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BP – Great Scientists' Quotes

Max Planck, founder of quantum mechanics, said in 1944, *"As a man who has devoted his whole life to the most clear headed science, to the study of matter, I can tell you as a result of my research about atoms this much: There is no matter as such.* ***All matter originates and exists only by virtue of a force which brings the particle of an atom to vibration and holds this most minute solar system of the atom together. We must assume behind this force the existence of a conscious and intelligent mind. This mind is the matrix of all matter."*** Das Wesen der Materie [The Nature of Matter], speech at Florence, Italy (1944) (from Archiv zur Geschichte der Max-Planck-Gesellschaft, Abt. Va, Rep. 11 Planck, Nr. 1797)

Larry Dossey, MD – Founder of the Dallas Diagnostic Association, Frmer Chief of Staff at Medical City Dallas Hospital, first physician asked to deliver the Mahatma Gandhi Annual Address in New Delhi, Founding editor of EXPLORE: Journal [peer-reviewed] of Science and Healing:

"In the 20th century we were introduced to several subdivisions of mind, such as the conscious, the preconscious, the subconscious, the unconscious, the collective unconscious, and the collective unconscious. The One Mind is an additional perspective on our mental landscape. The difference is ***the One Mind is not a subdivision. It is the over-arching, inclusive dimensions to which all mental components of all individual minds belong.*** *I capitalize the One Mind to distinguish it from the one mind that is possessed by each individual."*

One Mind**: How Our Individual** Mind **is Part of a Greater ...**
www.amazon.com/**One-Mind**-Individual-Greater-Consciousness/dp/1401943152

*"To divide or multiply consciousness is something meaningless. There is obviously only one alternative, namely the unification of minds or consciousness…**in truth there is only one mind**."* **Erwin Schrodinger, a leader of modern physics.**

Sir James Jeans: *"The universe begins to look more like a great thought than a great machine. Mind no longer appears as an accidental intruder into the realm of matter; we are beginning to suspect that we ought rather to hail it as the creator and governor of the realm of matter..."*

"A 1984 issue of Physics Today quoted what one physicist told another in the corridors of a physical science meeting: "Anybody who is not bothered by Bell's Theorem has to have rocks in their head". So scientists are bothered. But as people, we have an infinite capacity to delude ourselves; scientists are no exception. ***The quantum window is a huge invitation to the real freedom that consciousness as the ground of all being offers us. It is also very scary****."* Physicist, author, **Amit Goswami**

"Regardless of what branch of inquiry one starts from, ***all avenues of investigation eventually converge at the quest for an organized understanding of the nature of pure consciousness****...advanced thinkers went beyond the parameters of their respective fields and began to ask questions about the relationship between the universe, science, and consciousness..."* **David Hawkins, MD, PhD**

As **Sir Julius Huxley** says in the preface to the seminal book, *Phenomenon of Man* by Teilhard de Chardin, *"The different branches of science combine to demonstrate that the universe in its entirety must be regarded as one gigantic process, a process of becoming, of attaining new levels of existence and organization."*

Milic Capek, *The Philosophical Impact of Contemporary Physics*: *"There is no such thing as a "state of the world at a given instant...****extensive becoming...seems to constitute the nature of physical reality****."*

"Conscious inner evolution is the particular phase of evolution that we are currently passing through". **Peter Russell** From *The Global Brain*

Arthur Eddington - astrophysicist**:** *"The idea of a universal mind or Logos would be, I think, a fairly plausible inference from the present state of scientific theory."*

Sometime after the 1927 5th Solvay conference in Brussels (with Heisenberg, Bohr, etc): *"Anyone who becomes seriously involved in the pursuit of science becomes convinced that* ***there is a spirit manifest in the laws of the universe, a spirit vastly superior to that of man****."* **Einstein**

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*"**This oneness of the all implies the universality of mind**…If my conclusions are correct, each individual is part of God or part of the universal mind."* **Henry Margenau**, professor of Physics and Natural Philosophy at Yale for almost 50 years.

"Mind rather than emerging as a late outgrowth in the evolution of life, has existed always…the source and condition of physical reality." **Nobel biologist, George Wald MD**

Fred Hoyle - astrophysicist**:** *"**A common sense interpretation of the facts suggests that a superintellect has monkeyed with physics, as well as with chemistry and biology, and that there are no blind forces worth speaking about in nature**. The numbers one calculates from the facts seem to me so overwhelming as to put this conclusion almost beyond question."*

George Ellis - astrophysicist**:** *"Amazing fine tuning occurs in the laws that make this [complexity] possible. **Realization of the complexity of what is accomplished makes it very difficult not to use the word 'miraculous' without taking a stand as to the ontological status of the word**."*

Here's our take on Complexity

Paul Davies – physicist, winner Templeton Award: *"There is for me powerful evidence that there is something going on behind it all. It seems as though somebody has fine-tuned nature's numbers to make the Universe. **The impression of design is overwhelming.**"*

Roger Penrose -mathematician and author:
*"I would say **the universe has a purpose. It's not there just somehow by chance**."*

Alan Sandage - winner of the Crawford prize in astronomy: *"**I find it quite improbable that such order came out of chaos. There has to be some organizing principle**."*

Fritjof Capra, theoretical physicist and author*: **"Patterns of matter reflect patterns of mind."***

It is far more logically improbable that the universe and intelligence in it are random accidents, than that there is an underlying intelligence, Mind or organizing principle - very separate from the concept of a personified Deity. This quantum interpretation neither requires nor precludes religious beliefs; it makes the point that reality includes non-material dimensions and it presents evidence of a self-organizing, interconnecting, creative intelligence.

John O'Keefe - NASA astronomer: *"We are, by astronomical standards, a pampered, cosseted, cherished group of creatures. **If the universe had not been made with the most exacting precision we could never have come into existence**."*

Arno Penzias - Nobel Prize in physics: *"Astronomy leads us to a unique event, a universe which was created out of nothing, one with the very delicate balance needed to provide exactly the conditions required to permit life, and one which has **an underlying (one might say 'supernatural') plan."***

Richard C Lewontin - Professor of Zoology and Biology, Harvard University *"**Our willingness to accept scientific claims that are against common sense is the key to an understanding of the real struggle between science and the supernatural. We take the side of science in spite of the patent absurdity of some of its constructs, in spite of its failure to fulfill many of its extravagant promises of health and life, in spite of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism.** It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for we cannot allow a Divine Foot in the door."* From "Billions and Billions of Demons", Review of "The Demon-Haunted World: Science as a Candle in the Dark," by Carl Sagan, New York Review, January 9, 1997.

Again, **it's not just either/or, science OR religion. There is a third option** built on post-materialist scientific evidence dovetailing many ancient and indigenous teachings. An option that honors the non-material realms as well as the tools of the scientific method which – through many disciplines – indicate that (to quote Max Planck): **"mind is the matrix of matter."**

Maslow: "*Sooner or later we shall have to redefine both science and religion.*"

From the Book New Physics and Cosmology: Dialogues with the Dalai Lama (edited by physicist Arthur Zanonc) **Dalai Lama**: *"If logic really isn't coming from an a priori position, disengaged from nature, but is based upon nature, then* ***you have to modify your logic as new information comes in****. Buddhism must modify its logical principles based upon the new empirical evidence coming in."*

Piet Hut: professor of both astrophysics and interdisciplinary studies at Princeton. *"I think physics has to change much more than Buddhism.* ***David [Finkelstein] has expressed some very interesting ideas about the need to change to a quantum logic****. It is a very exciting topic."*

David Ritz Finkelstein – physics prof at the Georgia Institute of Technology and edits the international Journal of Theoretical Physics. *"The hardest part of each dramatic change that has occurred in physics since 1600 has been to become aware of the assumptions of the old theory that had to be given up.* ***The most confusing state of affairs is during the early days of a new theory, when you still cling to some of the old assumptions****, and yet some rewards of the new theory are attracting you further."*

Werner Heisenberg: *"...the basic changes in modern science must yet be considered as expressions of changes in our very existence and thus affecting every realm of life... The scientific method...has become conscious of its limitations, which arise out of the fact that by its intervention science alters and refashions the object of investigation. In*

other words, ***method and object can no longer be separated.*** *The scientific world-view has ceased to be a scientific view in the true sense of the word." The Physicist's Conception of Nature 1958*

Henry Stapp: ***"At the beginning of the 20th century many phenomena began to be discovered that were incompatible with the ideas of classical [conventional] mechanics, and another mathematics began to emerge...the theoretical breakthrough came when Heisenberg tried to model what was going on and found that in order to get the models to come out right he had to assume that, contrary to the rules of ordinary arithmetic, the order of the mathematical operations mattered.***

*In essence he discovered that he had to start treating mathematical quantities less like numbers and more like actions...something completely nonsensical from a classical point of view.... ...The way quantum mechanics works in practice is that you have these mathematical laws that operate on physical variables, and then you have these mental choices of what you want to probe, and the whole thing fits together in quite a beautiful way...****we're no longer just passive observers, robotic mechanical objects****...there's no known way the physical part can do the job alone."* **Henry Stapp is a quantum physicist who worked with both Wolfgang Pauli and Werner Heisenberg**. In his 2004 book *Mind, Matter, and Quantum Theory*, he develops a psychophysical theory of mind that depends on our modern understanding of reality in the light of quantum mechanics

*"I used to think of the year 1924, the year Heisenberg discovered the quantum theory, as a kind of abyss, a Grand Canyon, separating the old physics from the new…But this is too symmetric. The two sides of an abyss are on the same level…****Really we should regard this as a change in level, an evolutionary step: Quantum Theory is on a higher plateau than the older physics.***

I have the feeling I am climbing down from science's side into the canyon, and the deeper I go the more I can see the other side. I cannot jump yet. I am a little too scared to make the big jump but from here I can see the Tibetan notion of the sameness of outer and inner space – that they are not really something different. I recognize the language from the other side, and I see in it something very similar to what I expect to happen in the language of science in the next 100 years or so. ***The search for a***

***wider view, a wider context, a wider space – that is what science will soon investigate in much greater depth.*"** **Piet Hut** - professor of both astrophysics and interdisciplinary studies at the Institute for Advanced Studies in Princeton. Piet distinguished himself early for his landmark work on cosmological neutrinos, as well as for modeling the dynamics of the millions of stars that make up globular clusters.

***"Science deals with but a partial aspect of reality, and there is no faintest reason for supposing that everything science ignores is less real than what it accepts.**..The terms of physics are defined in terms of one another...We are doing what the dictionary compiler did when he defined a violin as a small violincello, and a violincello as a large violin. Up to the beginning of the [20th] century physical science sought an explanation of the universe in mechanical terms. Even the phenomena of life and mind, it was hoped, would be brought within this general scheme.* ***The great change that has come over physical science is due precisely to the realization that this particular group of ideas is inadequate**."*

We are in the process of replacing [the old group of ideas] by a different set. But it is not clear yet what the new set will be...and we are not yet sure we have found the right concepts out of which to build our picture of reality. It is very probable that some of the questions we are putting to nature are just meaningless. ***We are living, not merely in an epoch of fresh discoveries, but at the birth of a new world outlook.**"*

Mathematician, musician, philosopher, author of numerous books, **JWN Sullivan was named by TIME as one of the world's 4 or 5 most brilliant interpreters of physics** to the world of common men," He is regarded as one of the most accomplished men in his generation. Above, from his book, The Limitations of Science 1950.

Arthur Zajonc - Amherst physics professor, author*, Catching the Light* and editor *The New Science and Cosmology: Dialogues with the Dalai Lama*: *"The word science stems from the Latin scientia, meaning "having knowledge."* ***I too am convinced that it will become increasingly important to recognize that we can have knowledge of a much broader range of phenomena than science has traditionally [conventionally] allowed. This includes knowledge based on lived human experience, both of the outer world, accessible to the senses, and the inner world, opened by reflection and contemplation**. In other words, the scope of science can indeed become more encompassing and vaster in a way that is neither reductionist nor strictly quantitative, and yet can remain true to the essential values of scientific inquiry."*

Andrew Weil, MD: *"**If our conscious life is totally attached to our sensory perceptions of external reality, it is very likely that we will come to equate reality with external reality** just as we tend to equate mind with intellect and consciousness with ordinary waking consciousness."* From the book, *The Natural Mind*

Tu Weiming was born in China and studied in Taiwan. He is a professor of Chinese history and philosophy at Harvard and director of the Yenching Institute: *"First of all and at a minimum, the reductionist view of the human person has to go. A human being is not simply a rational animal. A human being is not simply a tool user. A human being is not simply a linguistic being. A human being is poetic and aesthetic, is capable of sensitive responses to an ever-expanding network of relationships within the human world and beyond, even with the distant stars.* ***Human beings are social beings, with an emphasis on relationship and connectedness. Human beings are co-creators.****"*

"Looking back at the physics of the last century, the idea was that it was the century of mechanics. The idea was that the world, including us, is just a big machine that evolves according to certain laws. I find this a very boring view. Very sad view." **Anton Zeilinger** 2008 received the Inaugural Isaac Newton Medal of the Institute of Physics (UK) for "his pioneering conceptual and experimental contributions to the foundations of quantum physics, which have become the cornerstone for the rapidly-evolving field of quantum information". Zeilinger is professor of physics at the University of Vienna

"***The dream of mechanism washed over Western thought****. Humanities strove to become sciences, each science to become physics. Biology chased after chemistry, chemistry after mathematics - the ultimate destination in every field being always that final elementary particle."* **Allan Wheelis** The End of the Modern Age

"*There is a reductionist tendency in this model to explain life by looking at DNA, at the physics or chemistry of molecules and atoms. Similarly, if people study the brain in psychology, they look at the biological structure of the brain, at the nerve cells and how nerve signals propagate. Each level is explained in terms of a lower level through physics mathematics and logical principles. It is an ideal but in practice new discoveries sometimes force us to modify the principles."* **Piet**: professor of both astrophysics and interdisciplinary studies at the Institute

for Advanced Studies in Princeton. Piet distinguished himself early for his landmark work on cosmological neutrinos, as well as for modeling the dynamics of the millions of stars that make up globular clusters. He and his colleagues designed and used the world's fastest special- purpose computer to do their modeling of colliding galaxies.

J. Robert Oppenheimer: *"The giant machine was not only causal and determinate; it was objective in the sense that no human act or intervention qualified its behavior."*

Roger Jones - ret physics professor and author: **"*If a society set out to design a creation myth that would scare the living daylights out of everyone, you couldn't have done a better job than the [materialist] western scientific paradigm."***

Out with the old, in with the new.

We are evolving works-in-progress towards an awareness of our fundamental interconnectedness and capacity to influence the 3 dimensional expression of unlimited waves of quantum potential. We can co-create a new universe of possibility, and Meaning.

*"Reality is in a certain sense, made up of a few iron posts of definite observation between which we fill in, by an elaborate work of imagination and theory, all the rest of the construction we call reality. I like the story of the three umpires relaxing over beer one afternoon and comparing notes. One umpire says, "I calls 'em as I sees 'em." The next umpire says, "I calls 'em as they really are.". The third one says, "**They ain't nothing 'til I call 'em**."* **Physicist John Wheeler -** Princeton Physics professor, his delayed choice experiment and conclusions have been upheld.

*"**We used to think of the universe as "out there," to be observed as it were from behind the screen of a foot-thick slab plate of glass, safely, without personal involvement. The truth, quantum theory tells us, is quite different**...the observer is inescapably promoted to participator. In some strange sense this is a participatory universe"* **Physicist John Wheeler, mentor to Richard Feynman**

"What is man that the universe should be mindful of him? …is not man an unimportant bit of dust on a unimportant region somewhere in the vastness of space? No! The philosopher of old was right! ***Meaning is important, even central****."* **John Wheeler**

Bob Livingston - one of the founders of the discipline of neuroscience:

"The nerves coming out from the central nervous system to the retina can affect the impact of light on the sense receptors and can particularly affect the relay within the retina of events excited by the photon bombardment.

They can also affect the message that goes back to the central nervous system. Similarly, in the central nervous system, each of the relay projections can be modified from central projections outward. ***These outward projecting impulses act in accordance with our past experience, our expectations, and our purposes. Our past experiences dictate a great deal about what we perceive from our retina****, from our auditory apparatus, and so on and make an idiosyncratic experience for us, unique to the individual.*

Evolution has given us access to the world and has also given us the power to modify that world experience in accordance with our past experiences and our expectations and our purposes*. If we change or have different past experiences, we see things, feel things, experience things differently.*

If we change our purposes we can radically change the input in our perception. *If we change our expectation, we modify the sensory experience. This means we live in a world in which evolution has contributed and our personal experiences have contributed. We are obliged to accommodate ourselves to a society, and as we grow up that society exercises a lot of discipline over us, making our images conform to the societal imagery.* ***Errors in our individual experience and in our societal experience can be very dangerous if they're in conflict with one another****…I appreciate this dialogue [with physicists and the Dalai Lama] for very important communication between different levels of experience and perceptual understanding of what we are and what we have as potentiality."*

Physicists David Peat and David Bohm from *Science, Order and Creativity*:

Peat: ***"Well, it's certainly true that in the early days of quantum theory, the leading physicists like Bohr, Heisenberg, Pauli, Schrodinger, and de Broglie were vitally concerned with philosophical questions****, especially on the relationship between ideas and reality."*

Bohm: *"…**the general practice of physics has indeed become remote from these deeper considerations**. It tends to concentrate on technical questions, and for this reason, it seems to have lost contact with its own roots.*

P*: "…**especially concerned with the narrowness of vision that is developing, not only in physics, but quite generally in scientific research**."*

B: *"**This vision changed with specialization. It grew progressively narrower and eventually led to our present approach, which is, in large part, fragmentary**…the prevailing attitude has been to put the major emphasis on analysis and on splitting off the key factors of each situation. Scientists hope that this will enable them to extend their powers indefinitely to predict and control things."*

P: *"It's important to note that **not only is this sort of approach fundamental to physics but it also extends to chemistry, biology, the neurosciences and even into economics and psychology."***

B: *"**We increasingly ignore the wider context that gives things their unity. In fact this spirit is now spreading beyond science, not only into technology, but into our general approach to life as a whole. Understanding is now valued as the means to predict, control and manipulate things."***

P: *"Yes science has been moving at an ever-increasing rate since the nineteenth century and it's bringing with it a host of technological changes. But **it is only relatively recently that so many people have begun to question if all this progress is really beneficial. ..I think the time has come for science to pause and take a careful look where it is going**."*

B: *"**Some very important factors have been neglected in obtaining progress. First of all, there has been overall fragmentation in our general attitude to reality. This leads us to focus always on particular problems, even when they are significantly related to a broader context. As a result we fail to see the unforeseen negative consequences, which cannot always be dealt with in terms of a fragmentary mode of thought.** The result is that these difficulties spread into the whole context and eventually come back to create problems that may be worse than those we started with".*

"Major problems cannot be solved with the same consciousness that created them."
Einstein

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"It is not the strongest of the species that survives, or the most intelligent that survives. It is the one that is the most adaptable to change." **Charles Darwin**

"The highest and most complex sense of relationship is expressed in consciousness. Thus the most highly evolved form of existence is seen in the human consciousness. It is expressed in its highest form in those who are the most developed with respect to their relationship with all else in the cosmos near and far. Those most highly evolved would also have the greatest capacity for further evolution, for advantageous change, for adapting to changing circumstances. They would be the ones with the greatest capacity to resolve difficulties...to find ways to survive even under intolerable circumstances...We can no longer relate to ourselves without regard for our relationship to all of life...our minds are linked and interrelated." **Jonas Salk**, developed polio vaccine. From *Anatomy of Reality: Merging Intuition and Reason*

"A human being is a part of the whole, called by us "Universe". He experiences himself, his thoughts and feelings, as something separated from the rest - a kind of optical illusion of his consciousness. This delusion is a prison restricting us restricting us to our personal desires and to affection for a few persons nearest to us. We must widen our circle of compassion to embrace all living creatures and the whole of nature in its beauty." **Albert Einstein**

That is the illusion of the 5 senses and the material world that many ancient cultures spoke of. We need those 5 senses to navigate these 3 dimensions (+ time), but we also need to transcend them and consciously engage/leverage additional dimensions.