pliers, in a sense localizing the electron by squeezing its wave function, that wave function now becomes extremely squeezed and very sharp, you could say, and that means there is more energy in that wave function. That's kind of the org to the uncertainty principle, which says, the deeper you go, the smaller you get, the more dynamic nature becomes.

So we're talking about quantum now – quantum field theory – and when you add 'quantum' to this discussion of the universal field, you know that field is fundamentally dynamic, especially if you look at it either on a small scale, or through a high-speed camera. High-speed means, again, you're getting to very small time scales, small distance scales, and at those small time scales, we know this unified field is not static but it's fluctuating *wildly*, wildly.

So this universal ocean is fundamentally dynamic. So dynamic that it's actually in a state of continuous eruption, boiling – it's called 'the boiling of the unified field.'

Rick: And when we say it's fluctuating wildly, we're really talking about it fluctuating within itself, because at that level there's nothing *other* than that, right?

John: It's *all* that there is.

Rick: So somehow, it, within itself, is just really going at it.

John: Broiling and boiling, sometimes called 'space-time foam.' But every once in a while, this universal field essentially effervesces bubbles, you could say, and these bubbles either take the form of superstrings, which means that they correspond to bubbling electrons and quarks, and things like that, but, you can actually bubble whole baby universes, little baby universes. And most of those baby universes are duds – they just pop! - and they're gone in the briefest of instants. But given the right start, the right direction, some of those bubbles will undergo what is called inflation – exponential expansion, and in a very short instant of time will grow by hundreds of powers of ten, in magnitude.

So these bubbles basically, they emerge with this initial momentum, this *enormous* momentum of expansion. We are the occupants of one such bubble universe that has grown big. They sprout galaxies and each galaxy with hundreds of billions of suns. They sprout *billions* of galaxies and maybe even an infinite number of galaxies, as the evidence currently suggests.

But any case, now we know where the Big Bang comes from. It's this process of spontaneous percolation of universes, like ginger ale percolates effervescent bubbles. Some of those universes grow, others don't.

Rick: Do you have any idea what the ration is, of duds to takers?

John: Not a *good* idea; we could do a guesstimate. I don't know how small, I'd have to really sit down and figure that out, but a small fraction will be takers. But you have this infinite ocean of bubbling effervescent bubbles, and you'll get plenty - in fact, what's called 'an uncountable infinity' of actual universes - percolating out of this.

Rick: You've thrown in the word 'intelligence' a few times, and whenever you did I kept thinking, "Are physicists really comfortable with that word?" Because, I mean, it sounds a lot like intelligent design which I actually looked up and it said, "The theory that life or the universe cannot have arisen by chance, and was designed or created by some intelligent entity." Now there the word 'entity' manages to poke a hole ...

John: Yeah, that's an interesting area of discussion I'd be happy to go into, but I mean intelligence not necessarily – at this point ...

Rick: Entity as localized, vocalized, not as a 'guy with a beard,' but ...

John: It implies sentient also, which means consciousness. Now, I'm talking, at least up to this point, in this particular question about what a physicist would think, and a physicist would be comfortable with the word 'intelligence' provided you don't *mean* conscious.

Rick: Could you be intelligent without being conscious?

John: Because intelligence, [from] a mathematician's perspective ... does it contain orderly information or is it just a random bunch of garbage?

Rick: So a rock can, a crystal let's say contains orderly information ...

John: A crystal or a rock less?

Rick: But we wouldn't say it was conscious just because it is orderly?

John: Correct. Okay. Now if you ask a physicist whether it's consciousness he'd probably say, "Well, I don't know." If he were honest he'd say, "I've never thought about that." He shouldn't say, no it's not, because there's no evidence from a physicist to say there is or isn't. So I'm using the word 'intelligence.'

But when you think about it, you've got an ocean of intelligence that is dynamic, so it's not flat intelligence; dynamic intelligence. And it's self-directing, *self-aware* to the extent that it interacts directly with itself, and it's that dynamical self-interaction that allows it to create stuff. So for example, light is an example of a field that is absolutely unaware of itself.

Rick: How so?

John: Take two flashlight beams and they'll pass right through each other – you can do this experiment at home - and they will have no interaction, no awareness at all of each others' presence.

Rick: Aha! Then why, in *Ghostbusters*, when they crossed the beams did all hell break loose and it prompted Bill Murray to say, "This chick is toast"?

John: Because they weren't using light.

Rick: Aaaaah.

John: They were using other types of ... and gluons also *are* self-aware, to a certain extent.

Rick: So maybe those were gluon beams.

John: Yes. So, but anyway, the unified field, it's a good thing it interacts with itself because as you know, there's nothing else down there for it to interact with, and it's that self-interaction that causes universes to bubble forth.

Now the big question –we're stepping back, and we'll get back to more questions, but – does this actually happen - I mean this "bubbling of the universes" – and then all of a sudden we find ourselves born into one of them? And then back to intelligent design, how many of these universes are inhabitable?

Rick: Let me throw one other thing in the soup here, because it'll be part of this answer. I was talking to our friend Menas Kafatos and he was saying that some people say, some physicists perhaps,

that there's so many infinite number of attempted universes that the fact that we happen to be in one that seems to have worked out, is very much like the infinite number of monkeys hitting typewriters and producing Shakespeare. We're just in the Shakespeare universe but it doesn't say anything about intelligence, whatsoever ... that it's all chance.

John: Right, well ... that's a really good question. I love that question, we'll come back to it in a minute. I just wanted to say that this idea of the universe percolating universes, and the fact that we happen to be the inhabitants of one such universe, it sounds like there's a lot happening there!

And from our experience, there is a lot happening there, but I think from the ultimate experience, people who are involved with what's called 'quantum cosmology' or 'quantum gravity,' they would have to say, "Well actually, you have to observe this whole thing from a quantum mechanical perspective. And from a quantum mechanical perspective you've got this unified field, this ocean of intelligence in a state of fluctuation, and creating virtual universes, but it's all virtual! It's all virtual, and that you ultimately have this simultaneous coexistence of an infinite number of virtual universes in which we virtually live.

But it really is all the stuff of dreams, you could say. This is all just really ... and quantum mechanics is very much the world of mind. We have to come back to that, it's an important statement. Quantum mechanics has really nothing to do with matter, not directly. It makes predictions about matter, but it really has to do with the world of mind.

So when you look at this bubbling of universes from its ultimate quantum, quantum cosmology perspective, these universes that are bubbling up are really all conceptual realities, and the whole thing is one big, huge dream.

Rick: In whose mind?

John: In the mind of this universal intelligence, universal consciousness. And if you look at the Vedic literature ...

Rick: Which is a concept that you and I are comfortable with, but maybe not your run-of-the-mill physicist.

John: No, but run-of-the-mill physicists don't tend to be working in a world of quantum cosmology, you know, it really takes a certain type.

Rick: So if you took the whole club of quantum cosmologists, they would be pretty cool with what we're saying right now?

John: I think so, mostly, yes.

Rick: Okay.

John: They'd be nervous to be caught on camera.

Rick: Okay guys, you're off camera. Don't worry about it.

John: So intelligent design, just to play with it a little bit, as Menas made the point that one of the challenges of Superstring theory today is that it gives rise to such a vast, almost limitless realm of possibilities of the nature of our universe.

Bubbling out of this ocean of intelligence, the possibilities are really so endless that most of those bubble universes, which we could have been born into, wouldn't support anything *like* life, and that's why we're not born into them. But there are quite a few, maybe very small in comparison to the full number of universes that perhaps are bubbling forth, a relative handful will be suitable for life. And naturally, we're holding this discussion today in one such universe.

And somebody might say - I think Menas feels this way, everybody feels this way to some degree – what a wasteful approach to creation! You have to produce ten to the one-hundredth universes to get one that would support habitable life. And not just support habitable life, one universe that may survive, like ours did, for billions of years, others may be born and gone in an instant.

So it seems like a very inefficient process and not one with a great deal of intelligence, not a whole lot of intelligence or purposefulness in it because it's so random. It does, as string theory, seem to have that element, but all of those universes are filled with intelligence, all those universes are full of order, all of those universes are brilliant, fascinating ones. And yeah, biological life would only exist, as we know it anyway, in a very relative handful. What are we wasting anyway? I mean, these are all free. It's the nature of this unified [field], just by its very *existence* to percolate universes, so we're not wasting anything.

Rick: Yeah, seems to be the way God operates. I mean, only one sperm reaches the egg, you know?

John: Right, that's a really very good analogy, and what's the intelligent design in that? Well, I don't know.

Rick: Survival of the fittest, and also, I mean, we're kind of thinking anthropomorphically I guess, here. You know, we're defining life in terms of biological and universes in terms of livable, and so on, but there are many forms of life, perhaps other than biological, which we may talk about before we're finished here. And if we're talking about intelligence as being ubiquitous, omnipresent, then the sun is alive, the moon is alive. There is, on some level, everything is as alive as everything else.

John: Well that's right, on some level everything is alive as everything else, because you can take the substance of the sun or the substance of the moon, you can trace it back to its core essence.

Rick: And there you have pure intelligence

John: Pure intelligence, the unified field. So then becomes the question of how much of that life, how much of the core intelligence, how much core dynamism, how much life is expressed in a rock, or in a moon, or in a sun, or in Rick Archer?

Rick: Not much.

John: And certainly in comparison to a rock, there's a huge amount of vitality and intelligence, and flexibility and adaptability expressed in human life, we are just a better conduit. The human nervous system is a wonderful pipeline that takes the dynamism and order and intelligence at the molecular - the level of DNA, its sub-DNA that lies deep within, even all the way to the unified field – and funnels that out into the macroscopic world of the human senses, human mind, human speech. Rocks don't have the kind of nervous system that will allow you to take that core life that's at the *basis* of them and bring it out onto the surface in any meaningful way.

I suspect though, that the sun is very much alive – what *type* of life? Can we really comprehend it? – you know, it's a very, very different type of life.

Rick: Yeah, but so many ancient cultures revere the sun as a great being, you know, surya, and the moon. And we speak of Gaia, the earth, as being a conscious entity and we're just little fleas on it.

John: I believe it is. Remember the world, as you said, it's really all consciousness, means all unified field, expressed in such a huge diversity of forms, from suns to people. And so it is all consciousness, and I think pretty much, all conscious to varying degrees. I guess it's ... how that manifests that consciousness? Is there a sense of 'I'? Is there what we would normally consider to be emotion? That's difficult to comprehend but to, I'm sure, some form or other, yes.

Rick: But it brings up an interesting point, which is that if we think of all material things as reflectors of consciousness and having the ability to express consciousness to differing degrees. Then, when we get to the human level we have the exciting possibility of the human nervous system as a scientific instrument for deep exploration. A single *cell* in our body is vastly more complex than the hadron collider.

John: Probably so.

Rick: What to say of all the trillions of cells put together in the way they are? And I've heard you talk about the kind of correlation between the nervous system and the 192 something or others, and how that correlates with something in physics, and how we seem to be tailor-made for founding the full range of creation.

John: That's a really interesting question, and you might even say it could lead you back to a reconsideration of intelligent design. But it is as though this particular species, the human species, has the capability for enlightenment, which means has the ability for direct fathoming, and experiencing, and stabilizing universal consciousness, and reverberating in the structure of universal consciousness.

Universal consciousness *does* have a structure, and it's available in spiritual traditions, it's certainly available in the structure of the Vedic tradition, in the Rig Veda, it's available from modern science now [in] exploring the mathematics, the mathematical structure and dynamics of the unified field. And those structures really look pretty much the same.

And that structure, as you said, seems to mirrored in various ways throughout the human physiology and human nervous system, where for example, as you mentioned, there are 192 gateways to consciousness, or 192 fundamental nerve endings that go from the subtle nervous system out to the various extremes, function – operating the limbs and organs and senses. So that 192 does correspond, numerically at least, to the number of reverberant frequencies in the vibrational spectrum or structure of the unified field, as seen in the superstring.

And that's one of many remarkable coincidences which suggest that, hey, it's almost as though the brain is set up, designed to resonate in that structure of totality, to experience the field of unity as the meditative traditions of the world, and enlightened traditions of the world have emphasized.

The question comes up, "Well, if so, how? Why? How did that come to be?" And somebody might say, "Well, it's meant to be, it's intelligent design, and the universe is set up to lead to the evolution and emergence of species like ours, that have that ability."

Or you could take a more mundane, Darwinistic approach to it, perhaps, and say that, "Well, having more intelligence, having more awareness, having more strength of consciousness is evolutionarily advantageous. That's when we begin to really distinguish ourselves as a species. And to maximize that intelligence and alertness, we should become a more and more pure conduit for that ocean of intelligence and alertness within, and it may be natural that our brains would mirror that."

Another perspective on the same thing, twist on the same thing is, it's been a long time since we've lived in an enlightened society, and it's been a long time –you can look back in history, you'll find that there may be good evidence of past golden ages where enlightenment was far more commonplace, and when yoga and transcending were part of education, but it's been a long time since enlightenment was widespread – but when periods of enlightenment come, during those periods where many people become enlightened, you're really exercising the capability of the human brain to *live* enlightenment, *live* unity. And during those periods, we're really ... survival of the fittest is going to be strongly supportive of those individuals who can *be* enlightened, because they're the ones that accomplish huge things. They're the ones that change society, they're the ones that are perhaps successful biologically.

Now it's been a long time since we've exercised our transcending genes, so to speak - we've exercised the ability to transcend. Now, these days, perhaps more than ever, people are opening up to techniques that will allow transcending, TM [is] a certain one, and we're starting to exercise those genes again. But I would have to say, as a species, we're a little rusty. The fact it takes *years* of regular practice to work out the kinks, and the fact that experiences are - with

the siddhis, the supernormal abilities - are rusty, at best; coming along but rusty, suggests that it's just in time that this revival of awakening, of enlightenment seems to be coming in the world. Because probably before too much longer, we would breed those capabilities out in favor of something else, like bigger muscles.

So many generations of not utilizing that ability to transcend to evolutionary advantage, it may basically go away, especially now with genetic engineering. The possibility of human genetic engineering, which is taking place here and there, even though in most cases it's against the law for government to pay for it; it's probably taking place not just within the US borders, but other borders.

Very, very easy in principle to monkey with the human genome to the point where a very subtle, a very holistic ability – the ability to transcend – could simply be bred out of us.

Rick: Some are saying that might have advantages in terms of like, growing your own new liver, you know, or something like that, but that's a whole realm that we probably don't have time to get into.

Apropos to what you were saying, I was watching a NOVA show last night and the guy was saying, "Hey, sharks have been around for 400 million years and yet their brains are still the size of peas. Why haven't those brains grown?" And his conclusion was: well, sharks don't need them to be sharks; that's all you need

John: They need teeth.

Rick: Yeah, they probably wouldn't do so well with a human sized brain. 'Why am I stuck in this body?' So, but we obviously have a different function than a shark.

John: A different path.

Rick: A different path, yeah, so our brain has been evolving.

John: That's right.

Rick: And who knows where it could go? I once asked Maharishi a question about omniscience and he said, "...not for human nervous system," he said, "You have to have a celestial nervous system for that," which would help if we could touch on that before we finish here.

I was listening to a talk by a guy named Robert Lanza, do you know who he is?

John: Don't think so.

Rick: Anyway, he was talking about – I'm sure you're familiar with this point – that there are at least 200 different variables that had been slightly different, life as we know it, or even the entire universe couldn't have arisen. He called this biocentrism. This kind of comes back to our whole

theme about intelligence and how the universe seems anything but coincidental or accidental. You know, there are *any* number of things could have been off by just *that* much ...

John: Our universe anyway.

Rick: Yeah, so maybe that's our whole thing about all the duds and this one got all 200 just right.

John: Mm-hmm. That's a perspective that's emerging from Superstring theory and M-theory, and I don't find it hugely attractive that there could be, you know, in a sense, such an abundance of dud-universes – dud in terms of biological life - because it doesn't seem that efficient. But I, nor anybody else at the moment, has anything better to offer.

Superstring theory, you know, works. Actually, it's a successful quantum theory of gravity that you can calculate with. You can ask and answer: what's going on inside a black hole? You can ask and answer: what's going on at the time of the Big Bang? You can address questions we've never been able to address before, you can explain the emergence of the fundamental forces of nature and the particles. You know, it's a tremendous success, even though in some respects it's a developing area, for sure.

So if we believe in gravity, and if we believe in the transistor - in quantum mechanics - and they're both true, they both have to be consistent with each other, that requires what's called a quantum theory of gravity, and after 70 years of trying, that points us in the direction of Superstring theory. And a couple of alternatives that you could say are twists on it, [the] so-called 'loop gravity theory,' which have something to offer, but I don't think as much to offer as Superstring theory.

But what those theories tell us as you just said, is the ... right now an embarrassment of riches, an abundance of possible universes that could all be *very* different from each other, and very few of those would have all those different values required for the existence, either of a universe that lives very long or for biological life. So that may be the answer to that: there's just so many universes that you're bound to get one right.

Rick: One more thing just to throw in here and I don't know whether as a physicist you have any comments, but boy, life sure does seem to be ubiquitous. I mean, you go to the depths of the Mariana's Trench, you go to the ice core in Antarctica, you go to the most inhospitable places, you know, boiling volcanic vents, life is there. And if the laws of nature which govern our world are universal, one could assume that there's going to be life everywhere throughout the universe.

John: Throughout this universe? Everywhere. Hard to imagine, for example, that the waters beneath the crusty, icy surface of some of the moons of Jupiter and Saturn, where you go deeper down and the water starts getting warmer and warmer, be hard to imagine that they would not contain not only some form of life, but probably DNA-based life, because DNA is relatively easy to form. Once you form one of them, the fact that it's self-replicating, it soon takes over.

And so you're right, life seems to be very robust. But still, I'd have to say, despite its newfound robustness as far as science is concerned, it's still going to be a small minority of universes that are going to support it. Because you need a universe that's going to have atoms, you need a universe that's going to have particles that stick together and form water, and nuclei protons. So it turns out that those are relatively rare among all these universes.

Rick: Yeah, but if you have infinite energy and infinite time, then you're gonna create a lot of them.

John: Yep.

Rick: There are a lot of sort of spiritual concepts that are bandied about; one of them is that everything is one. And I often get flack from people because I'm always talking about levels, and a lot of times people kind of lock into an absolute view. And in my opinion they don't give justice to the relative world, which you know, admittedly can be boiled down to nothingness in any moment you want to do it, but try running in front of a bus and boiling it down to nothingness then. So there's that, and we've kind of covered that.

But another one is time, and you know, Eckhart Tolle most famously popularized the notion of 'living in the now,' and Maharishi said that, "Time is a concept that man uses to measure eternity," meaning it's only conceptual, and yet physics seems to give it a lot more substantiality than that. We talk about space-time, Einstein talked about relativistic time dilation, in fact, the GPS in our car works by virtue of relativistic time dilation.

One more thing to throw in, I interviewed this woman named Anita Moorjani who had a profound near-death experience, and one of the things she experienced then was that she felt that time isn't linear; it's now. And that if we have past lives, which she actually remembered having, we're actually living them now but just in sort of another dimension of time, or something; but they're actually is, technically speaking, no past, no future; it's all just now. But again, back to relativistic time dilation – twin goes out, approaches the speed of light, comes back, he's much younger than his other twin. So go on that for a bit ... power of now.

John: Yes, Einstein put it out that time is very much a matter of perspective. It really is something that is highly observer dependant. And for example, different observers in relative states of motion will experience time very differently, and space very differently. Length –that's relativistic, time dilation – relativistic, length contraction...

If you happen to be able to move at the speed of light, which certain particles can only move at the speed of light, like photons, and a little earlier in the history of our universe, all particles could move *only* at the speed of light because no particles had mass till relatively late in the history of the universe.

So what is the experience of the universe like for somebody who is traveling at the speed of light? For them there is no experience of time. For example, we could do this experiment if we had the money, we could take a rocket ship, start accelerating toward the Andromeda Galaxy.

And with that one G of acceleration – that’s not all that much – could probably take 2 or 3 Gs – that one G of acceleration in about a year, you’ll be very close to the speed of light - takes a while to get there.

Rick: You mean a constant one G?

John: A constant one G, faster and faster and faster faster ...keep your rockets blazing, and that’s why it’s expensive.

Rick: Except it gets heavier as you get closer to the speed of light, right?

John: Well, in a manner of speaking you might say that, right. But what you could say is this: yes, your ability to accelerate further becomes tougher and tougher as you approach the speed of light, because even if you keep your rockets blazing, you’re never going to pass the speed of light, but in some respects you don’t have to.

Because the Andromeda Galaxy is 2 million light years away, it’s the only thing in the sky you can see - it’s beautiful this time of year, it’s right overhead – the only thing you can see that’s not in our own galaxy, with our naked eye, is our sister galaxy, the Andromeda Galaxy that’s 2 million light years away. So you might think that it’s going to take – even if you’re very close to the speed of light – 2 million years to get there, or more. And for somebody watching you from home, waiting for you to get there, yeah, it’s going to take 2 million years for you get there. But for the observer in the rocket ship, as you start approaching the speed of light, by the time you’ve been out there for a year or so, you’re very close to the speed of light. And because of relativistic length contraction, the distance to your target, the Andromeda Galaxy, the length between you and your target starts to shrink and your target looms right in your face.

By the time you actually travel at the speed of light or even just really close to it, you’re there instantly. And if you’re a photon, you were going at the speed of light from the very beginning; you don’t have to accelerate in a rocket ship. You’re already going at the speed of light, which means if you’re a photon, you’re already there.

Rick: So from a photon’s perspective, so to speak, all the light we see from the stars got here instantaneously, if you’re riding on a photon. But for us obviously, sitting here, it’s taking millions and billions of years.

John: That’s right. So this is an example of Einstein’s special relativity for massless particles, and we were all massless particles once - there is simply no time. So time becomes a very observer dependent phenomenon. So how time is experienced, even for a physicist, depends very much upon one’s state of motion. So there’s something very ephemeral about time.

And now when you go to quantum cosmology and you look at the wave function of the whole universe, and how the universe emerges and submerges, from that perspective you come back to a Vedantic point of view to where nothing happens. Nothing happens. You have a simultaneity, if you wish. Well it’s not that the birth of the universe, the course of the universe,

and the end of the universe are all in a sense at the same time; there simply is no time. It is all just one.

But the mathematician can look at that structure, the wave function of the universe, and see how a variable could arise, in your mind, that would behave like time, and that would give you a perspective from which you could take the simultaneity of everything and unpack it into a sequence of events. So you can see that from a mathematical perspective, from quantum cosmology and quantum gravity, the possibility of the emergence of a concept of time. How we as humans latch on to that and really all *live* it, and all have a consensus on it, is a very interesting thing, it's not very well understood.

Rick: So we're like filters in a way, which attribute levels to something which is really all one, which attribute linearity to something which is all now. We kind of like ... the way a prism breaks up the light into colors, we're like a filter which kind of gives all this diversity some apparent substance.

John: Yeah, well apparently yes and somehow it's a concept that we've all learned and we all share. But with a completely different style of education, for example, could it be completely different? Could it be completely otherwise? Would we perhaps not have an experience like time?

And here is a related thing from Superstring theory that provides some support for these discussions, it's called 'String Duality.' But it turns out that this way of viewing ourselves, as 3-dimensional creatures living in 4-dimensional space – 3 of space plus time – is absolutely equivalent to, the physics of it, everything about it is absolutely equivalent to and indistinguishable from a completely different point of view, in which we are 2-dimensional creatures living on a certain 2-dimensional geometry; a very specific 2-dimensional geometry that's topologically not trivial, multi-connected, in a universe without gravity, but with a different set of particles and forces called a '4-dimensional maximally supersymmetric Yang-Mills theory.'

And basically, what I'm saying is that there are two ways of looking at what is going on right now – at least one in which we are 3-dimensional creatures moving around in a 4-dimensional world with gravity - *identical* to it, with respect to every possible prediction and every possible detail would be somebody else looking at us and saying, "No, no, no, no. You are 2-dimensional creatures swimming on the surface of a 2-dimensional surface, in a world without gravity at asymptotically high temperatures."

And so why is it, since they're both absolutely equivalent, that nobody around us thinks of us as 2-dimensional creatures swimming around on this 2-dimensional surface, at asymptotically high temperatures, when we are as much that as we are this? Why do we latch into the 3-d concept and not the 2-d concept of ourselves? Would a different educational system have caused us all, collectively, to think we were 2-dimensional creatures living on a multiply connected, 2-dimensional space, in a world without gravity? Maybe. Why is it we favor one over the other?

Rick: Brings up an interesting question and I don't know if this question actually relates, but it's a good segue. I heard you say in something I was listening to, you were talking about hidden sector matter. And you were talking about subtle bodies, and you were saying that subtle bodies would be cold one degree above absolute zero, and correct me if I'm getting this wrong. It kind of reminded me of *The Sixth Sense*, you know, [that] M. Night Shyamalan movie, when they felt cold if some dead person walked by.

John: Interesting.

Rick: Maybe those are the 2-dimensional creatures that see us as very hot, by comparison. But I have friends - you do too, whether you know it or not, and you've talked to some - who *routinely* see subtle beings, as regularly as you and I see people at the mall. I mean, they're all over the place. By subtle beings we mean angels, or whatever names traditionally they have been called. And these are very sane, level-headed, down-to-earth, practical, productive people who just happen to have that sort of refined perception, that they see all these subtle realms which are teeming with life, but not life that we can perceive with our ordinary gross senses.

John: Right, exactly.

Rick: So, let's talk about that a little bit. I don't know if it relates to what you were just saying, about the 2-dimensional thing..?

John: Well, not so directly, but it's certainly a very interesting and I think scientifically sound concept. And you know, I don't see angles; I certainly feel the presence sometimes of entities benign, fortunately, typically. The nasty ones don't seem to be drawn to me very strongly... bored with me or whatever, because I don't do anything fun, *but* anyone who has for a variety of reasons, and it can happen for a variety of reasons, finds themselves projected outside their physical body, and are seeing and perceiving and functioning from a different place, where you could literally turn around and observe your physical body sitting there, can't deny the existence of levels of our human, say subtle physiology, that are independent of the gross physical physiology, connected, to a degree, but more or less independent.

So I must say from a physics perspective, that has been very difficult to accept for physicists, because what we know about the universe, what most physicists know about the universe, is that it's comprised of 4 forces – light, gravity, etcetera – it's comprised of known particles – like quarks and leptons, electrons, protons and neutrons – and we pretty much know nothing else. Whatever this subtle body is made of ...

Rick: Some kind of subtle matter.

John: Some kind of subtle matter, you can almost rule it out, from the standpoint of physics and experiments that have been done. But there's a loophole, and the loophole is, there is a certain type of matter predicted by Superstring theory, never predicted before Superstring theory, to exist, and it's called 'Hidden Sector matter'. You're starting to hear reference to it as 'shadow

reference matter' in the scientific literature, but it is a whole other category of matter with its own set of forces and its own set of particles of a very different kind, and that exists almost independently of us, fills this room - this is what has been thought – only interacting with us by virtue of whatever gravitational mass it might have, and due to its mass, any gravitational influence.

But the gravitational influence between things of ordinary size, between you and me even at this proximity, is essentially zero, negligible, you'd never measure it.

Rick: You have a little bit more gravity than I do.

John: Twice the gravity, in every respect. But the loopholes in these calculations pointed out by I don't know whom, but still relatively unknown fact, is that this extra set of matter, extra forces, extra particles - and we don't know a whole lot about the details of what those are like, but the caveat has now shown that in most cases, in addition to its negligible gravitational influence upon us, and vice versa - there will be a weak electromagnetic tie, a weak electromagnetic influence, for reasons that are too complex to go into. And because of that electromagnetic influence on us, we could subtly see and feel the presence of these things. But because their influence is rather weak, it's probably not something that the human eye is going to see; well it's not something that particle detectors have yet been able to discern, although we're looking.

There are a variety of tests right now looking mostly for what's called 'dark matter,' and this hidden sector matter *is*, in a form, dark matter; a specific form, predicted by Superstring theory. So we're looking for dark matter, we may find evidence of this stuff, but the interesting thing about it is, because it interacts with us electromagnetically, it is really through a subtle, I'd say an alternate form of light, that it could be perceived in principle; dimly perceived, dimly perceived. Now the eyes? Maybe too dim for the eyes. However, through complicated mechanisms, this stuff, because it's attracted to us electromagnetically, it's a little bit like cling wrap.

There is an electrostatic attraction, a faint electrostatic attraction between this stuff and ourselves. So for example, it's very easy to take, relatively easy to take a piece of Glad wrap off of a cantaloupe. Even though it tends to cling, it's removable. Like that, this subtle body, through it were made of this hidden sector matter, shadow matter, could be removed from our physical body; it could live quite independently of it. Hidden sector matter would be very cold, cold is relative thing, but it would be less than 2 degrees above absolute zero, which is a good thing in a sense, because it means it would be a deeply quantum mechanical world. It would be a world that's governed by quantum mechanics and if these hidden sector particles happen to be bosons, and there almost certainly would be some, they would be super fluid bosons, and that they would have all kinds of properties that would be very reminiscent of mind.

These bodies might be very much an aid to the physical human brain in the process of thinking, maybe even in the process of transcending. So could a body made of this stuff firstly cling together into a body, and not just a pile of gas? Yes, it could. Could such a body be a vehicle of

thought? That is, it could think independently of the human brain if the human brain were to have a problem? Maybe it even brings elements to the human brain's ability to think, that the human brain wouldn't be very good at by itself, including possibly the ability to transcend?

Yeah, so there's very little known about it, it's a speculative area that not a lot of people are thinking about it, besides myself. But provided such people are seeking such things, and for anybody who has ever found themselves outside the physical body, as a physicist, if you're willing to admit such experiences *exist*, and you kind of have to, then as a physicist you should know right away that this must be a body made of shadow matter, hidden sector matter.

Rick: Well, I don't know about all that, but I do know from talking to my friends that these are very conscious entities. There are probably some in the room with us here now, they're so common. In fact, when I first discovered that this friend of mine was perceiving this stuff, I'd known him for some time and hadn't known this, you know, I got really curious. And we were at the Science & Nonduality Conference and he said, "They're all over the place here."

Remember how we were eating outdoors there? And he said, "They're in like clusters attending to people, doing something, helping people." And later on we were at the airport in an elevator and I asked, "They're in here?" And he kind of just smiled and afterwards he got out and he said, "They just told me, 'Don't point us out to people; if they're meant to see us, they'll see us.'"

And then later on he said, "There were three!" But anyway, it fascinates me and I have a curious mind, and when you hear stuff like this from reasonable, sensible people whom you respect, you think, 'Whoa, this opens a whole realm of possibility. It's something I would like to understand and experience in my own life.'

And Maharishi predicted it, in talking about God-consciousness and all the celestial levels and all that stuff. And one reason I find it fascinating is [that] as an interviewer of hundreds of people in the sort of contemporary spiritual scene, I feel a need in the contemporary spiritual scene for a broadening of perspective, for a deepening of perspective. I kind of feel like sometimes enlightenment gets dumbed down a little bit, and people have a simple awakening of some kind, which is probably very preliminary, and they mistake it for something final, and get up on a podium and start teaching and giving satsang.

John: Happens all the time.

Rick: Yeah, and so I sort of think that it would be valuable as a culture, for our understanding of the full range of human potential, from ignorance to enlightenment, to be fleshed out, you know. Because like right now, we sort of have the map that Christopher Columbus gave us of North America, in terms of spirituality, and you can be in New Jersey and think you're in California.

But in a more evolved culture, I think it would be more like the mapping that we have now done of North America, down to every little square inch. We really understand what all the fine

gradations of development are and where we might be on that range, so as not to confuse ourselves and to give up when we had barely begun.

John: Yeah, and one thing in the meantime that's worth remembering is that knowledge – one's perspective, one's truth – is *completely* different in different states of consciousness. Even between waking and enlightenment in the limited sense – still profound, but limited sense – of being continuously awake to one's cosmic nature: waking, dreaming, sleeping. Even between there there's a *huge* range, *huge* range of understanding, comprehension, capability, and then that's just the beginning.

Maharishi once said, "Life begins at enlightenment." He didn't even want to *think* about it very much because it pales in comparison to the levels of unfoldment that follow - much, much richer God-consciousness, or glorified cosmic consciousness, far richer, unity in Brahmin consciousness - it was for the ... enlightenment was just basically, basic human life.

Rick: And by enlightenment he meant cosmic consciousness?

John: Cosmic consciousness.

Rick: Or maintenance of pure awareness in the midst of waking, dreaming, sleeping.

John: Right. When he says, "Life begins at enlightenment," that's almost true, literally true – that before that, life is without life, because the field of life, field of light, field of consciousness, is completely hidden from us in waking consciousness. It's *there*, we have enough light of consciousness to be a waking perceiver, but the consciousness itself evades our grasp until finally it's there and stable, and unmistakable and undeniable.

So you could say life, as opposed to death, begins at cosmic consciousness, but there's so much more. So everybody who is at whatever level of experience, has a right to feel good about what they have achieved through their efforts and their righteous living, but should also know that long-coming, long before us, even here *with* us for all future times, there are going to be many, many people who are far along the path of evolution that they would look back at us and say, "Well that's a good amateur."

Rick: One of my motivations for starting this whole show, was that I was running into friends in Fairfield who had woken up to what we would define as cosmic consciousness, pure awareness 24/7, things like that, and they would tell their friends - and even sometimes higher states – and they would tell their friends. And very often they would get shutdown for saying it, you know, "Well, you don't look like you can float," or "Well, maybe you're going to be renting a helicopter and dropping leaflets on the Dome next," which is something some guy actually did, he went a little off kilter.

And so I thought, 'Alright, well let me start interviewing people just to show people that their peers are actually awakening, because I think it would help them, kind of be more confident

about their own experience.’ And initially I conceived of it as a local radio show here on CREW FM, and then it just kind of expanded. But what I’m seeing these days is that there’s sort of an epidemic taking place, not only in the TM movement, where I think there are a lot more people who are awakened to profound degrees than is known even within the TM movement, because they’re kind of shy about it ...

John: Should be.

Rick: Yeah. *Should* be, but on the other hand, if it’s really going to become a societal norm, you don’t have to get up on a soap box and beat your chest ...

John: Well that’s just it.

Rick: But on the other hand, we should begin to mature to the point where it’s like, “Okay, great, no big deal. Let’s go to lunch,” you know?

John: That’s right, but traditionally, even in Biblical times, you know the advice was “Don’t cast your pearls before swine,” because it’s so ...

Rick: But there was also, “Don’t hide your light under a bushel.”

John: Well that’s true, yes. So don’t get on a soap box because you may be speaking to an audience that are far beyond you, but certainly to be able to talk about one’s experiences in a matter-of-fact way can be useful.

Rick: And I know that at the Dome there’s a lot of, every day there are reports of profound experiences. I’m not hearing them first hand but I kind of hear that there’s a little bit of a stigma against proclaiming something permanent, or ‘I had this experience, I had this experience,’ but you know, as many people in spiritual circles will say, that any experience which comes, can go; whereas what we’re really aiming at is that which never comes or goes.

John: Mm-hmm. I have a beautiful experience shared to me by somebody in the Dome, that I shared when I gave a talk on the mechanics of the siddhis and sunyama at the SAND Conference, whenever it was last, this fall. And it was a beautiful experience, and one of many, of somebody who has just, you know, came out of the Dome one day, the meditation hall, and it had just ... that was the day that it had dawned, and it has remained with him ever since, described very sweetly, very innocently. Just his innocent experience of life supported by that continuous nourishing cushion of pure consciousness, 24/7, and there are many like that.

Rick: That happened to your friend who was on the back of your motorcycle when you had that accident. He came out of the Dome one day, something popped, never unpopped.

John: Fantastic, and that’s how it is. You know, “Cosmic consciousness,” Maharishi said, “sneaks up on you like a thief in the night.” You just don’t know when that last stress, that’s just sort of obstructing one’s perception of the true nature of one’s own self will get unwound.

You know, life before stabilization of that, Maharishi really likened – very compassionate to everybody but really kind of scratched his head – it’s like a *disease*, because you don’t even know what you are, you don’t even know what you are; you got this huge inner dignity...

But I think you’re right, I think that there’s a community here, we’re really lucky to be surrounded by a fair number of people, mostly very quiet and unassuming, some brilliant and towering, but mostly you know, very innocent and very unassuming, who have stabilized that. One way of seeing it if you want, if somebody’s willing, is to look at the EEG and see, “Wow! 24/7, tremendous EEG coherence.”

But you know, you’re right, outside of those Dome experiences - and those experiences you can certainly talk about that – but you don’t hear a lot of discussion of experiences typically around town. I don’t know why not.

Rick: Well, people do get into little gatherings and stuff, and discuss it. We don’t want to be myopic here, I mean, I know that TM is a very profound thing and has had a huge impact on the world, but there are all sorts of people from all sorts of backgrounds and traditions who are having these sorts of awakenings, some from no background or tradition.

And I talk to people who were just walking down the street and all of a sudden, boom!

John: I met on at SAND. In fact, you knew him too, I believe. He had really no practice in the past; he’s now started to meditate because he’s really interested in going beyond mere enlightenment. But he’s been very, very stable. He had no practice; it just dawned on him.

Rick: It just happens, which we could explain in terms of past life development, and so on, but it’s interesting. You were talking earlier just by way of analogy of being able to travel on a photon, but what do you think about the possibility of new age technologies, and even extraterrestrial technologies? Like I was listening to Nassim Hamein a little bit, I interviewed the *Thrive* people, Foster and Kimberly Gamble, and they were talking about Taurus energy devices, and you see all kinds of YouTube videos about people who have supposedly developed devices to generate infinite amounts of energy from the vacuum state. Do you think any of that holds any water?

John: Yeah, okay, well here’s what I would say: I do not believe such devices have been developed yet. I’ve spent a lot of time chasing around the world, investing time and even some money in seeing and examining and evaluating, and every time I’ve been disappointed because every time you get there the excuse is, “Well, the flywheel is warped now and it’s not working anymore, but for \$20,000 we could not only get it working, but we could really improve it!” And that’s just happened time and time again.

I’ve gone to conferences, energy conferences about that, and spoken to, visited booths of dozens, even hundreds of people, and nothing. This is where all those people would go, but nothing was working.

Rick: You always see these conspiracy theories that the fossil fuel industry is oppressing them and killing them ...

John: Shutting them down.

Rick: And suing the patents and all of that.

John: Yeah, and there's a huge amount of conspiracy theories about how knowledge is suppressed. In today's academic community, and especially in an Internet empowered community, it's very hard to suppress something.

You can try it, [but] it's very hard to suppress knowledge. There are a lot of things you can suppress, but the spread of knowledge, when something can go viral in an instant, it's very hard to suppress. But I would say this: first of all, we *can*, in practice and in principle, extract tiny amounts of energy from the vacuum, with current technology, but it's nothing that's remotely practical at the present. Secondly though, with Superstring theory I think we're going to see, and we've seen evidence of it this *week*, we're going to start to see a better understanding of, and then perhaps an application of advanced technologies that could involve space travel, for example. This is very speculative at current I must say.

But the idea of what are called 'Einstein-Rosen bridges,' or wormholes, connecting different parts of the galaxy, different parts of the universe, that are basically shortcuts through space - it's almost instantaneous shortcuts through space - these have been believed to exist as a theoretical possibility; what's happened in string theory over the past weeks is that people have been able to show in certain, simple cases that there are space-time wormholes possibly connecting many, many things. That this whole phenomenon of quantum entanglement, for example, where distantly separated particles are somehow intertwined - the nonlocality caused by quantum entanglement - that those two particles, the fact that an observation of one will create an instantaneous, corresponding change in the other, even halfway across the universe! These entangled particles - has been shown explicitly, at least in simple cases - are entangled *because* of and are connected *by* space-time wormholes. So that if something that happens here *could* instantaneously have an effect halfway across the universe, even though that escapes Einstein's bounds of the speed of light causality.

So if space-time wormholes are coming in to save the day and helping us understand very mysterious things like entanglement, well that means that they're everywhere. And if space-time is crisscrossed by such wormholes, it's not inconceivable, and it's very much an open question, that we couldn't exploit such a wormhole as a technique for traveling instantaneously across vast distances. And once you have *that*, the possibility of levitation and things like that also opens up.

Rick: Maharishi used to talk about infinite correlation all the time, and as I understood it, it was that every bit of creation is infinitely correlated with every other bit of creation. In fact, Nassim Hamein says that every atom is actually connected, in some sense, to every other atom. He

goes into all kinds of other stuff about atoms being mini-black holes and stuff, which we won't get into.

John: You know, I believe, although I certainly couldn't tell you how, I have some ideas possibly how, to do with curvature of space-time and quantum gravity, technologies for instantaneous travel and potentially related to that, technologies for energy generation. Maybe in our future, I wouldn't rule them out; I just don't think they're in our present.

Rick: Yeah, and presumably there are civilizations, millions of years more advanced than ours, that have had this down for a long time and personally, I think they've been visiting us, but I don't want to attribute any more woo-woo to you than you may have already gotten.

John: Maybe.

Rick: There's a lot of evidence.

John: Well, I certainly believe that there are civilizations, and if there are civilizations out there, they could just as easily be *billions* of years older than we are, certainly millions. And any civilization that has survived for hundreds of thousands or millions of years is going to have technology far superior to ours, so I don't doubt it. Whether they would have necessarily found us, given the vastness of our own galaxy, let alone the vastness of the universe? Maybe, maybe not.

Rick: Well if they can reach us they can probably find us. I know we're running out of time but siddhis, we've eluded to them in this talk, I've heard you say in talks that if any of the historical accounts of siddhis – Jesus walking on water, Saint Joseph of Cupertino flying, any of these things, and there are hundreds and hundreds and hundreds of them in all different cultures – if any of them actually are true, then it completely revolutionizes physics and the understanding of the relationship between a human being and the laws of nature. Why don't we close on a little bit of discussion of that as a vision of possibility?

John: Mm-hm, mm-hm. I would have said 20 years ago that it would have revolutionized physics, but actually, physics today, with quantum gravity even in its current stage of development, the siddhis are not difficult to understand. What would be surprising to a physicist is maybe not that they're possible, but that human beings can access these capabilities through a technology of consciousness. But indeed if levitation, something that is happening today or has ever happened, whether by Shankara, or it doesn't matter *when*, if it has ever happened as a result of the activity of a human being and a human mind, that automatically and unambiguously proves the capability of the human mind, human awareness, human consciousness to access the world, the field, of quantum gravity, which is the level of the unified field.

So that would mean [that] if anybody has *ever* levitated, for example walked on water, it would mean that human beings – at least some, with appropriate development – have the capability of experiencing, accessing, harnessing the unified field. Once you can do that, in principle you can do anything, in principle you can do anything.

Rick: Well you know, it might not revolutionize physics, but it would revolutionize the public understanding of what's possible, which at this point is, for the large majority of the population - still Newtonian, and for a significant percentage of the population - still medieval! I mean, there are people who think the world is 6,000 years old and dinosaurs walked the earth along with human beings.

There's a museum in Ohio where they show pictures of people riding dinosaurs, so I mean, it would really blow some minds if people were starting to levitate in public. And you know, there [would] obviously have to be all sorts of proof it wasn't something that David Copperfield could do.

But you know, just as they say in the UFO circles, "Well, we're not going to land on the White House lawn until people are ready for it because they'll shoot us down, or people will freak out too much," it seems like there's something there with collective consciousness having to be ready before this kind of thing can happen on a world stage. Maybe it's not quite the time yet, or something.

John: Getting closer, it's getting closer. First of all, any practical person who with the capability, would probably be very concerned about demonstrating it publicly - fear of getting stoned, for example, which would have been something that might have happened centuries past.

Rick: Oh yeah, a few centuries ago a guy got burned at the stake for translating the Bible into English, so you better watch out.

John: Yeah, exactly, but also at that level we're able to expand the mind and take it to such a level of great depth and comprehension that you can move the laws of nature by mere a impulse of the mind, that very expanded state of awareness, expanded state of comprehension, is going to be really well-tuned into what's appropriate and what's not appropriate, into what's useful and what's not useful.

Rick: Hmm, good point.

John: If it's useful, I think somebody like that with that capability may decide it's time to show it.

Rick: And they would know.

John: And they would know.

Rick: Since that cosmic intelligence is really running the show, it seems like it wouldn't even be *possible* until it was useful. Not useful in terms of human intellect figuring out, "Okay, it's useful now," but in terms of just the governing intelligence of nature, which I think you and I feel is really running things. All is well and wisely put, and things will happen when they're meant to happen, but the pace seems to be accelerating.

John: It does, it unquestionably does. And I think we're still young enough that we're going to witness some remarkable things in our lifetime.

Rick: Great! Well that's a good note to end on. It's fascinating talking to you, I could probably sit here all afternoon and maybe we'll do another one some time. You know, there will probably be in a couple of years from now a whole new set of ideas to discuss, or maybe when somebody flies, there will be a desire to know how that happened.

John: Yes, yes. That sounds great.

Rick: Yeah, well let me make a few wrap up points. I've been talking with Dr. John Hagelin, you know that by now if you've been watching this video. I'll be putting up a page on BATGAP.com which links to his various websites and books, and things that are of importance to him, as well as his bio.

This interview has been one in an ongoing series. If you go to BATGAP.com you'll see them all. There's an alphabetical index and a chronological index of all the interviews. There's a discussion group there that is set up for each individual interview – try to keep it relevant to the topic if possible, please. It usually meanders off. There's a donate button which I appreciate people clicking and donating if they have the wherewithal, it enables me to do this and I hope to move to doing it fulltime.

There's a place to sign up to be notified by email every time a new interview is posted, and there's a link to an audio podcast on iTunes so that you can subscribe and not have to sit in front of your computer for two hours to listen to things; you can just listen while you're commuting, or something.

So thanks a lot for listening or watching, thanks to John ...

John: Thanks Rick, it's really a pleasure.

Rick: Great fun and we'll see you next time.

{BATGAP theme music playing}

*SCI stands for Science of Creative Intelligence, a course Maharishi taught.