
Scientists' views on meta-physics

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Scientists have generally been taken as atheists. But pure science, with its passion for Truth, is not contrary to spirituality which also seeks Truth. Science and spirituality are, therefore, not contradictory but complementary.

The multiplicity that we observe in the world around us is merely a functional necessity of the One that appears as Many, according to both scientists and spiritualists. One and Many are also not contradictory but complementary. They appear to be opposite to each other because they are mutually exclusive like the wave and particle nature of matter.

Many eminent scientists of the world have spoken about God, religion, philosophy, spirituality, consciousness and morality. In what follows we shall try to state what some of them have said about these concepts.

NEWTON

Newton's conception of God, as he states in the *Principia* (his great book which laid the foundation of mathematical physics), is that of a Universal Ruler: It is the dominion of a spiritual being which constitutes a God.

We are, therefore, to acknowledge one God, infinite, eternal, omnipresent, omniscient, omnipotent, the creator of all things, most wise, most just, most good, most holy. We must love Him, fear Him, honour Him, trust in Him, pray to Him, give Him thanks, praise Him, hallow His name, obey his commandments, and set time apart for his service, as we are directed in the third and fourth Commandments, for this is the love of God, that we keep his commandments, and His commandments are

not grievous. And these things we must do not through any mediators between Him and us, but to Him alone.

The Supreme God is a Being eternal, infinite, absolutely perfect; but a being, however perfect, without dominion, cannot be said to be Lord God. It is the dominion of a spiritual being which constitutes a God, a true, supreme, or imaginary dominion makes a true, supreme, or imaginary God.

EINSTEIN — The most beautiful experience we can have is the mysterious. It is the fundamental emotion which stands at the cradle of true art and true science. Who can no longer wonder, no longer marvel, is as good as dead, and his eyes are dimmed. It was the experience of mystery — even if mixed with fear — that engendered religion. A knowledge of the existence, of something we cannot penetrate, our perceptions of the profoundest reason and the most radiant beauty, which only in their most primitive forms are accessible to our minds—it is this knowledge and this emotion that constitute true religiosity, in this sense, and in this alone.

Einstein said : A hundred times every day I remind myself that my inner and outer life are based on the labors of other men, living and dead, and that I must exert myself in order to give in the same measure as I have received and am still receiving. I am strongly drawn to a frugal life and am often oppressively aware that I am engrossing an undue amount of the labor of my fellow-men. I regard class distinctions as unjustified and, in the last resort, based on force. I also believe that a simple and unassuming life is good for everybody, physically and mentally.

I do not at all believe in human freedom in the philosophical sense. Everybody acts not only under external compulsion but also in accordance with inner necessity.

The most important human endeavor is striving for morality in our actions. Our inner balance and even our very existence depend on it. Only morality in our actions can give beauty and dignity to life.

To the sphere of religion belongs the faith that the regulations valid for the world of existence are rational, that it is comprehensible to reason. I cannot conceive of a genuine scientist without that profound faith. The situation may be expressed by an image: science without religion is lame, religion without science is blind.

I want to know how God created this world. I am not interested in this or that phenomenon in the spectrum of this or that element. I want to know His thoughts, the rest are details.

What I'm really interested in is whether God could have made the world in a different way; that is, whether the necessity of logical simplicity leaves any freedom at all.

NIELS BOHR — In any attempt of clarifying man's position in existence, it is a question of proper balance between our want for an all-embracing way of looking at life in its multifarious aspects and our power of expressing ourselves in a logically consistent manner.

Although many difficulties stand in the way of such sweeping changes in the established order, there is still encouragement to be found not least in the increasing number of common tasks facing mankind, for the solution of which all can unite. In this respect international scientific cooperation occupies a unique position because here efforts are directed solely towards increasing human knowledge and insight. Across any difference in national origin and political orientation, cooperation towards this common goal has created warm friendships which hold not only great happiness for the individual scientist, but also hope for a brighter future for all mankind.

FRITJOF CAPRA

The masses of India have received the teachings of Hinduism not through the *Upaniṣads*, but through a large number of popular tales, collected in huge epics, which are the basis of the vast and colourful Indian mythology. One of those epics, the *Mahābhārata*, contains India's favourite religious text, the beautiful spiritual poem of the *Bhagavadgītā*.

Brahman, the ultimate reality, is understood as the 'soul', or inner essence, of all things. It is infinite and beyond all concepts; it cannot be comprehended by the intellect, nor can it be adequately described in words: '*Brahman*, beginningless, supreme: beyond what is and beyond what is not. — Incomprehensible is that supreme Soul, unlimited, unborn, not to be reasoned about, unthinkable.' Yet, people

want to talk about this reality and the Hindu sages with their characteristic penchant for myth have pictured Brahman as divine and talk about it in mythological language. Various aspects of the Divine have been given the names of various gods worshiped by the Hindus, but the scriptures make it clear that all these gods are but reflections of the one ultimate reality.

The manifestation of Brahman in the human soul is called *Ātman* and the idea that *Ātman* and *Brahman*, the individual and the ultimate reality, are one is the essence of the *Upaniṣads*.

The basic recurring theme in Hindu mythology is the creation of the world by the self-sacrifice of God—'sacrifice' in the original sense of 'making sacred'—whereby God becomes the world which, in the end, becomes again God. This creative activity of the Divine is called *līlā*, the play of God, and the world is seen as the stage of the divine play. Like most of Hindu mythology, the myth of *līlā* has a strong magical flavour. Brahman is the great magician who transforms himself into the world and he performs this feat with his 'magic creative power', which is the original meaning of *māyā* in the *Ṛgveda*. The word *māyā* — one of the most important terms in Indian philosophy—has changed its meaning over the centuries. From the 'might', or 'power', of the divine actor and magician, it came to signify the psychological state of anybody under the spell of the magic play. As long as we confuse the myriad forms of the divine *līlā* with reality, without perceiving the unity of *Brahman* underlying all these forms, we are under the spell of *māyā*.

Māyā, therefore, does not mean that the world is an illusion, as is often wrongly stated. The illusion merely lies, in our point of view, if we think that the shapes and structures, things and events, around us are realities of nature, instead of realizing that they are concepts of our measuring and categorizing minds. *Māyā* is the illusion of taking these concepts for reality, of confusing the map with the territory.

In the Hindu view of nature, then, all forms are relative, fluid and ever-changing *māyā*, conjured up by the great magician of the divine play. , The world of *māyā* changes continuously, because the divine *līlā* is a rhythmic, dynamic play. The dynamic force of the play is *karma*, another important concept of Indian thought. *Karma* means 'action'. It is the active principle of the play, the total universe in action,

where everything is dynamically connected with everything else. In the words of the *Gītā*, '*Karma*' is the force of creation, where from all things have their life.'

The meaning of *karma*, like that of *māyā*, has been brought down from its original cosmic level to the human level where it has acquired a psychological sense. As long as our view of the world is fragmented, as long as we are under the spell of *māyā* and think that we are separated from our environment and can act independently, we are bound by *karma*. Being free from the bond of *karma* means to 'realize the unity and harmony of all nature, including ourselves, and to act accordingly.

To be free from the spell of *māyā*, to break the bonds of *karma* means to realize that all the phenomena we perceive with our senses are part of the same reality. It means to experience, concretely and personally, that everything, including our own self, is *Brahman*. This experience is called *moksha*, or 'liberation' in Hindu philosophy and it is the very essence of Hinduism.

Hinduism holds that there are innumerable ways of liberation. It would never expect all its followers to be able to approach the Divine in the same way and, therefore, it provides different concepts, rituals and spiritual exercises for different modes of awareness. The fact that many of these concepts or practices are contradictory does not worry the Hindus in the least, because they know that *Brahman* is beyond concepts and images anyway. From this attitude comes the great tolerance and inclusiveness which is characteristic of Hinduism.

The most intellectual school is the Vedānta which is based on the *Upaniṣads* and emphasizes *Brahman* as a non-personal, metaphysical concept, free from any mythological content. In spite of its high philosophical and intellectual level, however, the Vedāntist way of liberation is very different from any school of Western philosophy, involving as it does daily meditation and other spiritual exercises to bring about the union with *Brahman*.

Another important and influential method of liberation is known as yoga, a word which means 'to yoke', 'to join', and which refers to the joining of the individual soul to *Brahman*. There are several schools or 'paths' of yoga involving some basic physical training and various mental disciplines designed for people of different

types and at different spiritual levels.

For the common Hindu, the most popular way of approaching the Divine is to worship it in the form of a personal god or goddess. The fertile Indian imagination has created literally thousands of deities which appear in innumerable manifestations. The three most worshiped divinities in India today are Śiva, Viṣṇu and the Divine Mother. Śiva is one of the oldest Indian gods who can assume many forms. He is called *Maheśvara*, the Great Lord, when he is represented as the personification of the fullness of Brahman and he can also impersonate many single aspects of the Divine; his most celebrated appearance being the one as *Natarāja*, the King of Dancers. As the Cosmic Dancer, Śiva is the god of creation and destruction who sustains through his dance the endless rhythm of the universe.

Viṣṇu, too appears under many guises, one of them being the god Kṛṣṇa of the *Bhagavadgītā*. In general, Viṣṇu's role is that of the preserver of the universe. The third divinity of this triad is Shakti, the Divine Mother, the archetypal goddess presenting in her many forms the female energy of the universe.

Contrary to most Western religions, sensuous pleasure has never been suppressed in Hinduism, because the body has always been considered to be an integral part of the human being and not separated from the spirit. The Hindu, therefore, does not try to control the desires of the body by conscious will but aims at realizing himself with his whole being, body and mind. Hinduism has even developed a branch, the medieval Tantrism, where enlightenment is sought through a profound experience of sensual love 'in which each is both'.

The Western mind is easily confused by the fabulous number of gods and goddesses which populate the Hindu mythology in their various appearances and incarnations. To understand how the Hindus can cope with this multitude of divinities, we must be aware of the basic attitude of Hinduism that in substance all these divinities are identical. They are all manifestations of the same divine reality, reflecting different aspects of the infinite, omnipresent, and — ultimately — incomprehensible *Brahman*.

SCHRODINGER

Immediate experiences in themselves, however various and disparate they be, are logically incapable of contradicting each other.

So let us see whether we can draw the correct, non-contradictory conclusion from the following two premises:

- (i) My body functions as a pure mechanism according to the Laws of Nature.
- (ii) Yet I know, by incontrovertible direct experience, that I am directing its motions, of which I foresee the effects, that may be fateful and all-important, in which case I feel and take full responsibility for them.

The only possible inference from these two facts is, I think, that I—I in the widest meaning of the word, that is to say, every conscious mind that has ever said or felt 'I'—am the person, if any, who controls the 'motion of the atoms' according to the Laws of Nature.

Within a cultural milieu where certain conceptions have been limited and specialized, it is daring to give to this conclusion the simple wording that it requires. In Christian terminology to say: 'Hence I am God Almighty' sounds both blasphemous and lunatic. But please disregard these connotations for the moment and consider whether the above inference is not the closest a biologist can get to proving God and immortality at one stroke.

In itself, the insight is not new. The earliest records to my knowledge date back some 2,500 years or more. From the early great Upaniṣads the recognition ĀTMAN = BRAHMAN (the personal self equals the omnipresent, all-comprehending eternal self) was in the Indian thought considered, far from being blasphemous, to represent the quintessence of the deepest insight into the happenings of the world. The striving of all the scholars of Vedānta was, after having learnt to pronounce with their lips, really to assimilate in their minds this grandest of all thoughts.

Again, the mystics of many centuries, independently, yet in perfect harmony with each other (somewhat like the particles in an ideal gas) have described, each of them, the unique experience of his or her life in terms that can be condensed in the phrase: DEUS FACTUS SUM (I have become God).

Allow me a few further comments. Consciousness is never experienced in the plural, only in the singular. Even in the pathological cases of split consciousness or double personality, the two persons alternate, they never manifest simultaneously. In a dream we do perform several characters at the same time, but not indiscriminately: we are one of them; in him we act and speak directly, while we often eagerly await the answer or response of another person, unaware of the fact that it is we who control his movements and his speech just as much as our own.

How does the idea of plurality (so emphatically opposed by the Upaniṣad writers) arise at all? Consciousness finds itself intimately connected with, and dependent on, the physical state of a limited region of matter, the body.

Now, there is a great plurality of similar bodies. Hence the pluralization of consciousnesses or minds seems a very suggestive hypothesis.

It leads, almost immediately, to the invention of souls, as many as there are bodies, and to the question whether they are mortal as the body is or whether they are immortal and capable of existing by themselves. The former alternative is distasteful, while the latter frankly forgets, ignores or disowns the facts upon which the plurality hypothesis rests. Much sillier questions have been asked: Do animals also have souls?

It has even been questioned whether women, or only men, have souls.

Such consequences, even if only tentative, must make us suspicious of the plurality hypothesis, which is common to all official Western creeds. Are we not inclining to much greater nonsense, if in discarding their gross superstitions we retain their naïve idea of plurality of souls, but 'remedy' it by declaring the souls to be perishable, to be annihilated with the respective bodies?

The only possible alternative is simply to keep to the immediate experience that consciousness is a singular of which the plural is unknown; that there is only one thing and that what seems to be a plurality is merely a series of different aspects of this one thing, produced by deception (the Indian MĀYĀ); the same illusion is produced in a gallery of mirrors, and in the same way Gaurīsaṅkar and Mt Everest turned out to be at the same peak seen from different valleys.

A hundred years ago, perhaps, another man sat on this spot. ...Like you he was begotten of a man and born of a woman. He felt pain and brief joy as you do. Was

he someone else? Was it not you yourself? What is this self of yours? ...What clearly intelligible scientific meaning can this “someone else” really have? ... Looking and thinking in that manner you may suddenly come to see, in a flash, the profound rightness of the basic conviction in Vedānta... that sacred, mystic formula which is yet really so simple and so clear: *Tattvamasi*, that is you. Or, again, in such words as 'I am in the east and in the west, I am below and above; I am this whole world'... It is the vision of this truth (of which the individual is seldom conscious in his actions) which underlies all morally valuable activity. It brings a man of nobility not only to risk his life for an end which here cognises or believes to be good, but—in rare cases—to lay it down in full serenity, even when there is no prospect of saving his own person.

HEISENBERG

During the first centuries of Greek culture the strongest impulse came from the immediate reality of the world in which we live and which we perceive by our senses. This reality was full of life and there was no good reason to stress the distinction between matter and mind or between body and soul. But in the philosophy of Plato one already sees that another reality begins to become stronger.

This immediate connection with the truth or, we may in the Christian sense say, with God is the new reality that has begun to become stronger than the reality of the world as perceived by our senses. The immediate connection with God happens within the human soul, not in the world and this was the problem that occupied human thought more than anything else in the two thousand years following Plato. During this period the eyes of the philosophers were directed toward the human soul and its relation to God, to the problems of ethics, and to the interpretation of revelation but not to the outer world.

Great development of natural science since the sixteenth and seventeenth centuries was preceded and accompanied by a development of philosophical ideas which were closely connected with the fundamental concepts of science.

While ancient Greek philosophy had tried to find order in the infinite variety of things and events by looking for some fundamental unifying principle, Descartes tries to establish the order through some fundamental division. But the three parts

which result from the division lose some of their essence when any one part is considered as separate from the other two parts.

Of course, it would be wrong to say that Descartes, through his new method in philosophy, has given a new direction to human thought. What he actually did was to formulate for the first time a trend in human thinking that could already be seen during the Renaissance in Italy and in the Reformation. There was revival of interest in mathematics which expressed an increasing influence of Platonic elements on philosophy, and insistence on personal religion. Growing interest in mathematics favored a philosophical system that started from logical reasoning and tried by this method to arrive at some truth that was as certain as a mathematical conclusion. The insistence on personal religion separated the I and its relation with God from the world.

It has frequently been discussed among the historians whether the rise of natural science after the sixteenth century was in any way a natural consequence of earlier trends in human thinking.

It may be argued that certain trends in Christian philosophy led to a very abstract concept of God, that they put God so far above the world that one began to consider the world without Him and at the same time seeing God in the world.

This new activity was in its beginning certainly not meant as a deviation from the traditional Christian religion. On the contrary, one spoke of two kinds of revelation of God. The one was written in the Bible and the other was to be found in the book of nature. The Holy Scripture had been written by man and was, therefore, subject to error, while nature was the immediate expression of God's intentions. However, the emphasis on experience was connected with a slow and gradual change in the aspect of reality.

Modern physics is just one, but a very characteristic, part of a general historical process that tends towards unification and a widening of our present world. This process would in itself lead to a diminution of those cultural and political tensions that create a great danger of our time. But it is accompanied by another process which acts in the opposite direction. The fact that great masses of people become conscious of this process of unification leads to an instigation of all forces in

the existing cultural communities that try to ensure for their traditional values the largest possible role in the final state of unification.

Modern physics plays perhaps only a small role in this dangerous process of unification. But it helps at two decisive points to guide the development into a calmer kind of evolution. First, it shows that the use of arms in the process would be disastrous and, second, through its openness for all kinds of concepts it raises the hope that in the final state of unification many different cultural traditions may live together and may combine different human endeavors into a new kind of balance between thought and deed, between activity and meditation.

J.C. BOSE (From, 'Science and Religion' by Swāmi Ranganāthānanda)

The Indian vision of the spiritual unity of all existence is receiving responsive echoes from an increasing number of thinkers and scientists in the post-war West.

Books about nature, upholding the Indian vision and quoting Upaniṣadic passages, are coming out in the West more and more. One such recent book is *The Secret Life of Plants* by Peter Tompkins and Christopher Bird, the sub-title of which reads: *Astounding discoveries about the physical, emotional, and spiritual relations between plants and man*. It is a fascinating account of the researches on the subject conducted in the United States, Soviet Russia, and other countries.

What is of special interest to us in India is its chapter 6, entitled 'Plant Life Magnified a Hundred Million Times', containing a moving and vivid account of the pioneering work of the late Sir Jagadish Chandra Bose in this vital field. The authors present, in the opening paragraph, the Bose Institute in Calcutta as the 'Indian Temple of Science' bearing the inscription: 'This temple is dedicated to the feet of God for bringing honour to India and happiness to the world.'

Starting his work of scientific research, initially in the field of physics, Bose demonstrated the existence and propagation of wireless waves in 1895 in Calcutta. His work in physics led him imperceptibly to botany and physiology, which convinced him of the tenuous nature of the boundary line between 'non-living' metals and 'living' plants and humans, and of the truth of the 'fundamental unity among the apparent diversity of nature'. On 10th May 1901, he addressed the Royal Institution in London, ending his lecture and experimental demonstration before a mixed,

appreciative, skeptical, scientific audience with these words (*The Secret Life of Plants*, pp. 86-87):

'I have shown you this evening autographic records of the history of stress and strain in the living and non-living. How similar the writings are! So similar indeed that you cannot tell one apart from the other. Among such phenomena, how can we draw a line of demarcation and say, here the physical ends, and there the physiological begins? Such absolute barriers do not exist.

'It was when I came upon the mute witness of these self-made records, and perceived in them one phase of the pervading unity, that bears within it all things — the mote that quivers in ripples of light, the teeming life upon our earth, and the radiant suns that shine above us — *it was then that I understood, for the first time, a little of that message proclaimed by my ancestors on the banks of the Ganges thirty centuries ago* : “They who see but One, in all the changing manifoldness of this universe, unto them belongs Eternal Truth—unto none else, unto none else”.' (italics not by the author).

Giving a sample of the Western reactions to these revolutionary scientific revelations presented by Bose during his trips to Europe in 1919 and 1920, the authors quote, what they term, the 'usually reserved' Times of London (*ibid.*, p. 94):

'While we in England were still steeped in the rude empiricism of barbaric life, the subtle Easterner had swept the universe into a synthesis and had seen the *one* in all its changing manifestations.'

The authors conclude the book in these words:

'The attraction of the seer's super sensible world, or worlds within worlds, is too great to forego, and the stakes are too high, for they may include survival for the planet. Where the modern scientist is baffled by the secrets of the life of plants, the seer offers solutions which, however incredible, make more sense than the dusty mouthings of academicians; what is more, they give philosophic meaning to the totality of life.'

D.S. KOTHARI

Mysticism and transcendental experience, beyond empirical experience and objective knowledge, is the hard core of religion. Within the realm of natural science there is no place for mysticism. It is totally foreign to it. The reign of reason is supreme in science. Its loyalty is to nothing else. But the very existence of science, the great kingdom of reason, the very fact that nature is comprehensible to the human mind, is an unfathomable mystery. Science is reason, but it is enshrouded, embedded, in mystery. As the domain of science expands, wonder and mystery surrounding it deepen continually.

The depth of reason and mysticism are both unfathomable, infinite. If science has transformed beyond imagination, the material world around us, religion (not to be confused with pseudo-religion) has radically transformed the inner world within us. Science, through understanding of nature, enables us to transform matter into energy — clay into gold, as it were. Faith can transform men of “clay” into men of love, compassion and without fear. Science provides an understanding of and control over nature. But it is moral and spiritual insight which gives meaning and purpose to life, individually and collectively. In the end both science and religion are to be judged by what they actually do to man and for man — and not by what their jealous and often blind advocates claim. Both are to be judged by their achievements and not by their pretensions or promises. Merely to utter words such as soul or God has little meaning unless their “reality” is felt and experienced, and reflected in our actions. About this there can be no mistake.

Ahimsā (love and non-violence in thought, word and action) is the foundation and essence of religion. It is increasingly apparent that today man's progress depends crucially on the joining together, in mutual reinforcement, of science and *Ahimsā*. Without this, man has no future, and his very survival is at stake. How science and *Ahimsā* can be linked together is no easy thing. It would need the combined effort and wisdom of the East and the West. Men of goodwill everywhere can make a contribution, and howsoever modest the contribution, it will not go waste. In the long run it all counts.

Ahimsā, its practice and philosophies, is an integral and pre-eminent component of the Indian culture. It is deeply rooted in our great and long heritage and

way of life. India's freedom struggle, inspired and led by Mahātmā Gāndhī wielding the matchless weapon of *Ahiṃsā* — the sword of self-suffering, as he called it — against the mightiest empire the world has ever seen will remain a most glorious chapter in the history of mankind.

Unity of all life is a characteristic and deeply inspiring feature of all Indian thought. It is the core of the concept of *Ahiṃsā*. *Ahiṃsā* is far more than non-killing. It is abstention from consciously inflicting injury or causing harm to any person or living creature. It enjoins regard and love for everyone. “He alone is wise who observes *Ahiṃsā* and attains inner equilibrium”. [Samana Suttarn (147)].

The Buddha declared that suffering and sorrow which afflict the world are not without a cause, and are, therefore, remediable by removing the cause. The Four Noble Truths point the path to *Nirvāna* or the extinction of self (“I — ness”).

I should like to say a word about the relationship between *monistic* and *dualistic* viewpoints. It seems to me — to state the matter simply that, for us, the two worlds, the external world and the internal world are *not* one and the same thing. We have *two* realities, the internal world and the external world, interacting with each other. In other words, at our human-level, where the separation of consciousness or mind of one individual from that of another is total, *duality* of the *two* worlds is undeniable. At the level of the *Brahma* (God), or for a person who is completely absorbed in God, a *sthitaprajñya* in the words of the Gītā, there is no duality. It is non-duality, *advaita*. It cannot be described in words. It is beyond language, because 'language', or any description implies an external world, and, therefore, duality, the duality of the one who describes and what is described. The *advaita* is a most sublime but a distant ideal fully attainable only by very few individuals. Mankind must await further development of science, for centuries, perhaps for thousands of years, before there can be a satisfying picture of 'the interwoven texture of Matter, Life and Soul'. So deep is the mystery of our being. Be that as it may, what is most important is to remember that man is both 'matter' and 'spirit', he is both perishable and imperishable.

The highest state of the 'inner world' is one of complete freedom from all desires. There is ceaseless action but without any attachment whatsoever. As the famous verse of the *Kaṭha Upaniṣad* declares (II-3-14): “When every desire that

finds lodging in the heart of man, has been loosened from its moorings, then this mortal puts on immortality: even here, he tastes brahman, in this human body.” (Sri Aurobindo's translation). The true value of human life depends upon the effort one makes in the direction of 'action without attachment', that is, *karma yoga*. As our scientific understanding of nature deepens and matures, it is not too much to hope that it will make easier for people the realization of *karma yoga*.

Moral and spiritual thought is not a part of Natural Science. Terms like “spiritual energy”, “mind energy”, or “moral force” are non-sensical, if energy and force are conceived as having a semblance of the terms “energy” and “force” as used in science. A lot of confusion is caused on this account in the popular mind. On the other hand, science, especially modern physics, provides suggestive analogies which can help better understanding of moral and spiritual thought. But the analogies should be treated as no more than analogies. Take the famous *Śanti-Śloka* of the *Īsopaniṣad*. It says that the Supreme Whole (*Īśvara*) is such that it remains Whole even if Whole is taken out of it or Whole is added.

One thing, reinforced by recent developments in science, is clear. At the human level, both Atom and Self, are equally real, equally true. It is the *Samyoga* of the two which is the human mystery. If the atoms were to declare that they are everything, the only reality, this assertion itself would be meaningless unless there was a Self to believe in it. This is what the *Sāṃkhya* philosophy described long ago. That is what Democritus said. Once the fundamental need for the two realities, the external world and the internal world, is grasped, it is but a small step to the concept of Cosmic Consciousness.

We have seen that as far as the present knowledge goes, and in keeping with the spirit of quantum mechanics, mind (self) cannot interact directly with matter. Again mind for its adequate manifestation needs a large, extraordinarily complex apparatus, namely, the human brain. Notice that my mind or your mind cannot directly influence, not at all as far as we know, the motion of a single electron or an atom, which is outside a living brain. But for atoms constituting a living brain, bound to a brain, nothing is more common than mind-brain interaction. That I speak to you and you understand me, are — both of these things — a direct demonstration of the mind-brain interaction. This mind-brain *Samyoga* is the greatest of all mysteries.

What is mind, or rather, what is self conscious mind? It is not easy to define. To define 'mind', we have to employ the mind. Mind becomes both an object and a subject, and a precise definition 'therefore' is inherently impossible. If you use the entire mental apparatus to define mind, there is left hardly anything of what is to be defined. On the other hand, if you make nearly the entire mind as the object to be defined, then there is little mental resource available to provide the thing required to do the defining. But let us leave out a precise definition of mind. What is really important is the recognition that *mind is an entity, a reality, apart from matter*. If mind is separate from matter, there could be, and even need to be, different paths, not totally exclusive, leading to them: namely science in one case and meditation or yoga in the other. Once we recognise the separate reality of mind, the concept of “Supreme Mind”, or “One Mind”, is, in a sense, a natural extension.

Mind is not a thing in the sense in which we speak of it; it stands for thought, consciousness, perception, memories, reasoning, feelings, emotions, willing, and so on. Mind stands for 'self', for soul. Its most significant characteristic is unambiguous feeling of freedom, to elect between alternative courses of action. At the human level, this feeling is undeniable, it is incontrovertible.

Equally, we recognise, as the greatest lesson of science, that the behavior of matter is, in all its aspects, fully explicable on an objective basis. To understand matter one needs no direct reference to mind or self or any supernatural agency. *In the realm of natural science, reason is supreme*. Therein lies its extraordinary strength. We believe this will hold for, and will be reinforced by, future advancement in our understanding of the natural world.

As far as our experience goes, mind always acts in association with matter, the brain. It is, therefore, apparent that the freedom exercised by the mind, and the influence of the mind on the course of physical and biological events, must operate without violating the laws of nature. In other words, we believe that the physical laws, as explored by the mind, must involve a certain inherent indeterminacy. It is within the limits of this indeterminacy that the mind could exercise its freedom of interaction with matter. Quantum indeterminacy is a case in point, though how far it is, indeed, relevant for the mind-body problem is a matter for future investigation. As the brain is a large system, the role of quantum indeterminacy, it would seem, cannot

be anything more than negligible. But against this, we have to remember that the mind-brain interaction is likely to be extremely *non-linear*, and as such the effects could be noticeable even though triggered within the limitations of quantum indeterminacy. Moreover, it should be remembered that though the brain is a large system, the 'thoughts' are discreet and furthermore the transition from one thought to another in a sequence of thoughts is sudden and the transition process is un-analyzable. This is not quite characteristic of a large system. It seems that when we approach from the side of the mind, the brain does not appear to have the characteristics of a large system. This we should expect, and it is at the root of the mind-brain mystery. The indeterminacy we have spoken of with reference to the mind-brain interaction, permits influence of one mind on another without the mediation of other brains. It also allows for possible influence of the Cosmic Mind on individual minds.

It seems certain that with a deeper understanding of space-time relationship, the mind-brain interaction mystery is likely to become richer, and open new possibilities for human experience, both in relation to the external world and the internal. Be that as it may, it is beyond question that for human advancement we need to pay attention to *both* the knowledge of the atom and the knowledge of the self.

The universal knowledge of the atom has placed in man's hands, for the first time in man's history, means which, if wisely used, can bring prosperity for all. Otherwise the very survival of mankind is at stake.

It is a challenge for our education. What the Buddha proclaimed about the imperative need to know the mind, to *shape* the mind, and to *liberate* the mind has never been truer than in the Age of Atom.

“Truth and Love — *Ahimsā* — is the only thing that counts,” said Mahātmā Gāndhī. It binds men together, and it binds Man and the Cosmos.

In one of the most influential messages in the Upaniṣads, we are counseled: “Taking as a bow the great weapon of Upaniṣad, one should put upon it an arrow sharpened by meditation. Stretching the bowstring with a thought directed to the essence of being, penetrate the imperishable as the mark.” Following such advice, for centuries Indian mystics were able to bring their minds, through meditation, to a state of sublime alertness and awareness.

It is notable that neither such exercises nor such metaphors were restricted to the “mystical East.” We find parallels in the writings, for example, of the anonymous fourteenth-century monk who wrote *The Cloud of Unknowing*, and who advises, “Pay careful heed, then, to this exercise, and to the wonderful way in which it works within your soul. For when rightly understood, it is nothing else than a sudden impulse, one that comes without warning, speedily flying up to God as the spark flies up from the burning coal.”

We learn in another Hindu text, the Bhagvadgītā, that our chaotic thoughts, swarming with a multiplicity of facts, ambitions and obsessions, are only disjointed fragments of one basic reality, Brahman. “Kill, therefore, with the sword of wisdom the doubt born of ignorance that lies in thy heart,” says the Gītā. “Be one in self-harmony, in Yoga” and arise, great warrior, arise.” To be “in yoga” is to be yoked with Brahman, the entity that transcends all boundaries of self and object. Again, from the Gītā: “Brahman, without beginning, supreme: beyond what is and beyond what is not.”

The Upaniṣads are unequivocal about the essential oneness of God: “People say, 'Worship this god! Worship that god!' But this is all Brahman's creation! He himself is all gods.” The Ṛgveda, an astonishingly ancient compendium of hymns, *mantras*, and instructions for properly articulating them, tells us that Brahman used the magical “veiling power” known as *māyā* to create the universe we see and experience, and that *karma* is the dynamic force of necessity that keeps everything “in action.”

What is being alluded to by widely misunderstood catch phrases such as “Nothing is real” or “All is illusion”? The point is not to say that your dog, or your car, or your spouse does not, in reality, exist. They exist, but only as organized energy. Like Durgā, Kālī, Kṛṣṇa, Śiva, and all the myriad personages of the Indian repertory company, they are but embodiments of Brahman.

“All actions take place on the stage of time by the interweaving of the forces of Nature,” says the Gītā. “Only the man lost in selfish delusion thinks himself to be the actor. But the man who sees the relationships among these forces also sees how they act together to create the world.”

In most of Asia (and, increasingly, in the West as well), meditation has been inseparable from religion, for religion is not principally a matter of tenets but essentially is a matter of experience. The core experience, as we have seen, is described almost identically by mystics of all faiths as an altered sense of space and time, the dissolution of self and ego, and a perception of being somehow unified with the one source of all.

The physical universe revealed to us in the last century by men such as Albert Einstein, Edwin Hubble, Niels Bohr, Erwin Schrödinger, Richard Feynman, and Alan Guth may appear to us at first as disturbingly chaotic and violent.

But there is compelling evidence, in the sciences of both matter and mind, of an abiding calm behind the storm, a coherence beneath the chaos. This calm resides in what David Bohm called the implicate order. At this deepest un-manifest level, we can presume there is a coherence as steady and as strong as in the pulse of a laser.

Why “quantum. meditation”? Is this simply a twenty first-century repackaging of something as old as the hills? In part, the answer is yes. The fundamental process of meditation does not vary, whether it is labeled Transcendental Meditation, ongoing, mindfulness, or tai chi.

The physical effects of meditation include reducing the rate of heart-beat, blood pressure, and oxygen consumption; lowering production of stress hormones and blood lactates; and bolstering the immune system. These are the fringe benefits in this meditation compensation package. The real earnings are in the effect upon consciousness itself: during meditation a quantum leap into a different state with an associated feeling of immense bliss, and afterwards the ability to act with a great clarity of mind and an innate sense of fulfillment.

Henry Stapp remarks that our free will, an inherent characteristic of consciousness, cannot be explained by any known physical law, strongly supporting the idea that consciousness is something fundamental.

Might the same consciousness allow us to escape our individual separateness and become blissfully entangled with the source of our existence? If we can free ourselves (and there is ample evidence that we can), the first thing we might want to do is to give our consciousness some room to work. Step back from the maelstrom, into a quiet space, relax, and let your mind wander away from stress.

Although mindfulness is just one of many effective ways to get in tune with the self and with the one source, the meditator's observer role in the mindfulness technique makes it notably compatible with modern physics - we are both observing events and interacting with them. In a real sense, mindfulness makes us subject as well as object.

The setting for any type of meditation need not be an *ashram* or a Zen. Retreat in the mountains, though such places can be wondrously conducive to reflection. Even a straight-backed chair in your office or cubicle can work, so long as you can obtain fifteen or twenty minutes without disruption. Overall, the actual setting is less important than the mindset, which is a factor both of your physical and emotional condition as well as your predisposition to the act of meditation.

In spite of abundant scientific evidence revealing the power of our minds over our bodies, most people still seem to ignore it. A careful look at the evidence should persuade you that consciousness can heal, and your efforts will bring a higher degree of coherence in your consciousness. Once you get a taste of the experience, you will know for sure that an innocuous process like meditation can bring a profound change in the quality of your life. The practice of yoga, now quite popular in the West, was developed as a means of preparation for meditation.

The mindfulness technique does not require a *mantra* or focusing device as is used in Transcendental Meditation and other forms of contemplative meditation. But only sitting in silence and trying to hear an inner voice is not the right way either. The object of contemplation is the mind itself. However, since observing the mind takes time and practice, you may find such vehicles very useful in achieving your first quantum leap into a meditative state, and it is important to note that their principal function is not religious in the sense of pledging oneself to a particular deity or religion.

There are endless variations on this technique, all stemming from the Vedic sacrament of *prāṇāyāma*, awareness and control of respiration. By merely inhaling and exhaling, to a regular, rhythmic count of one-two-three-four (silently, of course), while sitting comfortably with our backs straight and our eyes closed, we begin to take command of our neural circuitry away from external influence. In the same way,

silently repeating a focus word or syllable such as “om” a phrase with each exhalation prepares us to go into the meditative state.

Select a word that comes to you naturally. Once you have chosen a word or phrase you should stick to it; gradually you'll become so accustomed to it that it will pop up in your mind automatically as soon as you start to meditate. Do not depart from it until you have slipped over the meditative threshold. How will you know when that is? Take my word for it, you will know.

Along the way, stray thoughts of unpaid bills, appointments, appetites, and annoyances both petty and profound will rise in your mind. Let them come, observe them as you might observe a twig carried by a river, and let them pass away. Don't fight them, because to fight them is to dam the river. Simply say to yourself, “Never mind,” and gently return to your center with the help of your chosen word. That is precisely its purpose — to prevent your mind from drifting.

The mind is most at home when it refers only to itself, to what the Vedic lexicon calls the *Ātmanand* Western mystics have called the ground of being. Meditation is not a matter of striving, but of setting the stage for the mind to return to its most coherent, natural, and the least excited state, to, in the words of Meister Eckhart, “Get out” of the way and let God be God in you.” Meditation is, by the way, also the mind's most blissful state.

Both body and mind have a natural inclination to go from illness to health and from stress to bliss. The mind seeks peace; we need only to provide the avenue.

If nothing seems to be happening at first, never give up... It takes a while, maybe a week or up to a month to get comfortable with meditation. How long did it take you to learn to drive? Regular practice, on a consistent schedule, makes it more automatic and much easier with each attempt. Don't be disappointed, however, if the result is not always the same: you will derive some benefit each time.

Once meditation becomes a regular feature in our lives, the sense that we are a part of something much larger than our individual selves remains with us. But what do we call this larger something we sense when our minds are perfectly coherent? What did the great German mystic Meister Eckhart mean when he claimed that in spiritual rapture he saw himself with the eye of his Creator? Why do the Vedic *ṛsis* quietly assert, from the deep well of contemplation, “I am Brahman?” Could it be that

the timeless mystical experience of oneness with the source, an experience that transcends all faiths and cultures, is actually the closest we humans can ever come to perceiving the universe as it truly is?

AMIT GOSWAMI

The *ṛṣis* of Vedānta were truly great, in both their realization of the truth and its expression. There are many great sentences in the Upaniṣads. Among them the greatest, the most intriguing, is the saying, “You are That”, *tat tvamasi*.

But if we are That—unlimited—then why do we feel so limited. If we are That, the whole, how do we feel separate from the objects of our experience? How does the one whole become many? Vedānta's answer is, as Śaṅkara has emphasized that the whole becomes divided through the action of *māyā*, the force of illusion. The unlimited feels itself limited, feels itself separate, only because of a misunderstanding. But how does this *māyā* work, how does the misunderstanding arise? Here the Upaniṣads, Śaṅkara, and everyone else is silent.

Can resolving the quantum-measurement paradox with Upaniṣadic ideas about consciousness solve this puzzle that baffled even Śaṅkara?

The answer is through dependent co-arising. The subject that chooses and collapses (let us call it the *quantum self*) co-arises dependently with the objects of awareness. And this is only an appearance, so there is no dualism! The unlimited consciousness from which both subject and object arise identifies with the subject-pole of experience, thus mistaking itself to be separate from the objects of the experience. This mistaken identity is responsible for the subject-object world of our experience. Experience itself could not exist without this 'mistake'.

So Śaṅkara was right about the world of separation arising from a mistake, or *māyā*. And Buddhist philosophy, with its postulate of dependent co-arising, *patīccasammupāda*, is even more clear, about the origin of our self-reference, our ability to see ourselves as separate from the objects we see.

It is 'hearing' the truth that sets us free, the Vedantic truth that I am the whole, I am *Brahman*, I am limitless. Therefore, hearing and reading the verses of Vedānta until understanding breaks through is emphasized by many teachers. Once we know the truth about the reality of Brahman alone and we lose all doubts about the

epiphenomenal nature of the manifest world, we no longer identify with a particular body-mind complex, which is a mere functional necessity. Then we are liberated even while alive, while embodied.

Is hearing the truth about the self—that the self is all—a truly discontinuous jump, a gigantic quantum leap, or can one arrive at this truth via continuous practice? Some traditions maintain that the journey to liberation is continuous: hearing the truth is part of a protracted, continuous process; first you hear the truth, then contemplate it, then meditate on it.

How does one accomplish this total surrender of will to the will of God? This is the discontinuous transition that cannot be avoided, even in this way of thinking.

When one is liberated, there is no more rebirth. If life is suffering and liberation is your escape from a life sentence in jail, all this makes sense. But what of God's play of discovering Its own nature? Does the discovery end with the mental, scientific level of investigation? A new answer has emerged, particularly from the insights of the sage Sri Aurobindo.

Sri Aurobindo felt that liberation opens the door to investigate the supramental, to go beyond the physical-vital-mental, which are governed by the causal laws of the causal body of consciousness. A liberated being, if God so wills, can act supramentally in ways that we normally call miracles. Such a being can create a material body of manifestation at will (always in harmony with the will of the whole). Such a being can choose immortality, both in the body and in the spirit (as necessary). Such a being can levitate in clear violation of material laws.

Many authors have noted the transcendental unity of all religions and have shown that even the Judaeo-Christian religions have a mystical core in which the God-world dualism gives way to a transcendent unity. The world of manifestation is causally secondary to this unity.

But even within this transcendent unity, a definite distinction can be made between dualist and monist (non-dual) ontologies. This distinction arises in regard to the question of the soul—the individual *jīva*—and its relation to God.

In the non-dual or monist traditions, the individual *jīva* is a non-sequitur. It exists only as a mistaken identity taken on by consciousness as a result of

conditioning. When the play of accumulated conditioning. (*karma*) is over, consciousness realizes the mistake and the individual soul disappears, as it was never real, as the classic analogy of a rope misperceived as a snake illustrates. The snake 'exists' until we realize our mistake. As soon as we realize our mistake, there is no longer any snake, only rope. The snake disappears because it never was.

The dualist traditions posit things differently. For example, the *vaiṣṇavites* in India posit a supreme person, Kṛṣṇa as the ultimate cause of everything. Individual souls are limited extensions of Kṛṣṇa (or viṣṇu), but once created, they exist forever. What is liberation? When the karmic play is over, the *Jīva* lives in the abode of Kṛṣṇa (*Vaikunṭha*) in His company as His playmate in eternal joy. You can easily see that popular Christianity has the same vision. Once you accept.

Jesus, at death you go to heaven and live with God in eternal joy and peace.

Put another way, God creates the world for His play, for self-experience, in both monist and dualist traditions. In non-dualism, there is play in this separation, but ultimately all ends up in unity. Collectively, for the entire material universe, there is an end, a *pralaya*, when all separation disappears and all becomes unity once again.

A similar issue exists in the discussion of cultures. Should we encourage cultural diversity? Isn't it less confusing if we have one unified culture? Thus, a country of diverse immigrant populations, such as the United States of America, dreams of a 'melting pot' culture, one culture enriched by the brew of different cultures in a single 'pot.' But anthropologists and sociologists have now realized that the melting pot is not feasible, after all, because one culture inevitably dominates. Cultural diversity must define weave of the unity that a country represents.

Similarly, we must retain diversity of religions. Every religion reflects the culture in which it developed and the traditional paths (*jñāna*, *bhakti*, *karma*, *kundalini*, etc.) that define that culture. People are attracted to different paths and, accordingly, are best served by different religions. Respecting the diversity within the unity of all religions need not obscure the underlying unity.

Hinduism is a good example of diversity within unity. Hinduism is not defined as a religion but as part of the culture of a people who discovered spirituality as an important and eternal part of life. Within this broad notion of spirituality many teachers and many teachings co-exist. Different schools of thought bicker with one

another, but all are accepted under the broad umbrella of Hinduism.

Hinduism is good a model of diversity of religions within unity that science within consciousness so clearly establishes. Within a scientific approach, religions will always have a creative component; they need never become pulpits of bigotry, as sometimes happens now. They will change as science changes and the cosmology gets better. Religions will also change as culture changes and with it the people that the religion serves.

E.C.G. SUDERSHAN

When our personal experience in the universe is considered, we certainly plan our activities according to this chain of causality...So it is very tempting to assert that we too are “merely physical”. Yet we are aware of two branching trees; the phenomenal one in which causes cause effects in the future. But we also have the conviction now and then, most often when we look back on the past that there seems to be a goal directed sequence of sets of events, where teleology applies: cause is in the result and the future but the branches are in the past. It is very reminiscent of the curious aswatha tree with branches below and roots above mentioned in the *Bhagavadgītā*. Can the same world exhibit such different connectivities in different perspectives?

Perhaps this also has relevance for the lessons learned in the cycle of events and the cycle of births. We find ourselves often in the “same” predicament, “same” difficulty, yet as we recognize the repetition we subtly advance in our wisdom.

As our perceptions become finer, more complete, the world reveals more features. Nature is forever new as we renew ourselves.