

Chapter 17



Light, Consciousness, and the White Hole in Time: An Interview With Peter Russell



“For the rest of my life I want to reflect on what light is,” said Einstein to his colleague Wolfgang Pauli in 1916. At the heart of many of the universe’s enigmas lies the mysterious nature of light. It seems to transcend time, space, and matter, belonging to a realm all its own, and making it the object of speculation by scientists, philosophers, and theologians for centuries. It’s no wonder that nearly every spiritual and religious tradition around the world has held light in equally high esteem, linking it in various ways to the ultimate nature of consciousness and the divine itself. Yet whatever light is, we are that, proposes mathematician, physicist, and consciousness researcher Peter Russell, who has studied light and consciousness from both scientific and spiritual perspectives for more than 30 years.

Russell is the author of more than seven award-winning books and videos on topics such as the relationship between science and religion, the nature of consciousness, and the awakening of a new global culture. His books and

videos include *The Global Brain*, *The White Hole in Time*, *The Consciousness Revolution*, and *From Science to God: A Physicist's Journey Into the Mystery of Consciousness*.

He has degrees in theoretical physics, computer science, and experimental psychology from the University of Cambridge, England. There he studied with renowned physicist Stephen Hawking and later did foundational work in developing computer technology that would become the basis for modern virtual reality environments. After Cambridge, he went to India to study meditation and Eastern philosophy, and after his return he began conducting research in the psychophysiology of meditation at the University of Bristol.

For more than 20 years he has worked with large companies and corporations to introduce innovative practices in creativity, self-development, sustainability, and stress management into the workplace. His primary interest currently is toward a deeper understanding of consciousness and the spiritual and evolutionary significance of the times we are passing through.

Stephan Martin: I'd like to start with a topic that you point to many times in your writing, which is the difficulty of integrating consciousness into our current scientific theories about the universe, which are largely based on materialism. In response to this situation, you suggest that consciousness may not be a property of matter, as our current theories propose, but that consciousness itself may be a primary property of the cosmos. Can you say more about the role of consciousness in the physical world?

Peter Russell: If the physical universe is entirely composed of insentient and unconscious matter, as the current scientific worldview holds, then how does consciousness and subjective experience happen? Dead and insentient matter in a complex arrangement such as a brain should not give rise to sentience, since it wasn't there to begin with. Yet somehow out of insentient matter comes consciousness and subjective experience, which are entirely different phenomena than insentient matter.

People often explain this by suggesting that consciousness is an emergent property of matter, that it emerges when matter reaches a certain degree of

complexity. But emergence here doesn't explain the appearance of a completely different type of phenomenon, and because we unquestionably have sentience and conscious experience, this presents a big anomaly for the current scientific paradigm.

We're in the midst of a paradigm shift in which anomalies such as these are still trying to be explained in terms of the old paradigm. People are still trying to think up ways in which inert matter could give rise to experience. They're still trying to patch up the old system and make it work in light of new data that suggest otherwise.

One thing we all know absolutely for certain is that we are conscious. In fact, without consciousness there'd be no science, because it's through conscious experience that we understand and learn about the world. So in a sense, all of science takes place in the mind, because it's the mind understanding, forming hypotheses, theories, and coming to conclusions. It all happens in the mind and yet the mind is the one thing that science hasn't studied extensively.

The alternative paradigm that is being proposed by myself and others is that consciousness or mind is an innate capacity and potential for subjective experience that is always present in the universe. So consciousness or mind doesn't come out of the brain, but the brain simply modifies or gives shape to pre-existing consciousness, and this is the fundamental difference.

As life has evolved, organisms, sensory organs, and nervous systems have become increasingly more complex, and so the contents of consciousness and the forms that the mind can take have become more complex. In this view, even simple bacteria might have some very, very faint glimmer of consciousness—nothing like what we would call self-conscious awareness, but they may have a very faint sense of their chemical environment, some very simple form of consciousness. That's the basic shift, that everything has some capacity for conscious experience. When you make that shift, it doesn't change anything at all in terms of physics or biology, but it changes our assumptions about where experience comes from. It overcomes this whole problem of how insentient matter could ever give rise to something that is its total opposite.

If consciousness is a fundamental quality of the cosmos, then it must be there in everything—not just bacteria, but below that in the virus, and then below that in amino acids. In this new paradigm, there's no place to really draw the line between consciousness and insentience, as our current scientific

worldview does. The capacity for experience is always present as a fundamental quality of the cosmos, and it gets filled out as systems become more and more complex.

So in a sense the whole spectrum of complexity of life is really the infinite gradations of this capacity for consciousness or awareness. You've just made a very important point in stating that this alternative view is not inconsistent with our current scientific theories, but it presents a larger view that embraces our subjective and personal experience. I want to go back to an important point you touched on previously, which relates to everything in the universe appearing as forms in the mind. You've written extensively about this, so I wonder if you could say more about how the universe actually exists inside of us.

Yes, this is an absolutely fascinating thing that the scientific worldview completely accepts, but it never looks at its ramifications. What we know is that when we experience the world with sight, what actually happens is that photons are hitting our retina and stimulating electrochemical impulses that are then analyzed by the brain, and out of that a picture forms that appears as an image in the mind. So we have a visual experience that is integrated with sound and touch and all the other senses to create a very convincing multidimensional, multi-sensory picture of the world. What we don't realize is that it's only a picture of what is out there, but it's so convincing that we make the error of thinking we're seeing and experiencing the world directly. But we undeniably know that what we're actually experiencing is just the image that appears in the mind. This is true not just of sensory experience, but of all our experience. Thoughts, beliefs, memories, and everything we experience is something that is appearing in the mind.

Immanuel Kant realized in a major breakthrough for philosophy more than two centuries ago that we never actually know the world itself directly. We make inferences about the world, and based on these inferences we then have an experience of the world. This is what science does—it collects experiences of the world, and from those experiences, it makes inferences about the nature of physical reality, about what is out there giving rise to our experience. So you can say that the process of science is testing those

inferences, checking them out with other people, and coming to a consensus understanding of the nature of the physical world.

But it's important to recognize that all of this understanding is always based upon experiences in the mind. A lot of the problems and contradictions that arise in modern physics come about when we forget that this is what's really happening. It's becoming clear that the way things appear in the mind is not always the way things are in the physical world.

The simplest example is that of color. When we see the color green we are experiencing light of a certain frequency or photons of certain energy. The light itself isn't green. There's no such thing as a green photon, it's just a photon of a particular frequency that when experienced by the eye and brain gives rise to a certain experience of greenness in the mind. This is true of all experience; what is out there is unlike what we're actually experiencing in the mind. When we don't see this, we make the mistake of projecting our own experience onto our understanding of the world.

Another classic case of this is with atoms. We experience little hard balls in our world, so when we first thought of atoms, of course we thought they were like little hard balls. We later realized they were composed of sub-particles, so then we imagined they were collections of particles, like little balls, because that's what our experience of tiny particles is like in the physical world. Then we later realized they weren't solid things at all, and so we started thinking maybe they're more like waves, which again is an idea that comes from our everyday experience. So what we're doing is taking ideas from our everyday experience and trying to fit the physical world into these ideas.

I think the only way we can truly describe the world is through mathematics. Anything other than that is a model, which is inevitably based on an interpretation of the mathematics. It's an approximation in which we say "it's like this, but not really." So I think that whatever the real nature of reality, a dolphin scientist or an extraterrestrial scientist on some other planet must also agree. They may have very different brains and see very different pictures of the world and come up with very different models, but whatever the world is really like must be beyond the models that come from the human mind.

This is a fundamental point that is continually missed when we try to understand the universe. We have this very anthropocentric view that the physical world is something like the way it appears inside the human mind, forgetting

that the world is filled with other kinds of minds. The dolphin mind is going to have a very different view of the world: it doesn't experience gravity in the same way, being more or less weightless, and it "sees" with sound much better than it sees with light, so its picture of the world is going to be quite different than ours, but it's just as real and authentic. We make the mistake that believing that our view is *the* one, the only right one.

Yes, and this goes back to the tremendous importance of understanding the nature of Mind. We have such a very basic understanding of the mind, and so it seems that the less we understand the mind, the less we understand the world, as the mind is the ultimate filter for our experience.

Yes, and I'm currently working on a new book in which the mind and experience is the fundamental reality. In this view, everything that exists is a form or entity in the mind, and so the entire cosmos is just pure Mind reflecting through a multiplicity of minds.

In this view, all of atomic physics holds up—you've got electrons and baryons and all that stuff, but they're all just different types of entities of experience, and so we end up with a model in which matter only exists in the mind and our direct experience of the universe is primary. We've made the assumption that the world "out there" is material in nature, and what I'm saying is that it is actually mental in nature. When we drop the assumption that it is material in nature, and just accept that it is only mental in nature, then all of physics still absolutely holds true, but it's measuring mental entities rather than physical particles.

Interesting! So everything we call physical objects in the world are really forms in the universal Mind and our physics is basically the relationships between those forms in this universal Mind. I can see how the view of everything as the same substance of experience overcomes the duality of our conventional view in which matter-mind and inner-outer are so intractably different. Another place where you bridge the inner and the outer world is in your discussion and exploration of light. You've explored in your book *The Science of God* that our experience of the world happens when the light of the outer world meets

the inner light of our awareness. I wonder if you can say a little bit more about this and the relationship between the two.

It's interesting that we use the word *light* in both senses. We talk about light as a physical phenomenon, such as the light from the sun or a lamp, and we also use the word *light* at times to describe our inner experience. Now we should remember that just as we were discussing earlier with color, the experience of light is not the same thing as light itself, and although there are fascinating parallels between physical light and the light of our consciousness, we need to be clear about which one we are referring to at the time.

When we talk about the light of consciousness, we often say things like “the inner light” or “seeing the light” when we feel inspired, or things like “the lights went out” when we fall unconscious. There is a long tradition in many spiritual traditions that the mind is lit from the inside, that it has its own self-illumination that we sometimes call the light of consciousness. This is really the essence of experience, because when we have an image in the mind or we experience a feeling, we could say we are aware of it because it is lit by consciousness. Everything we experience is a form consciousness takes on as an image in the mind, and so everything we experience is lit by that light of consciousness, and so in that sense, it is an absolutely universal phenomenon.

Now when we go into the physical world, every interaction above the level of atoms is mediated by light. Photons are the universal principle here because any energy exchange above molecules is mediated by light, so everything we know in a sense—every activity, every interaction, every exchange of energy—is a form taken on by light in the physical world.

Also, if you look at the implications of Einstein's special theory of relativity, the faster you go, the slower time goes and the shorter distances become, and if you could ever travel at the speed of light, time would stop and distances in the direction of travel would contract to zero. However, because light has no mass, by definition it always travels at the speed of light. So if we look at the universe from light's point of view, it implies that light itself is not traveling in time or space. Because light has no mass, it is not in space, and since it is not in space, it takes zero time to travel, so it's actually a direct interaction between the point where it is emitted and the point where it is absorbed.

This implies that light doesn't actually travel anywhere because it doesn't experience space or time, and so it doesn't actually need to be a wave or a

photon. From our point of view, we see light traveling through time and space, and we project onto it that it must be either a wave or a photon, because it seems to act sometimes like one and other times like the other. We think it's one or the other or that it's both, but if light could speak, light would probably just laugh and say "How crazy! I don't need to be either one—that's just your projection, your mind, your experience."

So once again, we're projecting our own concepts on this phenomenon called light and trying to make it fit our everyday experience. All the while, its true nature lies hidden and much deeper than this.

Yes, and so we can say that light from its perspective is outside the realm of space, time, and matter. Now let's come back to the mind and take a look at the mystical experience of pure consciousness. When the mind settles down to a state of complete stillness, there's no thought and no activity, and what the mystics report again and again is that there's just an eternal sense of presence, where time disappears and there's no sense of location in space.

Because consciousness is not material, it has no mass, and yet out of consciousness comes all of our experiences of space, time, and matter. But its deeper nature lies beyond space, time, and matter, so it seems to me there is a close parallel between the true nature of the light of consciousness and the true nature of the light of the physical world. We make the mistake with both of assuming that they belong to our everyday world, but they are both beyond all of our concepts of space, time, and matter.

Once again we're back to the basic paradigm we started with, the belief that the material world is the real world. What light seems to be telling us is that the material world is a description of but one level of reality, and that the true nature of light lies beyond it. So whatever the absolute nature of the world, it lies beyond concepts and matter, but the first level of manifestation into our everyday world of space, time, and experience seems to be one of light or luminosity.

Many of the world's spiritual teachings affirm something similar to this, with statements like "let there be light," or "in the beginning there was light," and mystics talk about a white or golden light that can appear in the mind as the faintest level of consciousness or the first level of manifestation. So both

science and spirituality seem to be two sides of the same coin with respect to light, and this seems to be one area where the inner mental world and the external physical world overlap.

And many of the world's spiritual traditions speak of an eternal world not as a world of infinite time, but as a world outside of or beyond time, which seems to be what you're pointing to here. The other interesting point you raise is that the experience of ourselves through the light of consciousness is instantaneous and unmediated, just as light's experience of itself traveling between two parts of the cosmos is instantaneous and unmediated. So the light of consciousness and the light of the physical world behave very similarly from the perspective of subjective experience.

Yes, time is just a construct in our minds in the sense that we are only ever in the present moment, but in the present moment we construct a timeline, have memories, and think into the future, but it's all actually taking place out of time.

Yes, and all of this is being mediated by the mysterious phenomenon that we call light.

And, God is light. It's one of the characteristics often ascribed to the Divine, so the deeper nature of the world is somehow closely linked to the Divine light.

Fascinating! Because we've been talking about consciousness, and just touched on the development and evolution of the universe briefly, I wonder if we can explore the question of whether there's a direction to the evolution of consciousness over the history of the universe.

If we are going to be strict in terms of our use of language, I would say that consciousness itself doesn't evolve, because the way I've been using the term is that consciousness is the capacity for experience. Because that capacity is always there, it doesn't evolve, but the experience of it does. So I would say that there is the evolution of experience, which is closely linked to the evolution of the mind.

However, the essential quality of the mind, which is awareness, is always present, and so I would say that the direction of the evolution of the mind is toward increasing intelligence, which I define as the ability to organize and use information. For example, a very simple cell is intelligent insofar as it may be sensing its environment, responding to it, avoiding toxic substances, etc.... That's intelligence at a very basic level. Now that intelligence has evolved to what we call human intelligence, which is much more multifaceted, but I think it still comes back to a basic capacity of being able to take in information, organize it, and extract from it new principles, which can then be applied in order to further our own well-being.

So is intelligence in this context similar to the contents of consciousness, in that there are infinite gradations of this intelligence going back throughout time?

Yes, I would say so. Whereas the capacity for consciousness is always present, there are infinite gradations in the forms that appear in consciousness. For example, the sensory forms you find in very simple creatures are very, very simple, but as the senses have evolved and the nervous systems have evolved, so have these gradations developed in terms of the content of consciousness.

The best way to put it might be that the capacity for consciousness is universal, the gradations are in the content of consciousness, and then the way those contents are organized is the intelligence, with infinite gradations of intelligence, and I would say that is the direction of evolution.

Now in some of your earlier books you've also explored the possibility that evolution might actually be speeding up toward a new stage of development. You've speculated that evolution might be accelerating toward a temporal singularity that you refer to as a white hole in time, and I wonder if your current thinking is still resonant with that idea.

Yes, yes, yes! Very much so. This idea comes out of the observation that evolution generally speeds up as it progresses. The reason for this is that as you develop more complex levels of evolution, there's a feedback system that makes future evolution easier and faster.

Multi-cellular organisms evolve because the arrangement of the cells and the organs evolve, rather than through the development of new types of cells. A heart cell in a human being is very similar to a heart cell in a pig, which is why we can transplant a pig's heart into a human being. The level of organization of the organs between the two is different, and it's that organization that can evolve much faster, because you don't have to wait for a new cell or new organs to evolve. So when we look at the history of evolution, we see it takes billions of years for simple cells to evolve, and then it gets increasingly faster with complex organisms.

Human beings have been around for just one ten-thousandth of Earth's history, and yet what has happened in human culture has been enormous in that short time. If we take the last few thousand years, and then the last few hundred years, or even just the last 10 years, we see tremendous acceleration of progress based on this principle. A good example is the information revolution that has followed the industrial revolution. The industrial revolution took a while to really settle in because we had to invent factories, build them, and then create the means for mass distribution, and it took a hundred years to lay all that infrastructure down. When the information revolution came along, we didn't have to reinvent factories to produce computers—we knew how to do that and also how to distribute them. So the information revolution happened much faster and is pushing change much, much faster. It's a universal trend that the rate of progress accelerates—it's just positive feedback in the evolutionary process.

I see the development of human consciousness accelerating in the same way for similar reasons. We are all rapidly learning from each other. So any breakthroughs in understanding, about how to liberate the mind or how to become mentally healthier, are shared within our culture extremely quickly. Information on the Internet is shared much faster than it was through books or word of mouth. The more we learn, the faster we wake up, and the more we have to share. So you've got this same positive feedback loop happening today with the awakening of consciousness, meaning it's going to get faster and faster.

This seems to resonate with many people's experience with saying that their lives are speeding up so fast that they have a hard time even catching up with them.

Well, clearly we're all experiencing the pace of life speeding up, and I think there are several reasons for this. One is that change is happening much faster these days, so we're having to adapt to new situations and challenges much more quickly than previously. We also are getting busier and busier. There's so much more to do in each day because we *can* do so much more. It's ironic actually—we're consciously speeding our lives up in many ways based on the idea that the more we do, the happier we'll be. But also I think people are noticing that their own inner process is speeding up as well. People often tell me at workshops that they've been through more shifts of awakening in the past two or three years than they had in the previous 10 or 20.

In some sense it's like we're feeling the evolutionary pressure to expand our capacities through this speeding-up of our daily lives, and it sounds as though, from what we've been discussing, that this trend will only increase.

This is the white hole in time that I've talked about in an earlier book. The idea of the white hole in time is a parallel process to the evolution of a star becoming a black hole. A star goes through various stages of birthing, beginning with burning hydrogen into helium, which typically takes 5 to 10 billion years. Then, when the hydrogen burns out, it starts burning helium, and it goes through about 5 or 6 various elements, with the ashes of one process leading to the next.

Yes, hydrogen forms helium, then carbon, neon, oxygen, and silicon, as parts of the whole sequence, with each stage burning faster and faster in a shorter amount of time.

Yes, and ending up with iron, at which point it can't go any further. So the star collapses, then, if it is sufficiently massive, explodes as a supernova. What's left behind after that is a black hole, which is a very stable state. It goes through this faster and faster acceleration toward this stable state of a black hole.

It struck me that the evolution of the mind, or the evolution of intelligence, runs a similar course. It gets faster and faster, and we seem to be heading toward a similar moment of almost infinitely rapid evolution of intelligence.

This could be the awakening of the human mind breaking through into something entirely different, just as a black hole is a completely different state than the star it was previously. I think that this would be like Teilhard de Chardin's noosphere or even his idea of Christogenesis, the collective spiritual awakening of humanity, although he saw that as happening thousands of years into the future.

Right, what he called the Omega Point.

Yes, the Omega Point. Interestingly, Teilhard didn't take the acceleration of the evolutionary process into account. I don't think it was apparent to him when he wrote the *Phenomenon of Man* and the *Future of Man*, but later in his life after televisions and computers came along, he made the comment that these developments bring the Omega Point much, much closer through the sharing of information. I think if he had included this accelerating trend, he'd have seen that all that development, which he imagined would take another 10,000 years to happen, would actually happen in the next 20, 30, or 40 years.

And just like a black hole, we have no idea what's in store for us with this acceleration of intelligence. I mean is it infinite intelligence? Is it collective spiritual awakening? It's hard to say.

Yes, it's like the other metaphors I've used—how can a caterpillar guess what it's going to be like as a butterfly? I think we can get some sense for saying what it might be like if we look at the lives of the great saints and the enlightened people throughout history, with their sense of freedom and all that love in their hearts. What would it be like if the whole of human culture was founded on that?

It's a wonderful image.

Or it could be something even far more strange than that. For example, we might move into something equivalent to a collective near-death experience. This might have similar stages to what individuals report from near-death experiences, such as stepping outside the physical body, moving into an experience of light, along with feelings of infinite peace, love, and light where there is no longer any fear of death.

It could be that at the white hole in time, this might happen on a collective level, where we all somehow simultaneously transcend our physical bodies and come together in a collective experience of awakening or transcendence. We have no way of really understanding what it would be like. But it's a possibility that we cannot exclude, and I'm just pointing to a possible direction things could take.

Yes, and it also sounds as though it's something we can trust as part of the natural process in the unfoldment of the universe, even if we have no idea where it's going or what things might be like on the other side. Thank you for sharing this broader view.