

## Scientists and spirituality

See [fund\\_mystic\\_scientists\\_paper](#)

### **Bohm comment by Robinson:**

Through his wife, Bohm came to see quantum physics as Compatible with Buddhist thought

**Heisenberg:** In his book *Across the Frontiers*, Heisenberg does not dismiss religion or philosophy which many others do, thinking both to be unnecessary for science, rather he is willing to consider the ideas present in both and even as being other ways to reach truth.

From amazon book review:

<http://www.amazon.com/Across-Frontiers-Werner-Heisenberg/dp/0918024811>

science and religion by WH

[http://www.edge.org/3rd\\_culture/heisenberg07/heisenberg07\\_index.html](http://www.edge.org/3rd_culture/heisenberg07/heisenberg07_index.html)

## Across the Frontiers (Paperback)

### **Heisenberg: book science and religion**

**Heisenberg**, Schroedinger, Einstein held **spiritual** worldviews. Discussion of Faith & Religion.

<http://richarddawkins.net/forum/viewtopic.php?f=3&t=72475&start=25>

The finding of the truth can only be secured by a determined step into the realm of metaphysics" *Max Planck*

Einstein wrote: "The most beautiful and most profound emotion we can experience is the sensation of the mystical. It is the power of all true science. To know what is

impenetrable to us really exists, manifesting itself as the highest wisdom and the most radiant beauty which our dull faculties can comprehend only in their most primitive forms- this knowledge, this feeling is at the center of true religiousness."

While at Imperial College, Abdus Salam had the privilege of interacting with great minds, such as Bertrand Russell, Einstein, Openheimer, and Wolfgang Pauli to name a few. During a discussion, once, Russell was discussing how he was vehemently opposed to Gods existence,

In his first meeting with Einstein, their whole discussion was about religion, and they became close friends.

Dr Salam won the Nobel Prize in Physics 1979 for his research in "Grand unification theory". This theory was inspired by his spiritual beliefs that all forces emanate from a single source. The hours he spent conducting scientific research at his home, would be against the backdrop of recorded naats and talawat of the Holy Quran.

<http://www.chowk.com/articles/8387>

the author is skeptical of the embrace of science and mysticism, but he provides some good information on the topic over the last 40 years.

[http://www.opendemocracy.net/article/globalisation\\_visions/mysticism-science](http://www.opendemocracy.net/article/globalisation_visions/mysticism-science)

The fundamental tool of cosmology, quantum theory, is filled with paradoxes that some philosophers have adapted to mystical notions. Dr. Hawking was asked in a recent interview whether he believed there was any real difference between mathematicians and mystics. He replied: "There is no sharp boundary, just a gradual descent into wooliness."

<http://www.nytimes.com/1988/04/19/science/mystics-and-science-hawking-s-views.html>

Dialogues with Scientists and Sages: Search for Unity in Science and Mysticism (Arkana) (Paperback)

**A Review for 'The Hindu'**

**SCIENCE AND MYSTICISM - The Essence of Vedic Philosophy. H.K. Kesavan;** New Age International (P) Limited, Publishers, 4835/24, Ansari Road, Daryaganj, New Delhi 110 002

Can a good Scientist be a truly religious person? Yes, says the author, provided we understand what true religion 'truly' means! We have seen lots and lots of books which explain Science to an intelligent layman. We have read several books which discourse on the great philosophies of the Hindu world. We have also heard vaguely about the various rendezvous the frontiers of modern science have with Mysticism that is usually associated with Religion. Of late quite a few books have been written by Scientists in this area, particularly on the specific subject of Consciousness so intensely talked about in Hindu philosophy. These Scientists have several claims to make. On one side the exercise seems to attempt a 'rational' explanation of the convictions of Indian philosophy about, God, Soul and the Universe. On the other side the exercise also seems to reveal – to some of the scientists at least – that they are chasing a receding horizon. Amidst this spate of publications it is heartening to find a book written by a competent Indian Scientist who exhibits an open mind to the 'mystic-like' interpretations of Hindu scriptural proclamations and simultaneously is able to put them forth with perfect clarity in the context of modern scientific language. He completely captures the essence of the Vedic message without belittling evidence that is un-amenable to means of rational inquiry. The strategy adopted is to express the Vedantic thoughts - this is the welcome novelty of the book - in the language of standard paradigms of modern Science. The purpose of religion being transformation of character rather than information for memory, the author concludes, after a superb exposition running to more than 200 pages, that the aim of spiritual instruction should be to present both the theoretical and practical aspects about the science of the ultimate truth, known as mysticism, and the efforts of the individual are to be directed towards unveiling the self-luminous knowledge that is ever present. It is the theme of mysticism that provides the common basis for comparison of religious truths with the basic tenets of science. The author develops this theme and, *en route*, carries a legitimate, leisurely survey of Hindu Vedanta, with a masterly precision that is characteristic of a good scientist and with the firm conviction that is natural to the truly religious.

The first chapter entitled '*Some Paradigms of Science*' dwells on the bifurcation between the pursuit of science and that of religion. Science researches into the constancy of Nature through its 'laws' that are continuously unravelled by its relentless research. Reasoning reveals that side by side with the basic existence of the external universe there is a constant change and flux. This paradoxical union of being and becoming may be attributed to what one might call a universal 'mind', the complete ramification of which is what science is all about. The word 'mind' used here is only an imitation of the concept of 'individual mind' which is the other feature of the twin existence of Man and Nature. While the individual mind has the facility of a subjective verification and 'experience' of its own conclusions, the universal mind has no way of revealing itself to us except through human observation, experimentation (which is most often indirect), a rational analysis, a further speculation and further experimentation. The march of this absolutely honest science leads us to the concepts of causality, reductionism which seeks to understand the universe by fragmenting it, the seminal discovery that we are living in an expanding universe, the notion of eternity suggested by the concept of space-time, the possibly non-inert nature of the sub-atomic world, the blurring of the distinction between the observer and the observed in the micro-universe, and the opening out of

genetic secrets through the gadgetry of molecular biology but which still is far away from the understanding of the origin of consciousness in life. Hindu philosophy on the other hand starts by investigating the individual mind, but the complete holistic picture emerges only when the infinite character of the universal mind is brought in.

In the next chapter, *The Vedas and the Vedic Philosophy*, one finds, after a brief background of the scriptures, a really smooth outline of the philosophy embedded in the Upanishads. Very rightly the author emphasizes that Hindu philosophy prefers to start its probe of the mystery of the universe by first probing into what is experienced at the human level, by investigating what constitutes the innermost essence of man and the observer in him. This is the Psychic Principle, the substratum of the individual Self, called *Âtman*. Contrasted with this is the Cosmic Principle, called *Brahman*. The unique declaration of the Upanishads is that these two are the same. This identity is of special significance. Bereft of this identity the Cosmic Principle is only in the nature of speculation. Brahman of the Upanishads is not any more an isolated concept, nor is Atman to be mistaken for ‘*something which is characterized by diminutive dimensions of finitude*’, though experienced only by the individual self. ‘It was here’, says Paul Deussen, ‘for the first time the original thinkers of the Upanishads, to their immortal honour, found God’.

The third chapter brings an assortment of various concepts which throw further light on the Vedic Philosophy. Some of these are: Ways and means to overcome our spiritual ignorance, the Karma doctrine which informs us that God does not play dice in the case of the spiritual evolution of the individual soul, the four goals of life, the three states of Consciousness, the possibility of inferring a fourth state, the descriptive verbal model of the five sheaths that exist between the state of spiritual ignorance and the state of spiritual enlightenment, the proclamation of the scriptures on the existence of a primal sound of the Universe, the strategy of controlling *Prajnâ* (mental energy) and *Prâna* for the purpose of turning the mind away from its outward obsessions and towards the inner ocean of tranquillity, and some medical findings about Meditation - which are pointers to the fact that ‘*the human personality is not confined to the triad of states*’ only.

What is Reality? Is it subjective or objective? Can it be both? Do we cognize the world because it is already there or do we create it by our cognition? Are there ever-increasing orders of Reality? Is there a mathematical model? Is Evolution only a biological phenomenon? By penetrating deeper and deeper towards the core of the human soul, does one get close to the comprehension of the Incomprehensible Reality? What kind of testimonies are valid in this quest? Are Eastern and Western philosophies different in their handling of testimonies? Why is verbal testimony, the testimony of the Sruti, important? What is Consciousness? What is the seat of Consciousness? In what sense are attempts like Chardin’s Thesis of *The Omega Point* (1959) wherein the idea of a non-physical entity (like radial energy) was used for purpose of guiding future evolution, analogous to the concept of *Mahat* in Indian Philosophy? How logical is the conclusion (for example, as in *Shadows of the Mind* of Roger Penrose, 1989) that ‘*human insight lies beyond formal argument and beyond computable procedures*’? These and other questions form the subject of a meticulous discussion in the rest of the third chapter.

Chapters 4, 5 and 6 forming one-third of the book, constitute a bonanza of encyclopaedic ancient wisdom, not to be usually expected in a book on Science and

Mysticism written by a scientist. In conformity with the sub-title of the book, these three chapters form a delightful thesis on three technical areas of Indian Philosophy, namely, Sankhya and Yoga; Samkara's Non-dualism (*Advaita*); and Ramanuja's Theism (*Visishtâdvaita*). All the technical concepts pertaining to these doctrines, namely, the several evolutes of *Prakriti*; the staircase model versus the feedback model, of *Ashtânga Yoga*; *Mithyâ*, *Mâyâ* and *Adhyâsa* in the theory of *Advaita*; *Prapatti* and *Bhakti* in *Visishtâdvaita*; the absolute with attributes and without attributes; and a host of other concepts, all find their due place in the discussion. A reading of these chapters would lead us to believe that they have been written not just to satisfy an intellectual curiosity but to share with the reader a certain deep faith in the philosophical tradition handed down to us by towering Indian giants of Spirituality.

The last chapter is the crowning glory of the book. The fact that a mechanical or intellectual comparison of the different philosophical doctrines is not as important as a consistent spiritual practice to overcome one's own unique set of conditions of ignorance is well brought out. Religion should imply the sparking of a burning desire for the realization of God. Whatever school of philosophy one believes in, the goal of attaining a higher state of consciousness should be the dominant purpose. This higher state of consciousness is not that of the physicist who 'sees' the microscopic universe as composed of myriads of 'quarks' and 'strings' but it is the Consciousness of the mystic who 'sees' the macro and the micro together in a holistic all-embracing Infinitude. When the individual mind gets into the habit of frequenting this non-manifest field of existence through Meditation, automatically it also attains a heightened awareness for its pursuits of material excellence. To embark on this spiritual journey is the first step towards an enduring solution for the chronic problems afflicting mankind. So concludes this remarkable book. It has a list of references and an index at the end. The index can, however, afford to be much enlarged.

Comments on the side are everywhere in the book. These add spice to the already relishable menu. For instance, while writing about *Advaita* he says (p.143): Samkara's emphatic assertion that the philosophical investigation should proceed from (the Vedic testimony of) the Absolute rather than from consideration of the relative field of existence can be viewed as a qualitative assertion of the (implications of the) famous mathematical theorem (of Godel) that we can never successfully explore the infinite from the realm of the finite. The whole book may be likened to a running commentary by an expert cricket commentator who takes us along by his enthusiasm and educates us without our knowing it as he moves from one subtlety to another of the fast-moving game. On the whole, it is an excellent addition to the spiritual literature of the modern world, that should be in the hands of every one interested in uplifting himself.

V. Krishnamurthy.

[http://www.geocities.com/profvk/VK2/Review\\_Science\\_and\\_Mysticism.html](http://www.geocities.com/profvk/VK2/Review_Science_and_Mysticism.html)

By Joann Loviglio

 Associated Press

updated 11:35 a.m. PT, Sat., Jan. 27, 2007

PHILADELPHIA - Religion and science can combine to create some thorny questions: Does God exist outside the human mind, or is God a creation of our brains? Why do we have faith in things that we cannot prove, whether it's the afterlife or UFOs?

The new [Center for Spirituality and the Mind](#) at the University of Pennsylvania is using brain imaging technology to examine such questions, and to investigate how spiritual and secular beliefs affect our health and behavior.

"Very few are looking at spirituality from a neurological side, from the brain-mind side," said Dr. Andrew Newberg, director of the center.

A doctor of nuclear medicine and an assistant professor at Penn, Newberg also has co-written three books on the science-spirituality relationship. He's also played a role in ["What the Bleep Do We Know,"](#) a movie that blends quantum physics and new-age neuroscience.

Newberg's center is not a bricks-and-mortar structure but a multidisciplinary team of Penn researchers exploring the relationship between the brain and spirituality from biological, psychological, social and ideological viewpoints. Founded last April, it is bringing together some 20 experts from fields including medicine, pastoral care, religious studies, social work and bioethics.

"The brain is a believing machine because it has to be," Newberg said. "Beliefs affect every part of our lives. They make us who we are. They are the essence of our being."

Spirituality and belief don't have to equate to religious faith, Newberg said. The feelings of enlightenment and well-being some derive from religion can come to others through from artistic expression, nonreligious meditation, watching a beautiful sunset or listening to stirring music.

"Atheists have belief systems, too," Newberg said.

### **Testing the hypotheses**

How does the center test the relationship between the mind and spirituality?

In one study, Newberg and colleagues used imaging technology to look at the brains of Pentecostal Christians speaking in tongues — known scientifically as glossolalia — then looked at their brains when they were singing gospel music. They found that those

practicing glossolalia showed decreased activity in the brain's language center, compared with the singing group.

The imaging results are suggestive of people's description that they do not have control of their own speech when speaking in tongues. Newberg said scientists believe that speech is taken over by another part of the brain during glossolalia, but did not find it during the study.

Other recent studies looked at the brains of Tibetan Buddhists in meditation and Franciscan nuns in prayer, then compared the results to their baseline brain activity levels.

Among other changes, both groups showed decreased activity in the parts of the brain that have to do with sense of self and spatial orientation — which suggests the description of oneness with God, of transcendence sometimes experienced in meditation or prayer.

Prayer and meditation also increase levels of dopamine, often referred to as the brain's pleasure hormone.

"The mind and the body are the flip side of the same coin," said Dr. Daniel Monti, head of Thomas Jefferson University Hospital's integrated medicine center. "Now we know some of the mechanisms by which that occurs, and it's becoming better and better understood."

### **Medicine and meditation**

The integrated medicine center teaches patients with cancer, chronic pain and other ailments to work things like meditation and proper diet into their conventional therapy, Monti said. Such thinking seemed "fringy" to many people a decade ago, but it is becoming widely accepted by the medical community and patients, he said.

"Now there's the recognition that a truly effective treatment plan is not just giving a pill," he said. "We need to look at how to help a person adjust to a different lifestyle in addition to taking a pill."

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Not many imaging studies have yet been done that look at changes in the brain's blood flow because technology has only within the past decade become sophisticated enough to study the brain in this way, Newberg said. An increase in blood flow to certain parts of the brain means increased activity in those areas.

Newberg is currently studying how the brains of novice yoga practitioners change as they become more adept, and whether meditation can improve cognitive impairment in people with mild dementia or early Alzheimer's disease.

"The sky's the limit as far as the things we can study," he said.

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