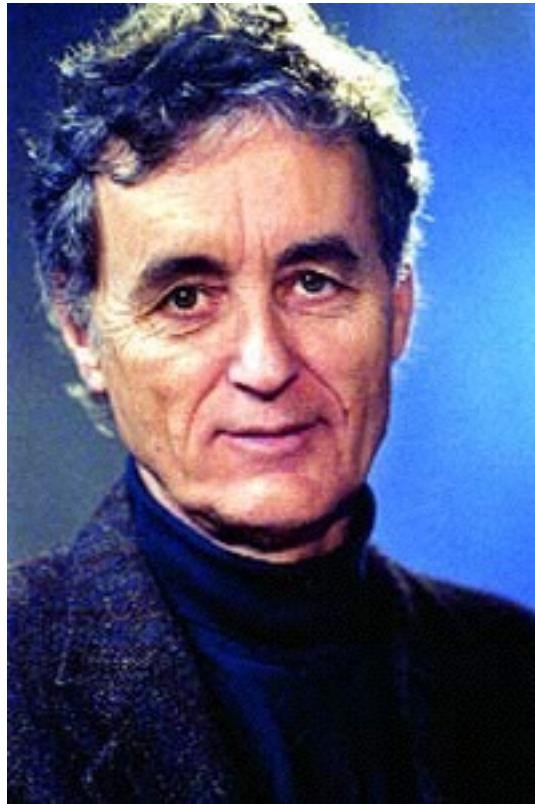


Fritjof Capra

Physicist and Philosopher

'I've experienced happiness in three different ways'

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Fritjof Capra, physicist and philosopher is also the author of several international bestsellers, especially *The Tao of Physics* which makes an assertion that physics and metaphysics (spirituality) are both inexorably leading to the same knowledge.

What does spirituality mean to you?

It is a very intense feeling of being alive – being so alive in mind and body that the separation between the two is transcended; and in some extreme moments the separation between myself and the environment is transcended as well. Those are what Abraham Maslow calls peak experiences. But spirituality is more than that. It fundamentally is a way of life. Those experiences help develop a certain attitude towards nature or human existence, they teach me things that I can then integrate into my life, that inform and shape it.

For instance, when I was last in India twenty-five years ago, I also spent some time in Sri Lanka, which was my first experience of a Buddhist country. There, I had quite a few discussions with leading

Buddhist scholars and realized how limited our Buddhist practice was in the West. In Zen especially, we tended to equate Buddhism with meditation whereas the Buddha presented an eight-fold path, eight disciplines starting with right seeing, right speaking and so on – the last one only being about right contemplation i.e. meditation. So being spiritual transcends all aspects of one's life. And one should behave in an ethical way not because there is a God set to punish me on the Last Judgment day, but because it would reflect significantly and negatively on my mind and spirit.

Do you believe you are guided and protected by a superior force?

When you talk of a protective force, or karma, or prayer, or any concept connected to religion, it generally is a shortcut to describe something much more complex. The notion of God itself is not one I am comfortable with. I grew up as a Catholic in Austria, which actually comes with a lot of baggage – moral and beyond– so I'd rather stay away from the notion of God. Of course it is possible to understand it in a very sophisticated way. I wrote for instance a book called *Belonging to the Universe* with David Steindl-Rast, a Benedictine monk. For him, the religious experience is essentially one of belonging to a larger whole and God is the ultimate reference-point of belonging. I can go along with it but it is pretty intellectual.

I'd rather focus instead on the mindfulness of body and mind, or what Jung called synchronicity. So many times for instance I had experiences of meeting people or coming across information exactly at the moment I needed it.

Carlos Castaneda used to say that every now and then, a cubic centimetre of chance pops up. The man of knowledge picks it up while the others do not see it. So it has a lot to do with awareness.

Sports are a good illustration of that. I am a dedicated tennis player and a huge tennis fan, and I often hear players say "when I am in the zone, everything works, everything flows, nothing can then go wrong". Tennis is not about muscles only, it is a very mental game, and so much in it is about that awareness. Players would often say "I saw the ball very well today", as if the ball was larger and time was slowing down. They are totally into it. So rather than guidance, I would talk of mindfulness and awareness in order to be in that flow.

Do you believe you have a special mission or purpose in this life?

I would not talk of a calling, which would have religious undertones, but I would definitely say I am on a mission. As an environmental activist and educator, I have been for decades on a mission to solve the world's problems and make it a better place for our children and the next generations. Also, through my writings, research and lectures, I have been trying to present a unified scientific view of life, integrating life's biological, social and cognitive dimensions. At the beginning of my career, when I came across the parallels between physics and Eastern mysticism, I felt I was at the right place and the right time, and I had to write about it, as if I owed it to myself. It was a pretty strong feeling because it meant in the end a lot of sacrifice. I dropped out of full-time physics research and embarked on an uncertain financial path. But I really believed in it.

Also, even though having a calling would not be the right word, I have to say I am an extremely focused and centred person. When growing up in a small flat in Innsbruck [Austria] after the War, I would hear my mother wake up very early in the morning to write her poetry. The noise of her typewriter punctuated my childhood and somehow I inherited from her the talent for writing, as well as the discipline. I like long projects developing over several years and there generally is a gap of six to

ten years between my books. I am long term minded when I write and I love to incessantly refine ideas.

What is spirituality for you in your day to day life?

It is a way of life flowing from the spiritual experience. But there also needs to be practice and discipline. It manifests for instance in my daily Tai Ji practice or in ecological ways – recycling, walking or cycling instead of driving whenever possible, not wasting plastic bags and so on. It also is about eating as less meat as possible. Or little things like following Castaneda's advice of never carrying something in one's hands when walking. So I have had three generations of shoulder bags over 35 years. It also is about being as aware as possible of opportunities when they arise. And of course it is about human relationships as well. On the overall, one should not forget that the original meaning of "spirit" is breath, so it is about feeling the breath of life.

What is the role of spirituality in your work?

My professional life has several sides: I work as a scientist doing research, as a science writer and as an educator.

As a science writer from the late 60's on, spirituality was the focus with the Tao of Physics. The Turning Point also had an eastern framework. I consulted the I Ching in finding its title which actually came from it. In my most recent books I have moved on a bit to other things. But spirituality is always there as a background and I feel both obliged and curious when writing a new book, to check whether the spiritual dimension is still there, and what I would have to say about spirituality from this new viewpoint.

My whole involvement with ecology is also steeped into spirituality. Indeed, I see ecology as a form of spirituality, especially the school known as deep ecology which sees humans as intimately connected with the patterns and processes of the world. The sense of belonging, the aliveness that transcends boundaries, all these characteristics of the spiritual experience are part of it.

Some of its manifestations are usually not known and yet so exciting when you think about it. For instance, the fact that we share the same cell structure, the same molecules, the same enzymes, the same lipids of the cell membrane with all living systems whether plants, micro-organisms or animals. And not only do we share the same structures, but also the same processes – what biologists call metabolic pathways.

When you study the chemistry of the cell, you find that the food, the energy that come inside, move in extremely complex pathways, which have evolved in such a way that the cell is very stable and resilient.

These metabolic pathways are not very well known because they are highly non-linear and until very recently we did not have the language or the mathematics to model those highly non-linear phenomena. So it is still quite a mystery. But it is clear that the metabolic path of our cells is very similar if not identical to the one of other living organisms.

When life evolved, it did so in molecular networks then in cellular networks and in organism networks, by modifying patterns, merging structures, borrowing from a structure to change another, modifying structures through mutations.

All this requires a cognitive process, a progressive integration of the new with what was already there. Evolution does not create anything ex-nihilo, it always is a variation on existing patterns.

And if I was to summarize how evolution takes place, I would mention three pathways. The first one is mutation. It is not very meaningful for larger organisms as an animal will spend a year before reproducing (and humans more) and the mutated gene may, or may not be useful to the offspring. But bacteria reproduce themselves millions of times in a single day. So for them, mutation is a very effective mode. Bacteria also exchange genes on a regular basis: about 10% of their genetic material is exchanged on a daily basis. They simply expel and swallow genes. The third pathway is symbiogenesis, the creation of new species by symbiosis. More than two organisms merging and forming a third one, it is about a large organism absorbing bacteria and using its genome.

The three pathways of evolution are very connected. The bacteria are basically at the creative forefront as they multiply so quickly. If it does not work they just die out and try again. Large organisms cannot afford to do so as they reproduce comparatively so slowly, but they can absorb bacteria and use them. It is the case for instance for the chloroplasts. Originally independent organisms which invented photosynthesis, they were then absorbed by plants, and are now performing the photosynthesis inside the leaves' cells.

Basically, bacteria invented most significant life processes like rapid motion, fermentation, oxygen breathing which were absorbed and used by higher life forms through this acquisition of genome.

Understanding those processes, seeing and connecting the new paradigms emerging in biology, as well as in medicine or physics or psychology are at the core of my work and are connected to spirituality as well. Indeed, I believe life is a unified whole. We do not have a separate biological life, social life, psychological life or spiritual life. It is all part of the whole process of life which has evolved in the last 3.5 billion years.

Can you tell us about a unique experience that changed or shaped your spiritual beliefs?

I have been through many such experiences, but one I would mention was my meeting with Krishnamurti, early on in my career.

I had read him extensively, and he was both very convincing and fascinating to me. As I was moving to California after two years of post-doctoral work, I was facing a real problem: how could I embark on a career as a physicist and pursue science, which is about seeking knowledge, while abiding by Krishnamurti's injunction to free oneself from the known, to go beyond rational teaching?

He happened then to come to the University of Santa-Cruz where I was teaching. He was not keen on meeting people beyond his lecture, but as luck would have it, his assistant turned out to be French. I was married to a French woman at the time who befriended him and sure enough, we had an audience with the Master. I told him about my dilemma and without even blinking an eye he said "you are first a human being, only then a scientist". As a human being, we have to go beyond the known in order to deal with our existential problems. Then of course, as a scientist I could pursue knowledge in a more restricted environment.

From then on the problem was gone, he had solved my dilemma.

I have had that experience several times – being ready to hear something and someone with a lot of personality and charisma shows up carrying that message, saying the right thing, at the right time.

What have been your main spiritual inspirations?

I have had so many spiritual experiences and encounters. Artists for instance would be one source of such inspiration. I will never forget the performance by guru Kelucharan Muhabarta I attended when coming to India in the early eighties. He was already old by then, but once he came on stage and performed the ritual offerings, he was not walking or dancing, he was floating in the air across the stage. These are very deep spiritual experiences.

In general, people may think I have been blessed with so many encounters with remarkable men and women, from Werner Heisenberg to Ronnie Laing, from Krishnamurti to Stanislav Grof, from Geoffrey Chew to Gregory Bateson and so many others. But I have also worked hard for it. I looked for such people and nurtured those relationships. I developed over time the skills to engage them in dialogue, to draw them out and give them a sense that I understand what they are saying beyond the technical language, that I could grasp the essence of their discourse.

And this search came with sacrifices as well. In 1970 I dropped out of full-time physics research in order to write the Tao of Physics. It was the last time I received a regular pay check for my research. After publishing the book, I did not want to go back full time to research. I still wanted to experience things in my writing. But science institutions are not equipped to fund part-time researchers – you are either part of the gang fully or not at all.

So I spent twenty years doing research, writing a number of papers, travelling to attend seminars, contributing to the development of the theory – all that on my own financial resources. And you can imagine it was not always easy. My financial situation has been permanently fluctuating. I am a self-employed writer and lecturer. I can turn down lectures but I cannot solicit them. So in the seventies and early eighties my income often fluctuated around zero. I would go into debt then manage somehow. When I wrote the Turning Point the level became higher. But this constant fluctuation and irregularity couldn't ever be a pleasant and easy feeling.

If you were to be reincarnated, what would you like to be reincarnated as?

I am so fascinated by Leonardo da Vinci that I would choose to be part of his entourage, for instance the King of France who held long conversations with him towards the end of his life, or Francesco Melzi who accompanied him for many years.

If there was one question you could ask God, what would it be?

We are today in a huge global crisis, we are destroying our livelihood and ecosystems, we are decimating species, we are poisoning the atmosphere, we are living in a non sustainable way globally with huge population and economic growth, with over-consumption of things we do not need. Some of us know how to do things differently, not only theoretically but also in very concrete ways. There is no technological or financial problem, only a political one. If you were to transfer all the money invested in Iraq to alternative energies for instance, there would not have been a war in the first place. If all the money flowing into hospitals because of pollution related diseases was invested into electric cars' infrastructure it would work as well. So I would ask God what I can do to really make people understand what is happening and jump into another reality, to make them "see the light".

What is your idea of happiness?

I would say I know of three kinds of happiness. First, short but extremely intense moments of happiness – it could be a spiritual episode, listening to music, a sexual experience, or some extreme skiing adventure for instance. Then longer periods, maybe a week or a month, usually connected to human relations, like falling in love, but not only. When I spend time with my brother for instance, to whom I am very close, I have that kind of feeling. The long term is the most difficult part. But I could rephrase your question and say that basically, I am a happy person. As I am getting older, I have to take care of my body with much more care, I go to the gym, I do Tai Ji daily, I watch my diet, and I am in a very good shape, much younger biologically than my actual age. So I have this feeling of being at home in my body. I also have a constantly active mind, I never get bored, I always have research projects, and interesting people to talk to. It does not mean I never get unhappy, for instance when I watch the state of the world, or when things do not work out, like human relationships. But those are transitory crisis or difficulties everyone has. In the long term, I think I am basically happy because I feel truly alive. And it comes back to my answer to what spirituality means to me – being alive. That feeling of aliveness holds for the three kinds of happiness, it can manifest in short and intense moments or in a less vivid but long term subtle feeling. And it is interesting to notice that spirituality and happiness come down to the same answer, to the same place.

A word about human creativity

Talking about happiness, here is one question I have not found an answer to: I noticed that many artists thrive on stress, rather than on happiness. They are most productive at times of utter strain and do not seem to focus on finding balance in their lives.

When they come to describing their most creative moments though, they would often use the language of the miraculous, as if it was a supernatural experience, as if they were a conduit for something beyond them. And this is something I can actually explain. To me, the dynamics of creativity are basically highly non linear situations when the mind is considering all sorts of information, issues etc. It may lead to a crisis when it gives up altogether and once that happens, there is a sudden flash of insight and there comes the creative manifestation. The artist cannot explain it because it is not a linear phenomenon. He cannot describe doing something, then another one, that would ultimately lead to a certain result. So he will depict it as a miracle, coming from somewhere else.

I once read an interview of a jazz drummer who was asked about collective improvisation. How could all the musicians be so perfectly synchronized and then stop on the exact same note? To which he musingly answered: "if you feel it is a miracle, then that is what it is". He had no other way of explaining it.