

Science and Spirituality in Modern India

February 5 - 7, 2006

Organized by: Jawaharlal Nehru University, New Delhi

Partners (in alphabetical order): Bahai House of Worship, Foundation for Universal Responsibility of His Holiness the Dalai Lama, Global Perspectives on Science and Spirituality, Indian Council for Cultural Relations, Indian Council for Philosophical Research, India International Centre, Samvad India Foundation-Metanexus Institute Local Societies Initiative

To be inaugurated by His Holiness, the 14th Dalai Lama, this international conference will bring together important speakers from across a variety of disciplines including the natural sciences, engineering, medicine, social sciences, and humanities. A key feature of this conference will be the analysis and description of how important spiritual figures responded to modern science and how working scientists viewed spirituality. The conference will also include several panels or papers under the rubric 'issues in science and spirituality'.

India is a fertile, even unique, ground for such an exploration as we move into the information age, at the same time being in the midst of what some have called a spiritual efflorescence. Particularly of interest to such a project are issues concerning the interface between spirituality and technology, for instance the use of new media for the traditional purposes of yoga and spiritual development.

Both the content of the dialogue between science and spirituality in modern India and its form will be examined in the conference. Through a study of the documents, statements, positions, and possibilities of this encounter and a scrutiny of the modalities, methodologies, and technologies involved, the conference hopes to make an important contribution to the ongoing dialogue between science and spirituality.

PROGRAMME♥

SUNDAY, FEBRUARY 5, 2006

Inaugural Session: 9:45 – 11:30 AM (India International Centre Auditorium)

Chair: Dr Karan Singh, M.P., Chancellor, JNU; Chairman, ICCR; Chairman of the Temple of Understanding

Invocation: Shruti, Director of India Activities, Infinity Foundation

Welcome: Professor Rajendra Prasad, Rector, and Professor of Life Sciences, JNU

Concept Note on Conference: Professor Makarand Paranjape

The Dalai Lama's initiative in Science and Spirituality: Rajiv Mehrotra

Inaugural Address: His Holiness the Dalai Lama, "The Interface between Science and Spirituality." Following up on his long-standing initiative in the mind-matter field, His Holiness will offer his perspective on the topic and allow questions afterwards. (Close circuit television will be in Conference Room II for those who don't fit into the auditorium.)

Chairperson's Address: Dr Karan Singh

1st Session: 11:30 AM – 12:15 PM

Chair: Professor D.P. Chattopadhyaya, Chair, Centre for the Studies in Civilizations, "Science and Spirituality in Modern Times"

Speaker: Dr Kireet Joshi, Chair, Indian Council of Philosophical Research, "Science and Spirituality: Synthesis in the Making"

2nd Session: 12:15 – 1:00 PM

Chair: Pujya Dr Sharanabasawappa Appa, Peethadipati, Sharanabasaveshwar Samastha

Speaker: Professor T.R. Anantharaman, President, Ashram Atmadeep, "Science and Spirituality as Two Knowledge Traditions: Their Symbiotic Relationship and Complex Interplay in Society"

Special Lecture: 2:00 – 3:15 PM

Chair: Professor Ramashray Roy, Centre for the Study of Developing Societies, "Spirituality, Science, Man: A Thematic Exploration"

Speaker: Professor VV Raman, Rochester Institute of Technology, "Spirituality and Science in the Indian Subcontinent"

4th Session: 3:15 – 4:30 PM

Chair: Swami Gokulananda, Secretary, Ramakrishna Mission, New Delhi, "Modern Science from a Spiritual Point of View"

Speakers: Shri Shrivatsa Goswami, Pontiff, Radha Raman Mandir, Vrindavan, "Is there a Science of Love?"

5th Session: 5:00 – 6:30 PM (Committee Room I, IIC)

Chair: Professor V.V. Raman, Rochester Institute of Technology

Speakers: Dr Ramesh Bijlani, All India Institute of Medical Sciences, "The Scientific Method and Method in Spirituality"; Professor R.P. Singh, Jawaharlal Nehru University, "Spirituality, Logic and Science"

Professor C.K. Raju, National University of Journalism, Bhopal, "The Religious Roots of Western Mathematics"

Special Lecture: 6:30 – 7:30 PM

Chair: Dr Suresh Sharma, Director, Centre for the Study of Developing Societies, New Delhi

Speaker: Dr Sudhir Kakar, Psycho-analyst and Writer, Goa, "Psychoanalysis and the Spiritual Quest"

MONDAY, FEBRUARY 6, 2006

1st Session: 9:30 – 11:00 AM (Committee Room, SSS I, JNU)

Chair: Professor Kapil Kapoor, Jawaharlal Nehru University, "Science and Spirituality: East and West, Defining the Terms"

Speakers: Dr S.R. Vyas, Indian Council of Philosophical Research, "On Demarcating Science and Spirituality"

Professor Sergei Serebriany, Russian State University for the Humanities, "The Transfer of Modern Science to Russia and India: Two Parallel Cases"

2nd Session: 11:00 AM – 12:30 PM

Chair: Professor P.L. Dhar, Indian Institute of Technology, New Delhi, "Insights from Modern Science into the Practice of Insight Meditation"

Speakers: Professor Keshav Sharma, HP University, Shimla, "Impact of Kriya Yoga Techniques of Paramhansa Yogananda on the Breath Rate, Heart Beat, Power of Concentration."

Dr Benjamin Smith, The Australian National University, "Yoga, Science and the Embodied Self: Towards a Possible Dialogue?"

Special Lecture: 12:30 – 1:30 PM

Chair: Professor Bal Ram Singh, Professor of Chemistry and Biochemistry and Director, Center for Indic Studies, University of Massachusetts-Dartmouth

Speaker: Professor Nitant Kenkre, Distinguished Professor of Physics, and Director, Consortium of the Americas for Interdisciplinary Science, University of New Mexico, "View on Science and Spirituality from a Practicing Scientist's Porthole"

3rd Session: 2:30 – 4:00 PM

Chair: Professor Sergei Serebriany, Russian State University for the Humanities

Speakers: Dr Ranjit Nair, Centre of Philosophy and Foundations of Science, "The Secular as Sacred: Science and the Spirit"

Dr Navjyoti Singh, National Institute for Science, Technology and Advanced Studies, "Can Spirituality be Founded on Reason?"

Professor (Dr) AK Mukhopadhyay, All India Institute of Medical Sciences, "The Layers in the Matrix of Spirit and Matter"

4th Session: 4:00 – 5:30 PM

Chair: Swami (Dr) Brahmeshananda, Head, Ramakrishna Mission, Chandigarh,

Speakers: Dr P Ram Manohar, AVT Institute for Advanced Research, Coimbatore, "The Blending of Science and Spirituality in the Ayurvedic Model of Healing"

Dr V Sujatha, Jawaharlal Nehru University, "An Exploration of Siddha Medicine"

Dr Bhaskar Vyas, Vadodara "PSI Phenomenon: Micro-sensing by Indian Mystics"

5th Session: 5:30 – 7:00 PM

Chair: Professor M.H. Qureshi, Jawaharlal Nehru University

Speakers: Dr A.K. Merchant, Foundation for the Advancement of Science, Bhopal, "The Interfaith Movement in India and Modern Science"

Dr Renuka Singh, Jawaharlal Nehru University, "Science and Spirituality: A Tibetan Buddhist Perspective"

Dr Rajni Vyas, Vadodara, "Shri Aurobindo's Concept of the Evolution of Consciousness"

TUESDAY, FEBRUARY 7, 2006

1st Session: 9:30 – 11:00 AM (Committee Room, SSS I, JNU)

Chair: Professor (Dr) Ramesh Bijlani, All India Institute of Medical Sciences

Speakers: Swami (Dr) Brahmeshananda, Ramakrishna Mission, Chandigarh, "Spiritual Phenomena and Biotechnology"

Dr Garga Chatterjee, Medical College, Kolkata, "The Cognitive Neuroscientist's Approach to Death"

Dr Jayanta Bhattacharya, North Bengal Medical College, "Death, Embodied Approach and Medicine: Problematizing the Normative"

2nd Session: 11:00 – 12:30 PM

Chair: Professor Anand Kumar, Jawaharlal Nehru University

Speakers: Professor Raghuram Raju, University of Hyderabad, "Sri Aurobindo and Krishnachandra Bhattacharya's Views on Science and Spirituality"

Dr Ananta Kumar Giri, Madras Institute of Development Studies, "The Calling of a Practical Spirituality"

Dr Sudhir Kumar, Panjab University, Chandigarh, "Gandhi on Science, Technology and Spirituality"

Special Lecture: 12:30 – 1:30 PM

Chair: Professor Nitant Kenkre, Distinguished Professor of Physics, and Director, Consortium of the Americas for Interdisciplinary Science, University of New Mexico

Speaker: Professor Bal Ram Singh, Professor of Chemistry and Biochemistry and Director, Center for Indic Studies, University of Massachusetts-Dartmouth, "Utilization of Modern Scientific Ideas to Elaborate Spiritual and Philosophical Concepts"

3rd Session: 2:30 – 3:30 PM

Chair: Dr Ranjit Nair, Centre of Philosophy and Foundations of Science

Speakers: Professor Vijaya Ramaswamy, Jawaharlal Nehru University, "Spiritual Hysteria: A Gendered Perspective"

Professor Anjali Gera Roy, Indian Institute of Technology, Kharagpur, "Faith outside the Lab"

4th Session: 3:30 – 4:30 PM

Chair: Professor R.P. Singh, Jawaharlal Nehru University

Speakers: Dr Prem Saran, Indian Administrative Service, "An Axiology of Indic Culture and its Mystical Interface: A Social-Scientific Model"

Shri Ravi Khanna, Samvad India Foundation, "The Big Picture for the Science of Consciousness"

Ms Susmita Chatterjee, Jawaharlal Nehru University, "Bose on Modern Science and Spirituality"

Cultural Programme and Concluding Session

(Bahai Auditorium)

6:00 – 6:45 PM: Raja Rao Award Presentation to Professor V.V. Raman for an Outstanding Contribution to the Culture of the Indian Diaspora

Chair: Professor B.B. Bhattacharya, Vice-Chancellor, JNU

Reading of Citation: Professor Nitant Kenkre, Distinguished Professor of Physics, and Director, Consortium of the Americas for Interdisciplinary Science, University of New Mexico

Presentation of Award: Dr Karan Singh

Acceptance Speech: Professor V.V. Raman

Conference Vote of Thanks: Shibani Murlidhar

6:45 – 7:00 PM: Valedictory Address by Shri Pavan Varma, DG, ICCR, "The Long-Term Prospects for the Science-Spirituality Dialogue in India"

7:00 – 8:00 PM: Cultural Programme sponsored by ICCR

8:00 – 8:10 PM: All Religious Prayer followed by Concluding Benediction

Chair: **Dr Karan Singh**, M.P., Chancellor, JNU; Chairman, ICCR; Chairman of the Temple of Understanding.

Science and Spirituality in Modern India

Theme Note by Makarand Paranjape

Modern science was introduced to India under the shadow of colonialism. This neither means that its progress in India was simply a matter of European discovery and imperial dissemination, nor that there was no “science” in India prior to the British conquest of India. However, what is important to observe is that between modern science and traditional science there was a marked disjunction as there was between traditional knowledge and “English education.” Because these gaps have still not been properly studied, let alone bridged, the history of modern science in India is inextricably linked with the history of colonialism as well. All the same, the trajectories of the two are neither co-extensive or co-terminus. While colonialism rose, reached its peak, then declined, and officially ended, modern science has enjoyed a steady and incremental rise since its inception. In fact, after independence its claims to an exalted social, political, and cultural status have risen dramatically, especially with the heavy investment and continuous monitoring of the Nehruvian state in its growth and development. Today, science is very much a part of how the Indian state seeks to see or project itself, deriving legitimation and political advantage from it.

When we look, instead, at the development of modern Indian spirituality, we see that though it is also inextricably linked with the history of colonialism and, later, nationalism, its causal connections with the two are not all that direct or determinate. Under colonialism, traditional Indian spirituality encountered modern Western ideas, including modern science. Indian spirituality, though not necessarily as challenged as religious practices and dogmas were, had, nevertheless to re-invent itself, a process that still continues. One way by which it coped was by identifying a distinct real for its own functioning that had little to do either with colonialism or with modernity. Yet, several Indian spiritual leaders, starting with Rammohun Roy, took an active interest in Western science. Sri Ramkrishna’s disciple, Swami Vivekananda, best exemplifies not just the curiosity of Indian spirituality in respect of modern science, but its first well-articulated enthusiasm, even endorsement of science. From time to time, other spiritual masters such as Sri Aurobindo and Paramhansa Yogananda also continued this interest in and partial approval of modern science. While India’s national struggle for independence, especially the majoritarian thrust of it, had a distinctly spiritual colouring to it. Not only was the Indian National Congress founded by Alan Octavian Hume, a Theosophist, but many of its prominent leaders, especially Sri Aurobindo, and later, Mahatma Gandhi, had an overt interest in spirituality. Yet, India as a secular state, kept itself aloof officially from matters religious. Unlike science, which was a part of the state policy, spirituality, though a political force, was never official recognized by the state.

Therefore, when we come to the relationship between modern science and spirituality in India, we see not so much causal or direct connections, but subtle and covert connections between them. Much of this seminar will be devoted to understanding these interrelationships.

One starting point for such an inquiry is to ask what relationship modern science in India bears to, what is now called traditional or indigenous science, and then ask the same question of Indian spirituality. We notice at once vital traces of continuity rather than disjunction between traditional and modern spirituality in India. In fact, the holistic, non-dualistic orientation of traditional Indian knowledge systems does not allow us even to separate science and spirituality too clearly in pre-modern India. One might argue that this was also the case in pre-Enlightenment Europe. The fragmentation of knowledge and the ensuing proliferation of specialization is thus relatively new even to the West. In fact, this fragmentation is itself one of the constituents of modernity.

We thus have our first contrast between science and spirituality as systems of social construction and cultural authority in India. While modern science was seen as being alien and superior to traditional science, modern spirituality was seen as a natural outgrowth and flowering of traditional Indian spirituality. What is, perhaps, even more interesting is that traditional Indian science and traditional Indian spirituality were closely, even intrinsically linked. For instance, while Ayurveda, as its name suggests, was described as the fifth Veda, thus not only linked to the Vedas but sharing its worldview and notions of wellness, modern Western medicine was seen as whole secular, if more effective in some cases. It is not that

Indians in the 19th century dispensed with traditional medicine in favour of Western medicine. Both systems co-existed, but it was thought that when the disease worsened, the patients turned to Western medicine. The co-existence of multiple, incommensurable systems of medicine persists even today in India, though the dominance of Western medicine is far greater. But this plurality of knowledge systems is also characteristic of the metaphysical and epistemological multiplicity of modern India, a location in which we see the unresolved co-existence of contending systems of signification and meaning. Though not primary to their relationship, the issue of power cannot be ignored while exploring the science-spirituality dialogue.

As David Arnold observes, because traditional Indian sciences were heterogenous and plural, it becomes difficult not only “to characterise Indian science as a whole but also to determine the precise nature of its interaction with the forms of science and technology emanating from the West by the late eighteenth and early nineteenth century” (2). One might extend this argument to contend that Western or modern science, though ostensibly unified by one, universal “methodology,” is actually heterogenous and culturally conditioned as well. Thus, British imperial science, as Deepak Kumar and others have shown, had its own peculiarities and identifying traits that made it different not only from science practised in Britain, but also from science in other European countries. For instance, colonial science was more descriptive and enumerative, than theoretical or experimental. It was also more heavily invested in fields such as geology, plant biology,

The other factor that complicates the story of the growth of modern science in India is the debate over whether it was a case of impact and reception as was largely thought of earlier, or of continuous interaction and exchange as the more recent and considered opinions declare. There is also the allied question of how to model the historiography of tradition Indian sciences. The earlier view in this regard, which followed the Orientalist construction, was one of high achievement, followed by decline and stagnation, ending with a new rejuvenation under the Western stimulus. We now tend to disagree with such a view, seeing instead remarkable progress and interaction between Muslim and Hindu ideas and sciences during the medieval period of Muslim rule in India. The decentred nature of India’s polity and the lack of sustained research to reconstruct its history of science make it impossible to offer a coherent account, but it should be clear that any simplistic, reductive, or unidirectional model will be misleading. This applies as much to the advent of modernity in India, in which science played an important role, as it does to the development and growth of modern Indian spirituality.

George Basalla’s influential and often cited article, “The Spread of Western Science” offers a three-phase “diffusionist” model. In the first phase of colonial discovery, expansion, and conquest, the non-European areas served as sources of scientific data. This may be termed the “contact phase.” In consonance with the colonial interest in exploiting the natural resources of conquered territories, botany, zoology, and later, astronomy, geology and geography were emphasized. While modern science was disseminated in various parts of the world during this phase, Basalla believes that only the advanced countries of Europe were able to assimilate this new information and knowledge, thereby transforming science in metropolitan centres in Britain, France, and Holland.

In the second phase, which he calls “colonial science,” local scientific institutions start to appear, with the participation of local born scientists. Basalla calls this a “dependent” science because it was controlled and directed by colonial authorities and imitated metropolitan models. This applied not only to countries like India directly colonized by the British but also to China, Japan, and the United States.

Extra-European societies in phase three strove to establish national or independent scientific traditions. Political independence, but more significantly, institutions of national importance, awards, state funding and infrastructure brought scientific research to critical thresholds in a number of countries, in fact, enabling them, in some cases to overtake European science. Both America and Russia achieved this stage during the world wars, while Canada, Australia, and Japan were lower down. The rest of the world in Asia, Africa, and Latin America lagged far behind.

Basalla has been universally criticised for being simplistic, unidirectional, reductive, but after all, he was only offering a preliminary schema in a short paper. The categories he proposed, however, including

“colonial science” have proved to be extremely influential and persistent. As Arnold sums up, “In Basalla’s Eurocentric model, dynamism belongs to an (improbably) homogenous West, leaving the rest of the world to participate only passively in the process of diffusion, unable to make any original contribution of its own or even to negotiate with an ascendant Western science” (12). Dhruv Raina has tried to upturn this notion by suggesting that the ideology of science has been “actively redefined” by the “recipient culture”: the receiving culture “subverts, contaminates, and reorganises the ideology of science as introduced by Europe” (cited in Arnold 13; also see his “Introduction,” in Raina and Habib 1-15). The problem with such a counter-argument which Arnold does not notice is that in accepting the originary Europe and the recipient India, all Raina and Habib do is to give more agency to the recipient, reducing the power of the diffuser. Their model of scientific production remains not only diffusionist and Eurocentric, but also dualistic.

Arnold asks the fundamental question of what we can do if we reject this diffusionist approach. If “distinctions between centre and periphery, between ‘metropolitan’ and ‘colonial’ science, fundamentally misrepresent the way in which science evolved internationally” (13) how can one ignore the differential power relations between the metropolitan centre and the colonial peripheries, with their still persisting hierarchies and dependencies. Science and technology “were, and surely remain, aspects of a global hegemony” (15).

The other point that Arnold takes up is the role of science in the creation and spread of modernity in India. As Gyan Prakash puts it, “scientific reasoning became the organizing metaphor in the discourse” (quoted in Arnold 16) of Indian modernity, promoted not only by the colonial administration but by an increasingly participatory native elite. Scientific evangelism, along with Christian evangelism, became the battering ram that tried to destroy the traditional cultures of India. But just as modernity was not unproblematic to Indians, modern science too was not. As Partha Chatterjee shows, Indian nationalism attempted to mediate between the rejecting of colonial authority and the acceptance of Western modernity thus becoming for Indians a way to effect what Sri Aurobindo called a “selective assimilation” of the West:

“[Nationalism] provided a discourse ... which, even as it challenged the colonial claim to political domination, . . . also accepted the very intellectual premises of ‘modernity’ on which colonial domination was based” (Chatterjee 30).

But what this really means is that neither modern science nor modernity itself are homogenous. The diffusionist model needs to be questioned in both spheres. At the same time we need to recognize the hierarchies of power, inequality, and hegemony that mark both domains. One might argue that Indian scientists sought to forge their own brand of science as Indian intellectuals did their own brand of modernity. That this story has not been told does not mean that it cannot be told. It is just that both science and scientists are reticent if not resistant to such a proposition, undermining as it does the very fundamental, constitutive, and self-defining characteristic of science as objective, value-neutral, universal, rational, and so on. Arnold acknowledges that this was possible for Indian modernity:

“Indian scientists and intellectuals tried to construct their own brand of Indian modernity, particularly through the selective incorporation (or re-invention) of Hindu ideas and traditions, through a mix of elements, the degree of ‘hybridity’ involved in the process, varied widely from one individual to another, even with the emergent scientific community.” (17)

He doesn’t take this so far as to suggest that India had the capacity and indeed demonstrated the ability to devise its own culturally unique brand of science, a sort of neo-Hindu science, if you will. I think this is one of the key questions for any serious study of science and spirituality in India. Is there a distinctly Indian science? If so what are its defining characteristics? And what is the role of spirituality in the constitution of Indian science?

David L. Gosling in the first book published book in this area, argues that the distinctive contribution of Indian science is its holistic and integrative approach: “what has always been the most distinctive feature of Indian science is a form of integral thought, a kind of intuitive ability to hold together ideas which have elsewhere remained unrelated” (3). Quoting the work of Jagadish Chandra Bose, Gosling observes, “From the point of view of Indian scientists the progress of science in the West seemed to be a fulfilment of an important Hindu insight—the fundamental unity of all existence” (24). According to

Gosling, Bose's work proceeded from the fundamental principal that "In the multiplicity of phenomena, we should never miss their underlying unity" (Quoted on 24).

The foregoing discussion suggests that the inter-relationship between science and spirituality in India is a historically evolving one. In its earlier phase in the late nineteenth century the relationship was possibly closer, partly because both science and spirituality in India contributed to the creation of Indian modernity and, what is perhaps, more significant, both also became central to the process of consolidation of Indian nationalism. Many of the early scientists were also nationalists. However, the relationship between the two has changed in more recent times to one of the independence of the two domains. If we revert to Ian Barbour's classic formulation of a four-fold typology of conflict, independence, dialogue, and integration, we notice that in India all four types of relationships have been present both in the past and in the present, but that conflict has never been predominant unlike in the West. Moreover, while a number of practicing scientists stress the independence of the two domains, a number of spiritual leaders have advocated both dialogue and integration. Indeed, His Holiness, the Dalai Lama, who is present with us today, has often stressed the need to dialogue. Dialogue, of course, is the pre-condition to a possible integration.

Despite the shift from a scientific universalism during high modernity to a sort of cultural relativism engendered by postmodernist philosophy, science in the sense of a well-defined, commonly accepted, multi-cultural enterprise continues to inform and determine constructions of truth and reality in our contemporary world. While tradition may be the repository of values, beliefs, and ways of relating to each other and the world, we need not, as V. V. Raman suggests in the conclusion to *Glimpses of Indian Science*, cling to pre-modern explanatory models just because they are culturally significant. To do so would make us cultural fundamentalists if not outright reactionaries. On the other hand, dogmatic scientific materialism may also result in the closure of the mind and of the possibilities of experiencing and explaining phenomena. We will have to admit that there are areas of knowledge and truth which are simply outside the parameters of science as it is understood today.

Those who believe in the evolutionary possibilities of human futures aver that we are on the brink of a global renaissance which requires the integration of not just Western and Eastern cultural and civilizational resources, but the coming together of science and spirituality. On the ground such a convergence seems as yet only a distant dream. Even so, the unexplored possibilities of dialogue between these two domains affords us challenges and opportunities hitherto unexplored. India, I believe, has a crucial role to play in such a dialogue, positioned as it is. Custodian of an ancient civilization which is also the home of unique experiments in a plethora of spiritual endeavours, it is at the same time positioning itself as one of the leaders in the IT revolution that is sweeping across the globe. This makes India not just a fertile ground for such an enquiry but the bearer of a special responsibility towards the future of such a dialogue.

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KEYNOTE SPEAKERS

His Holiness the Dalai Lama



"With the ever growing impact of science on our lives, religion and spirituality have a greater role to play reminding us of our humanity. There is no contradiction between the two. Each gives us valuable insights into the other. Both science and the teachings of the Buddha tell us of the fundamental unity of all things." -- The Dalai Lama

His Holiness the XIV Dalai Lama is the leader of Tibetan Buddhism, the head of the Tibetan government-in-exile, and a spiritual leader revered worldwide. He was born on 6 July 1935 in a small village called Taktser in northeastern Tibet. Born to a peasant family, His Holiness was recognized at the age of two, in accordance with Tibetan tradition, as the reincarnation of his predecessor, the XIIIth Dalai Lama. The Dalai Lamas are manifestations of the Buddha of Compassion, who choose to reincarnate for the purpose of relieving suffering. Winner of the Nobel Prize for Peace in 1989, he is universally respected as a spokesman for the compassionate and non-violent resolution of human conflict. His Holiness has traveled extensively, speaking on subjects including universal responsibility, compassion, and kindness.

The Dalai Lama's Interest in Science

The Dalai Lama has always shown a strong mechanical aptitude and a keen personal interest in the sciences. He has said that if he were not a monk, he would have liked to be an engineer. As a youth in Lhasa he taught himself to fix broken machinery, from clocks to movie projectors to cars. A highlight of his first trip to the west in 1973 was a visit to the University Observatory at the Institute of Astronomy in Cambridge England.



Over the years he has enjoyed relationships with many scientists, including long friendships with the late renowned philosopher of science Sir Karl Popper, and physicists Carl von Weizsäcker and the late David Bohm. He has participated in many conferences on science and spirituality. It was at one such conference, the Alpbach Symposia on Consciousness in 1983, that His Holiness met Dr. Francisco Varela who, in partnership with Adam Engle, later created the unique form of in-depth dialogue between Buddhism and science that has grown into the Mind and Life Institute. Since the first Mind and Life meeting in 1987, His Holiness has regularly dedicated a full week of his busy schedule to these biennial meetings.

An Ongoing Dialogue with Western Science

Along with his vigorous interest in learning about the newest developments in science, His Holiness brings to bear both a voice for the humanistic implications of the findings, and a high degree of intuitive methodological sophistication. As well as engaging personally in dialogue with Western scientists and promoting scientific research into Buddhist meditative practices, he has led a campaign to introduce basic science education in Tibetan Buddhist monastic colleges and academic centers, and has encouraged Tibetan scholars to engage with science as a way of revitalizing the Tibetan philosophical tradition. His Holiness believes that science and Buddhism share a common objective: to serve humanity and create a better understanding of the world. He feels that science offers powerful tools for understanding the interconnectedness of all life, and that such understanding provides an essential rationale for ethical behavior and the protection of the environment.

Dr Karan Singh



Born heir apparent (Yuvaraj) to Maharaja Hari Singh and Maharani Tara Devi of Jammu and Kashmir, Dr Karan Singh was catapulted into political life at an early age. He has been a member of the Union Cabinet, one of the youngest ministers of the Central Cabinet, and is presently a member of the Rajya Sabha. He has held various portfolios in the Central Government including that of Tourism and Civil Aviation, Health and Family Planning, as well as Education and Culture. He has been Chancellor of the Jammu and Kashmir University as well as the Benares Hindu University, and currently holds the position in Jawaharlal Nehru University, New Delhi. Chairman of the Temple of Understanding, a major interfaith organization, Dr Singh is also a writer and orator of excellence. With his deep insight into the Indian cultural tradition he has come to be recognized as an outstanding thinker and leader in India and abroad.

"Albert Einstein's famous remark that 'science without religion is lame, religion without science is blind', makes a very important point. Before him, the Cartesian-Newtonian-Marxist paradigm of thought postulated an un-breachable dichotomy between matter and spirit. This concept dominated Western civilisation for several centuries and did produce spectacular results...Science itself is in one of its great creative periods where old barriers are breaking down and some of us – perhaps a trifle optimistically – are beginning to discern the outlines of a convergence between science and spirituality.

I use the term 'spirituality' advisedly, because 'religion' carries a lot of baggage, much of it positive but some of it negative also, despite the work being done by Interfaith organisations around the world including the Temple of Understanding of which I happen to be Chairman, whereas spirituality transcends theological divisions, and cuts across barriers of race and creed, religion and nationality. The seers of all the great faiths of the world have, in their utterances, sought to describe what is essentially an indescribable experience, whether it is the Beatific Vision of the Christians, the Bodhi Chitta of the Buddhists, the Noor-e-Illahi of the Muslims, the Ek Onkâr of the Sikh Gurus or the Self-Realisation of the Hindus. Clearly there are states of higher consciousness which transcend all barriers and which are the heritage of the entire human race. This flows from the persistent tradition of the light that illuminates the universe - the light of Consciousness itself, and it is ultimately an awareness of this light in all human beings that alone can become the cornerstone of a sane and harmonious global society.

What is needed today, as the watchword of the emerging global society, is a new global renaissance, an integration between apparently conflicting concepts. We need to develop a benign symbiosis between the various elements of our personality - the inner and the outer, the quietist and the activist, the feminine and the masculine and in the broader dimension between science and spirituality..."

From the inaugural address of the International Symposium on Science & Beyond, National Institute of Advance Studies, Bangalore, 8 January 2003

FEATURED PARTICIPANTS

Professor T.R. Anantharaman

Science and Spirituality as Two Knowledge Traditions: Their Symbiotic Relationship and Complex Interplay in Society

It is generally accepted that the verbal foundation for India's spiritual and scientific heritage is found in the ancient seminal Sanskrit classics like the Early Upanishads, the Bhagavad Gita and the Yoga Sutras. The latter were composed during the period 500 to 1500 B.C., but the actual knowledge might well have existed in an oral tradition based on dialects since 3000 B.C., when the Sindhu Saraswati or Harappan urban civilization was reaching its peak. Undoubtedly pre-Buddhist in their content, these evergreen classics contain a wealth of wisdom and knowledge, both pure and applied, that is relevant and important for all sections of the human family and in all ages. Defined clearly and analysed critically, the two primary types or domains of knowledge are referred to in the above-mentioned classics as *Para Vidya* (science of the imperishable soul, self, or spirit, i.e., spirituality) and *Apara Vidya* (science of the perishable, transient and material, i.e., science). It is stressed in these ancient texts and particularly in the Upanishads that although different in content, both science and spirituality are important and mankind needs both for health, growth and evolution. By their very nature, they do not contradict each other. Both science and spirituality influence society enormously, but their influence is not direct, but rather, through their derivations or handmaidens - technology and engineering in the case of science and religions/philosophy and religious institutions/philosophical societies in the case of spirituality.



Perhaps India's most renowned metallurgist, T.R. Ananthamurthy is highly published and widely travelled, and the recipient of numerous national and international awards. He is presently the Chancellor of the Ashram Atmadeep, a research institute for the secular-spiritual heritage of India, located in Gurgaon. His publications include the monograph *The Rustless Wonder: A Study of the Iron Pillar at Delhi*, two books in German, in addition to a second monograph entitled *Ancient Yoga and Modern Science*.

Pujya Dr Sharanabasawappa Appa



One of our countries leading educationists, Appaji's philosophy is that education, far from being a mere means to livelihood, must be harnessed to the service of man in the true spirit of kayak and Dosoha. He heads the Peethadipati, Sharanabasaveshwar Samastha, forty educational institutions in the Hyderabad – Karnataka region. By introducing computer sciences, electronics, business management and post-graduate courses in fine arts to the University of Gulbarga and establishing residential school modelled on the British public school system, Appaji has converted the concept of education into a scientific and modern institution.

Professor B.B. Bhattacharya



Among India's leading economists, Professor Bhattacharya has also held several senior posts in various ministries of the Government of India, including the Central Statistical Organization. Before assuming the vice-chancellorship at JNU, he was Professor as well as Director of the Institute of Economic Growth, New Delhi. He was a UNESCO fellow in Polish Academy of Sciences, Warsaw in 1974 and Ford Foundation Post-Doctoral Scholar in the University of California, Berkeley in 1980-81. He specializes in macroeconomics, monetary economics, development economics, public finance and international finance. He has published 9 books and more than 100 technical papers in national and international journals. He is one of the leading experts in econometric modeling and forecasting, and his forecasts and analysis are frequently quoted by both print and electronic media and are used by governments and national and international agencies, such as the Planning Commission, Reserve Bank of India and the World Bank.

Dr Jayanta Bhattacharya

Death, Embodied Approach and Medicine: Problematizing the Normative

An embodied approach to death comprises two distinct notes: the embodied approach in itself is represented through an understanding of embodiment (an indeterminate methodological field defined by perceptual experience and a mode of presence and engagement in the world). This perspective demands that the body as a methodological figure be non-dualistic. Death, on the other hand implies a termination of a universalized natural and 'medicalized' body where the methodological figure must be dualistic. This universalized natural body is, in its turn, a circumscribed three-dimensional space devoid of any extra-corporeal meaning and experiential knowledge. Consequently, on one end of this spectrum of 'death perception' is the biomedical (or objective) view of death where the perceptual experience of a person has been evacuated. On the other end is the fatalistic (or embodied) view. Inherent in the first concept is the idea of progress, reason/rationality and value-neutral objectivity, compatible with the idea of modernity which is concerned with the formation of an autonomous, discrete individual self and subject. In making the journey from mythos to logos, medicine is authorized with the sole power of producing a 'true' picture of the body and death. It is understandable that in any non-medicalized position, however, that the self is socially embedded and inter-subjective. Biomedicine is also inscribed with the idea of the advancement over the body and disease in any temporal scale, and this, therefore prevents the introduction of the idea of 'loss'. By focusing on the embodied approach to death as the anomaly, biomedical and scientific assumptions about death remain unproblematized and, thus, build their normativity. So, to talk about embodied approach to death is, in a sense, to problematize the normative discourse of medicine of the body, to insinuate into the interstices of hegemonic discourse of death arising out of life contained solely within a biologically measured space bereft of any existential meaning. Also, this approach makes possible the journey from 'curing' to 'healing' – making medicine humane. Pursuing an embodied approach should be delineated from any representational move where experience or affect may be reduced to language and discourse only.



Jayanta Bhattacharya is a PhD student at the department of anatomy, North Bengal Medical College as well as a Research Associate of Indian National Science Academy, specializing the area of History of Science. His other areas of interest include colonial medicine and the construction of its hegemony over indigenous healing practices, particularly at the level of the epistemological space of the body.

Medicine is inscribed with 'clinical detachment.' So, following its evolutionary trajectory, a person-in-disease is seen as an objective case. Eventually death is seen not as a loss of an active, meaningful person but as disappearance of a case. Such an approach dehumanizes not only medicine but its practitioners too. Incorporating other dimensions of life (like spirituality) beyond medicine (science) may help in constituting a humanizing note within the matrix of medicine, and science as well.

Dr Ramesh Bijlani

The Scientific Method and Method in Spirituality

Science has a fairly well defined method of answering questions about the cause and effect relationships in the physical universe. Starting with a hypothesis, the scientist designs his experiment, taking care to minimize factors that might confound the results. In the study itself, the emphasis is on the accuracy of observations. All attempts are made to express the data in figures, which are then subjected to statistical analysis. Statistical tools help in organizing complex data, and facilitate objective and dispassionate interpretation of the results. Since statistical tests yield only probabilities, the conclusions are expressed in cautious and guarded language. In science there is always scope for revising the conclusions if future studies warrant such a revision. Although this is the standard method by which science continues its slow march towards a better understanding of the universe, there are innumerable instances of breakthroughs originating from studies in which the scientist makes a radical departure from the prescribed procedure, or gives free play to his intuition and imagination while interpreting the results. Unlike science, spirituality is concerned with only a few basic existential questions. These questions are concerned with 'the why' rather than 'the how' of the universe and with the relationship between the manifest universe and Absolute Reality, if any. Although disciplines such as yoga provide guidelines for facilitating inquiry into these questions, there is no set method that the seeker must follow. The only tools common to the efforts of all the seekers who have achieved a modicum of success in their search are total sincerity, intense concentration and an extreme degree of self-purification. What sets the spiritual quest clearly apart from scientific exploration, however, is that the spiritual seeker himself is his experimental subject, and he himself is his laboratory. And, the consistent result of these unique experiments has been that the observation is of self-discovery, genuine, and that the answers it has given them are beyond any doubt. This air of finality, this supreme confidence, is in sharp contrast with the tentative nature of scientific conclusions. Replication of the study is possible, but as in science, the sceptic should use the same tools as the previous investigator. Since few are willing to put in the effort required for acquiring these tools, most are content to admire and revere the long line of *rishis*, seers and mystics who have subjected themselves to rigorous experimentation in pursuit of the whole Truth.



A medical doctor at the All India Institute of Medical Sciences, Ramesh Bijlani is also well-versed in the writings of Sri Aurobindo and the Mother. He is responsible for initiating a mind-body care centre at AIIMS, where he worked for nearly 30 years. Among his many and varied publications is a textbook for medical students as well as an illustrated work for younger children.

Swami (Dr) Brahmeshananda

Spiritual Phenomenon in the Light of Bio-technology

It cannot be denied that the investigations of modern bio-sciences into the realm of religion and spirituality have helped in understanding spiritual phenomena, and to dispel the clouds of mystery around mystic happenings. We have also understood the limitations of bio-technology in bringing about spiritual experiences or in helping to hasten the process of spiritual evolution. It is also a fact that spiritual phenomenon is essential not only for individual fulfillment; it also plays a major role in social wellbeing. Such scientific inquiries further strengthen the view that spiritual life must be led in the right earnestness if we seek personal emancipation, welfare of society and an ascent of the human race to the higher ladder of evolution. It is yoga and not bio-technology that is the path to higher consciousness. Robots may have their utility but they are not substitutes for rishis. This paper tries to understand spiritual phenomenon in the light of psycho-neurology, psycho-biochemistry, genetic engineering, psycho- surgery and evolution.



The Secretary of the Ramakrishna Mission in Chandigarh, Swami ji is a senior monk who was ordained a sannyasin in 1980. By training, he is a physician, and has served patients in Missions across the country. He has written several articles on the areas of health, medicine, and religion.

Spiritual phenomenon is essential not only for individual fulfillment, it also plays a major role in social well being. Scientific inquiries further strengthen the view that spiritual life must be led in right earnestness if we seek personal emancipation, welfare of the society and ascent of the human race to the higher ladder of evolution. Yoga and not bio-technology is the path to higher consciousness. Robots may have their utility, but they are not substitutes for rishis. What we need today are rishis in scores, hundreds and thousands.

Dr Garga Chatterjee

The Cognitive Neuroscientist's Approach to Death

Strategies to achieve transcendence over death are, presumably, as old as human life and culture itself. These approaches can be to defer and finally “abolish” death through medical advances, to bring oneself to believe in “life after death” and reincarnation, etc. Some have tried a combined technique, changing the definition of immortality from a body-centred approach to a remembrance based one, where a writer aspires to “live” through his work and the like. None of these strategies effectively deal with the phenomenon of the ending of the self and hence, the nature of self, beyond simple references to the transformation of the self. Mind sciences including its obscurantist spin-offs have tried to come to terms with this question. Beyond arm-chair and popular psychology, a domain of knowledge is now evolving which takes on the question of self, face to face. This branch of the mind sciences, cognitive neuroscience, is becoming the realistic knowledge system where such questions can potentially be dealt with sufficient objectivity. This paper explores the unique vantage point of the cognitive neuroscience researcher from where he can deal with death and the self using a strategy different from all of the above-mentioned. The uniqueness arises not so much from a departure from the Western medical understanding of death, but from the way the seeker - the cognitive neuroscientist - engages with the ‘death’ question- the sought. To a zealot thanatophobic, cognitive neuroscience provides a way to deal with the death question, and the most well-suited thanatophobic is one who is also a cognitive neuroscientist. Thanatophobia has driven endeavours in human creative thought and cognitive neuroscience is a tool to some – not to deny death, not to conquer it, but to continue to know it till one faces it. The impetus to know the self (and by implication the end of the self) can be a powerful driving force. Escape from thanatophobia can be sought by the cognitive neuroscientist by engaging with the nature of awareness and consciousness.



Garga Chatterjee is a physician and researcher at the Department of Neurology, Medical College, Kplkata, of which he is also an alumnus. He has published papers in science journals as well as conferences, on science and ideology, behavioural neuroscience, visual perception, science and education policy, amongst other topics

Knowledge of the self is the ultimate human and spiritual quest. Today, cognitive neuroscience is trying to do just that. These are exciting times.

Ms Susmita Chatterjee

Acharya Jagadish Chandra Bose: Looking Beyond the Idiom

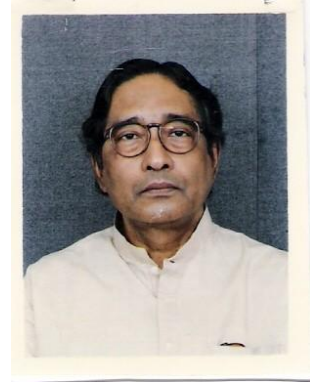
The predominant image of Acharya Jagadish Chandra Bose in colonial India was as the scientist who introduced the ancient Indian wisdom of spirituality into the domain of science. J.C. Bose was the first Indian scientist to build an Indian structure for science, the propounder of 'alternative sciences', a flawed genius. In post-colonial India, Bose is almost a forgotten scientist who failed to create a tradition of his own. 'Bose, the acharya' is no more an idiom than his spiritual statements are believed to be. His scientific career is believed to have passed through three phases. In the first phase, we have Bose the physicist, who carried out experiments on electric waves. In the second or interdisciplinary phase (Bose was a lone practitioner for no such interdisciplinary study had evolved at that time), he came up with the thesis that there is no discontinuity between the living and the non-living. In the last phase of his career, he turned into a plant physiologist. It is the second phase of his research that Bose himself treated to be the most significant in terms of reaching closer to scientific truth. Even modern critics of Bose believe that it is the Boseian thesis that made and unmade him. It therefore seems worthwhile to understand what the Boseian thesis is. Bose did not merely resort to metaphors and imagery to explain his scientific inquiries and findings. He actually drew parallels between scientific truth and metaphysics. As he said, "It was when I came on this mute witness of life and saw an all-pervading beauty that binds together all things—it was then that for the first time I understood the message proclaimed on the banks of the Ganges 30 centuries ago: 'They who behold the One, in all the changing manifoldness of the universe, unto them belongs eternal truth, unto none else, unto none else'." The Boseian thesis is perhaps the epitome of Bose's emphasis on the underlying unity among diversities and oneness of existence. A closer look reveals that in his opinion neither scientific disciplines nor scientific phenomenon were watertight. The predicament of Bose as a scientist comes out clearly in his comparison between a poet and a scientist. He believes that both the poet and the scientist try to touch the formless, the unseen, the unheard, but the methodology of the scientist is different. The poet expresses the ineffable through metaphors. She or he doesn't have to verify their 'truth' claims. The scientist, on the contrary, has to make observations and experimentations to describe the indescribable. And unless one is corroborated by the other, the scientist is not liable to accept it. Bose, the scientist, was thus not simply 'formulating' the Indian philosophical position into a scientific idiom. Nor was the Acharya trying to infuse his scientific research with mysticism. Acharya Jagadish Chandra Bose, the scientist of colonial India, was a man who straddled two cultures simultaneously, the man whose scientific inquisitiveness and spiritual indulgence was always in conversation with each other.



Susmita is a PhD student in the Centre for Historical Studies, Jawaharlal Nehru University, New Delhi in addition to being a Junior Research Fellow at the Indian Council for Historical Research. She has published several papers in English as well as Bengali. Her areas of interest are Change and continuity in gender and the contribution of religious ideologies to South Asian politico-socio-cultural structures and meanings.

Professor DP Chattopadhyaya
Science and Spirituality in Modern Times

First, the issues of science and spirituality, related to all civilized peoples are more or less universal and yet culturally both time-specific as well as space-specific. For their cultural and historical specificity, they may be profitably viewed under their sociological (synchronic) and historical (diachronic) perspectives. Secondly, the etymological root of dharma and religion may be profitably recalled and spelt out in explicating the main characteristics of what we understand by *religion* or/and *dharmā*. Its main characteristic seems to be a binding force, the power of holding people together. This may be understood both theistically and atheistically. Both in ancient as well as modern times we fail to find any hard and fast distinction between *scientists* and *spiritualists*. Scientists need not necessarily be believers in God, just as spiritualists are not expected to be scientifically literate. Many spiritualists in the Indian tradition like Gautama Buddha and Mahavira, the supposed founders of Buddhism and Jainism, were not theistic in the received sense. But that did not prevent their followers from expressing their views as far as scientific concepts, categories like atomism, causality and cosmology were concerned. Thirdly, in our own times, both in India and the West, we find two basic approaches to science and spirituality. Scientists may or may not believe in God in the cognitive sense. For instance, Einstein, though he spoke of his respect for religion, explicitly denies God in the cognitive sense. His view of religion is emotive and has only directly to do with religion, denying the chance factor and affirming causality in the universe. Needless to say, there are several scientists who believe in God. Most of the working scientists, both in India and elsewhere, are relatively if not absolutely, indifferent to the issues of religion, which to them have nothing to do with their own scientific activities.



One of India's most eminent and widely published philosophers, DP Chattopadhyay is currently the Chairman of the Centre for Studies in Civilizations. The centre has undertaken one of the most ambitious publication projects to document the history of science, philosophy and culture in Indian civilizations. He has served as the Governor of West Bengal and has also held many other positions of importance including the chairmanship of the Indian Council for Philosophical Research as well as the Indian Institute of Advanced Study. Some of his most important works include *Sri Aurobindo and Karl Marx*, *Anthropology and Historiography of Science*, *Interdisciplinary Studies in Science, Society, Value and Civilisational Dialogue*.

Heralda Chavarria

Heralda Chavarria, or Gopini as she prefers to be called, is from Columbia in South America. She has a Bachelor's degree in computer science, but has been pursuing studies in Indian spiritual traditions at Vrindavan for the last eight years.

Professor PL Dhar

Insights from Modern Science into the Practice of “Insight Meditation”

Insight meditation or *Vipassana*, as it is popularly known today, is a powerful technique for purification of the mind through self-observation. The unique feature of this meditation, as it is taught currently by Shri S.N.Goenka and his assistants, is to train the mind to observe continually, without any reaction, somatic sensations (the feelings) and concomitant mental conditions. It is claimed that the roots of the impressions stored in the subconscious mind, lie in these somatic sensations. Though these sensations occur incessantly in human body (due to various bio-chemical and electromagnetic interactions) they remain below the threshold of awareness for most people, unless the mind is suitably trained. Yet the so called subconscious or unconscious mind is constantly in “touch” with these and therefore governs our response to them. This response, based on our past conditioning, is that of an acceptance and craving for the pleasant feelings and aversion and revulsion towards the unpleasant ones. Since these sensations are evanescent and naturally change quickly, the reactive mind is always dissatisfied, full of what the Buddha, the founder of this technique of developing mindfulness, calls *tanha* (*trishna* in Sanskrit). This *tanha*, or the desire to have everything the way one likes, is the root cause of the perpetual dissatisfaction that characterizes the modern life. The practice of a non-reactive observation of these sensations as taught in *Vipassana* enables us to “train” the unconscious mind to remain equanimous, in view of the impermanence of everything in this sensory world. This reduces *tanha* and enables the practitioner to accept the present cheerfully, thus liberating him from the bondage arising from the reactions of an unwise mind. Recent studies conducted by the distinguished neurologist Antonio Damasio and his team on the relationship between feelings, emotions and a neural mapping of body states, seem to confirm the aforementioned postulates of *Vipassana*. This paper addresses the detailed findings of these studies as well as their relationship to the *Vipassana* practice.



In addition to being a Professor of Mechanical Engineering at the Indian Institute of Technology, New Delhi, PL Dhar is also the author of many books on value education, and science and humanism. He is a vipassana teacher of longstanding and has taught the inmates of Tihar jail this form of meditation, studying its effects on them. He is a part of the National Centre for Value Education in Engineering at IIT.

Dr Ananta Kumar Giri
The Calling of a Practical Spirituality

Science and spirituality have been undergoing a profound transformation over the last century and one of the significant sources of this transformation has been the cultivating of a non-dual mode in both ontology and epistemology, overcoming unhelpful and binding dualism, for example between subject and object, and immanence and transcendence. In the field of spirituality—both in socio-spiritual movements as well as theological reflections—there is a movement towards a more practical spirituality that makes religion not only interested in the day to day issues of survival and transformation but also the site of immanent transcendence (immanent transcendence has the potential to go beyond superficial divide between science and spirituality and help us realize how both are engaged with practice, experience, experiment as well transcendence). Swami Vivekananda spoke about a practical spirituality a century ago and in this paper I will critically explore this theme in the movement of ideas in India's spiritual traditions. I also will discuss works such as Vinoba Bhave's *Bigyana Aur Atmagyana* and Roy Bhaskar's works on science, emancipation and "meta-reality", and explore how practical spirituality can not only transform the relationship between science and spirituality but also prevent either of them from falling into any imprisoning closure and instead flourish, continually seeking and transforming in life, society, the world and cosmos.



Ananta Kumar Giri, by training an anthropologist, has worked and taught in many universities in India and abroad including Free University, Amsterdam, University of Kentucky and Aalborg University, Denmark. He has an abiding interest in social movements and cultural change, criticism, creativity and contemporary dialectics of transformations, theories of self, culture and society, and ethics in management and development. He is currently on the faculty of Madras Institute of Development Studies. Dr. Giri has written numerous books in Oriya and English including *Global Transformations: Postmodernity and Beyond*, *Conversations and Transformations: Toward a New Ethics of Self and Society*, and *Building in the Margins of Shacks: The Vision and Projects of Habitat for Humanity*

Both science and spirituality are quest for truth and realization and they refuse any final certitude and closure while respecting provisional truth as a nurturing ground for being, intersubjectivity and mutual coordination. But despite this stated openness both of them suffer from the danger of being imprisoned within dogma and varieties of orthodoxies. Thus there is a perennial need for not only mutual interrogation between science and spirituality but for both of these to fight against inner orthodoxy which stifles quest for truth and continue to be vibrant practices of multi-dimensional quest for knowledge, realization and truth.

Swami Gokulananda

Modern Science from a Spiritual Perspective

The modern world is the creation of science and technology. Science is the product of the discipline of the human mind arising out of a sense of enquiry. Scientific inventions and discoveries are capable of physical verification. Religion deals with the truths of the metaphysical world just as science deals with the truths of the physical world. Man's quest for spirituality is also driven by the same spirit of enquiry which has led him to cross new frontiers in science. Indian thinkers as one can see from the texts of Upanishads, discovered by their investigations that there are two fields in which man lives and functions: the first, the external world, and the other, the internal. We seek truth from both of these through experience. Truth gathered from internal experience is metaphysics and religion; from external experience, the physical sciences. There is no contradiction between the two and they are not mutually exclusive but coexist in harmony. A proper blending of the two will make us appreciate the external and the internal world better. Developments in cosmology and quantum mechanics indicate that the division between the two worlds is slowly dissolving and scientists are now in fact turning inward to seek answers to many questions of modern science.



Swami Gokulananda is a senior monk of the Ramakrishna order and currently the head of the Ramakrishna Mission, New Delhi. He has several books to his credit including *Swami Vivekananda - The Ideal of the Youth*, *Some Guidelines to Inner Life*, and *How to Overcome Mental Tension*. He is widely travelled both within India as well as abroad, having visited and lectured in UK, France, Finland, Germany Switzerland, Italy, Malta, Switzerland, etc.

Shri Shrivatsa Goswami

Is there a Science of Love? Exploring Spiritual Science

The ultimate goal of knowledge systems is human concern, so understanding the human makeup is essential. It is classically viewed as a teamwork effort between *atma* and the body: to deal with *atma* we have spiritual discipline and to understand the body, material/physical sciences are helpful.

Science, with universally applicable and empirically verifiable conclusions, requires an operating system of logic. Indian thought is obsessed with logic, from *advaita* to *dvaita* to *dvait-advaita*, finally proposing *acintya-bheda-abheda*, the fuzzy logic of inclusive transcendence. The paper explores whether or not there is a scientific tradition for experiencing and expressing matters of aesthetics in the culture of the Bharatas, the aesthetes.



Shrivatsa Goswami is one of the pontiffs of the Radha Raman Temple at Brindhavan. A widely respected spiritual leader and author of several books, he is one of India's leading Vaishnava thinkers.

Dr Dennis Hair



Programme Director of the *Science and the Quest for Ultimate Reality: Science and Theology Advanced Research Series* at the Centre for Theology and the Natural Sciences, California, Dennis Hair holds a Ph.D. in physical chemistry from the University of Southern California and a B.S. in chemistry from the University of Oklahoma. He has served as a research scientist for the National Institute of Standards and Technology in Gaithersburg, Maryland, as well as a director in the pharmaceutical industry. Most recently, Dr. Hair has worked in China, serving as a professor at Shenyang Pharmaceutical University as well as founding and directing the Polaris Resource Network, a consulting service to aid Chinese universities, businesses, and institutions in achieving international standards of excellence and in procuring international personnel.

Dr Mahantappa Jogad



Recipient of the C.V. Raman Young Scientist Award in 2003, Dr Jogad is a physicist as well as Principal of the Sharanabasaveshwar College of Science in Gulbarga, Karnataka. He has many publications in national as well as international science journals to his credit.

Dr Kireet Joshi

Science and Spirituality: Synthesis in the Making

Science today is overwhelmingly identified with the study of matter and with a methodology that has been developed to accommodate evidence that is available within the realm of matter. Similarly, spirituality has been confined to the study of the supra-physical that is seized by sporadic intuitions and revelations which often collide with and contradict material reality. Spirituality is greatly condemned as ephemeral, ethereal, subjective and even irrational or anti-rational, incapable of developing a body of knowledge that can be considered objectively verifiable or falsifiable or repeatable or progressively expandable. Spirituality, when admired, is presented mostly, not as a body of knowledge, but as the manifestation of certain attitudes, emotional responses or of selfless service or self-effacing acts of sacrifice. Science, on the other hand, is presented mostly, not as an edifying and ennobling endeavour, but as a pursuit that is neutral in regard to values which are manifested in moral or aesthetic or spiritual pursuits. Many claim that with the discovery of the operations of consciousness in the field of Matter, unity and identity of Matter and Spirit has already been proved, and, therefore, science and spirituality have already been synthesised or will soon be synthesised. This claim needs to be examined.



Kireet Joshi is a key figure in the field of Integral Education. Having worked under the direct guidance of the Mother in Pondicherry to develop this new system of education, he is also responsible for the establishment of the Shri Aurobindo International Centre of Educational Research in Auroville. He has held various Government posts, including Educational Adviser. He is currently the Chairman of the Auroville Foundation, Chairman of the Indian Council of Philosophical Research, Vice-Chairman of Maharishi Sandipani Rashtriya Veda Vidya Pratisthan and Member of the Executive Board of the Institute of Advanced Studies, Shimla. His books include *Shri Aurobindo and the Mother*, *Education for Character Development*, and *Veda and Indian Culture*.

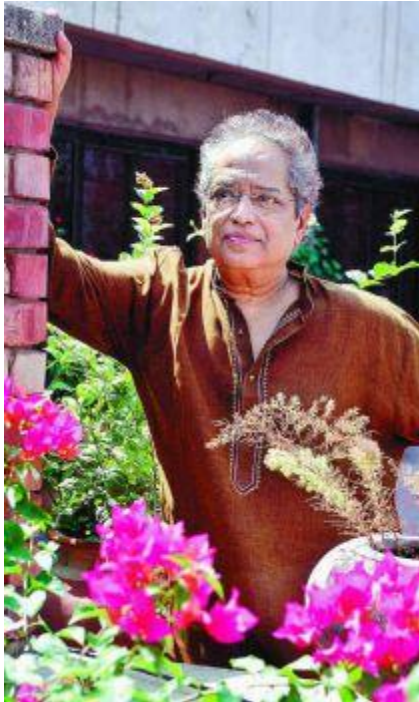
Professor Mukund Kajale

Professor and In-charge of the botany laboratory of the in the Archaeology Department of Deccan College,
Pune,

Dr Sudhir Kakar.

Psychoanalysis and the Spiritual Quest

Although coming from a very different, Western tradition, modern depth psychology, whether Jungian or Freudian in its orientation, cannot but address questions, such as the relation between self and the not-self, which have also been central to mankind's spiritual traditions. After all, both spirituality and depth psychology must base themselves on what evolution has created; human growth and development. Instead of focussing on the differences between the two, the time is now ripe to address the convergences between the two traditions. This paper attempts to do just that.



Sudhir Kakar is perhaps India's foremost psychoanalyst. He is widely published and extremely well-known for his numerous publications which include *The Inner World: A Psychoanalytic Study of Childhood and Society in India*, *Intimate Relations: Exploring Indian Sexuality*, and *The Analyst and the Mystic*. He is currently an adjunct professor at INSEAD, Fontianbleau, France.

Professor Kapil Kapoor

Science and Spirituality: East and West, Defining the Terms

Spirituality and science are two forms of knowledge marked by their own domains – *spirit* and *matter*, the unobservable and the observable, the non-quantifiable and the quantifiable, the self and the other. One prompts an inward vision *into* the life of things that involves the observer to be a part of a continuum, and the other, a look *at* the things, in which the observer stands apart and dissects. 'Science' in the sense of 'knowledge obtained by observation and testing of facts' has led to the formation of disciplines such as natural and applied sciences while 'spirituality' investigates the non-material realm and has produced disciplines such as metaphysics and theology. The primacy of natural, applied and empirical sciences in contemporary western discourse today indicates the decisive movement of Western thought from the ideational to the material reality; from the inner to the outer world; from intuition to observation; from experience to experiment; from construction of the world to its quantification; from a fuzzy real to an absolute real; from *many* truths to *one*, truth. It is a decisive shift of allegiance from Plato to Aristotle. As the Western mind mastered reality, it found itself increasingly well-located in the observational realm. This primacy of the material realm over that of the mind and spirit stems from the other driver of the Western mind, the imperative of making a choice from a given dichotomy because of the foundational assumption of 'truth'. It is difficult to locate where the cause of this movement towards the material in the Western tradition lies - whether in the sensory epistemology or in the theoretical restriction of the object of knowledge to the perceptible. In the Indian intellectual tradition, the word *jñāna* stands for all knowledge while *vijñāna* stands for marked knowledge, a sub-domain. Here *jñāna* holds prestige over *vijñāna* (unlike in the West where science is dominant) and refers to complete knowledge that includes both the domains, that of *adhyātma* (spirituality) as well as *vijñāna* (science). The important claim is that the two are intertwined. A fundamental distinction is made on the basis of scope between *jñāna*, knowledge, and *vijñāna*, specific knowledge of the facts of the perceptible world. *Vijñāna* is observational and is gained by the senses and the mind, etc.; the other is experiential and is gained by the inner self as *draṣṭā*. In one, the whole cognising self is *bahirmukhi*, directed towards and involved in the outer world; in the other, the whole cognising self is *antarmukhi*, turned inwards. To acquire the first kind of knowledge, only the sensory apparatus has to be prepared, but to acquire the second kind of knowledge the knower has to go through a process of preparation, *sādhana*, for knowledge-acquisition and the epistemology is actually far more complex than in the observational domain. The second kind of *jñāna* consists in the ability to discriminate between *sat* (true/right) and *asat* (false/wrong), between *kartavya* (duty) and *akartavya* (non-duty or what one ought not to do). It also consists in the awareness of what is (*tattvajñāna*) and of object (*kṣhetra*) and subject (*kṣhetrajñāna*). This knowledge enables self-control, stabilises consciousness, destroys the opposition between the self and non-self and carries one like a raft through the rapids of this worldly life. It binds while science segments and divides. However as forms of knowledge, it is possible to see these two as not really different from each other because it is argued that Mind is the instrument for both in the sense that both kinds of knowledge are constructed in the Mind. This paper deals with the nature and relation of these two forms of knowledge.



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Professor Nitant Kenkre

View on Science and Spirituality from a Practicing Scientist's Porthole

What is science? What is not science? What are some common meanings we may ascribe to the concept of spirituality? What significance is there to the opinion held by some that science and spirituality are, *ipso facto*, in conflict? What intellectual dangers lurk in the cavalier identification of certain concepts in science such as in quantum mechanics, with similar sounding concepts in the spiritual literature? An attempt will be made to address these questions, *not* from the standpoint of a philosopher, but from the viewpoint of one involved in the day-to-day practice of science.



Nitant Kenkre is a Distinguished Professor of Physics at the University of New Mexico, USA in addition to being the Director of the Consortium of the Americas for Interdisciplinary Science. He has published over 230 research articles in physics journals and has co-authored a monograph on Exciton Dynamics in Molecular Aggregates. His interests outside science include religion, philosophy, literature and art.

Shri Prashanth Khanna

Prashanth Khanna is a Senior Sadhak at the Shri Aurobindo Ashram in New Delhi.

Shri Ravi Khanna

The Big Picture for the Science of Consciousness

This paper deals with the concept of Vedic Creation and Consciousness hymns, and the larger western concept of the Universe as made apparent through the Nested Hierarchy in Nature and the Multi-verse theory of Quantum Mechanics.

It also explores the emergence of the nervous system in terms of the evolution of beings and the layers of consciousness in terms of His Holiness the Dalai Lama and Ken Wilber's Mind-Life series.



Ravi Khanna is a businessman and a Vedic scholar with a background in Electrical Engineering, Physics and Mathematics. He has lectured at various seminars and forums and has a number of published articles.

Professor Anand Kumar



A professor of Sociology at Centre for the Study of Social System, SSS, JNU, New Delhi, with special interest in Indian social thought, Anand Kumar is also coordinator of Global Studies Programme. He is currently I am engaged in studying the cultural limits of globalisation. His publications include State and Society in India, Tibet Sourcebook.

Dr Sudhir Kumar

Gandhi on Science, Technology, and Spirituality

The proposed paper makes an attempt to analyze Gandhi's views on science and re-contextualize the continuing relevance of the Gandhian objective of 'spiritualizing' science through satya (truth) and ahimsa (non-violence) - so ably manifest in his world-views of 'sewa', 'satyagraha', 'swaraj' and 'sarvodaya'. Accordingly, Gandhi's views on science have been schematized in three broad sections: a) Gandhi and Machinery, b) Gandhi and Technology, c) Gandhi and Medicine. Gandhi's notions of Truth and spirituality subsumed and civilized science and technology. The paper also focuses on the relevance of Gandhi's visions of swaraj, sarvodaya and swadeshi in preserving of our global environment which is threatened by the thanks to the unbridled growth of 'adhamic' science and technology.

Sudhir Kumar, presently Reader in English (DES) at Panjab University, Chandigarh teaches Indian Writing in English, New Literatures, Literary Theory. He was awarded the K.K.Birla Fellowship in the field of Comparative Literature. His monograph on Gandhi as a maker of Modern Indian Literature is soon to be published by Sahitya Akademi, New Delhi. He is published widely in international and national research journals (both in English and Hindi) on issues related to Gandhian Poetics, Cultural Studies, Comparative Literature, Literary Theory and other areas

Dr P. Ram Manohar

The Blending of Science and Spirituality in the Ayurvedic Model of Healing

Ayurveda, an indigenous medical system, has evolved in the socio-cultural milieu of India over a period of several thousand years. In the process, it has assimilated and synthesized diverse streams of thought ranging from spiritual to materialistic world views. Notions about the human persona, health and disease were formed in the backdrop of the subtle intellectual discourses that ensued amongst the orthodox and heterodox systems of thought in India. The result has been the evolution of an extremely refined philosophical system dealing with life, health and disease with a broad framework that blends science and spirituality in the context of healing. Ayurveda is also a knowledge system as much as it is a medical system, and has perfected its own epistemological tools to generate valid knowledge. It is this epistemological foundation that has enabled it to synthesize spiritual approaches to healing within the framework of what we understand today as science. This paper discusses how Ayurveda developed into a knowledge system by defining an epistemological approach to knowledge building, which it employed to synthesize diverse trends of thought regarding the Universe and life to evolve a three-dimensional view of the human persona comprising the body, mind and self. It further explores how, using rigorous epistemological tools to validate the veracity of theories and its applications, Ayurveda has created a flexible framework to harmonize the so called 'scientific' and 'spiritual' approaches to understand and deal with health and disease.



P. Ram Manohar is a certified practitioner of Ayurveda. He is currently the Director of the AVT Institute for Advanced Research. His books include *Nomenclature and Taxonomy in Vrکشayurveda*, *Regionally Substituted and Introduced Plants of Kerala* and *Ayurveda: A System of Medical Psychology*.

Dr A.K. Merchant

The Interfaith Movement in India and Modern Science

Sacred scriptures contain both spiritual truths and scientific facts. In this sense religion is the science of the love of God and of our fellow-humans. From ancient times India has presented the example of combining religious practices with scientific pragmatism. The paper suggests that by accepting religion and science as two systems of knowledge we should collectively create a model of society that would provide for the wellbeing and happiness of all of humanity. The author makes the above case by investigating the recent history of the inter-faith movement in India, especially since the Parliament of Religions of 1893 in Chicago in which Swami Vivekananda made such an impact. During the Centenary of the Parliament of the World's Religions held in Chicago (1993) there was a new upsurge among leaders of religion and scholars to come together more frequently and work towards the creation of a common platform whereby the initiatives taken, the new paths delineated and willingness to explore collectively have led to the subsequent Parliaments in Cape Town (1999); the United Nations sponsored Millennium Summit of the World's Religious and Spiritual Leaders (2000); the most recent Parliament of the World's Religions in Barcelona (2004). Leaders and representatives of religions and faith-based traditions are will to work in tandem with other apex agencies and global institutions in the world society to craft the best possible solutions to the manifold problems and crises. In this backdrop, the Bahá'í Faith whose vision is articulated in its various statements, declarations and documents of commitment that have emanated from the major inter-faith and inter-religious conferences since the holding of the very first Parliament of Religions in the West in Chicago in 1893, also plays an important role. This paper is optimistic and somewhat visionary in finding hope in the variety of solutions recommended using the discourse of science as well as religion.



A.K. Merchant currently serves as the Secretary & Chief Executive Officer, National Spiritual Assembly of the Bahá'ís of India; one of the nine Trustees, Bahá'í Lotus Temple, New Delhi; Director, Foundation for Advancement of Science, Bhopal; Director, Barli Development Institute for Rural Women, Indore; Managing Trustee, Sarvodaya International Trust, New Delhi Chapter; General Secretary, The Temple of Understanding—India. Through these institutions he has been working in the field of value education; promoting communal harmony and inter-faith dialogue; educating school children and youth on Gandhian values and in the areas of life-skills development among adolescents through a project of Kishore Dakshta Vridi Network and United Nations Population Fund.

Dr AK Mukhopadhyay

The Layers in the Matrix of Spirit and Matter

It is believed that mankind does not have sufficient knowledge of matter or spirit to build a connection between the two. It would require a 'revolution' of matter, a revolution of the mind and perhaps further revolutions to select the bridging elements (*Multi-revolution Theory of Roger Penrose*, Collin McGinn and Michael Levin). This view is based on the assumption that quantum mechanics is the end of matter and consciousness, that it is nondual and unconditional, and not wedded with nature. Another assumption of McGinn is just as a monkey is not able to understand quantum mechanics, the human brain is not ripe enough to explain the spirit. This view, however, is several steps ahead of that of Rene Descartes, who found matter and the spirit to be substantially different for two reasons: first he acknowledges the probability and possibility of a bridge between the two and second, he looks forward to timing embedded with further unfolding, unrolling or evolutions of human brain. This paper proposes that there is a sub-quantum nest of nature that deals with elementary phenomena like birth, death and conditioned existence. It connects the quantum nest of nature with the *nature* of consciousness. Consciousness, or the spirit, is indissolubly wedded with nature, and it is its kinetic aspect, mobile facet and executive front which creates and asserts itself on rest of nature. This *natura naturans*, may be called Mother Nature, the creative nature in contrast to a nature that obeys the mechanics of elementary phenomena, quantum laws and principles of classical mechanics as *natura naturata* or *created* nature. This pentaune model (five indissolubly wedded nests of classical nature, quantum nature, sub-quantum elemental nature, Mother Nature and consciousness) represents a nested hierarchy in the matter-consciousness spectrum. Since every statement or expression of the human brain is directed by the original perception of its mind, it is suggested that the layers of the mind correspond to the layers in the matrix of the spirit and matter.



Currently Professor of Laboratory Medicine at AIIMS, New Delhi, Dr Mukhopadhyay is also the author of many articles and books including *The Millennium Bridge*, *Conquering the Brain*, and *The Dynamic Web of Supracortical Consciousness Or Neurobiology*, and *Neuroscience and Neuropsychology of Twenty first century*

Professor Chaman Nahal



Chaman Nahal is Chairman of the Chaman Nahal Foundation, established in 2002 to promote international peace through literature. He was formerly Professor & Head of the English Department at Delhi University. His latest book is *Silent Life: Memoirs of a Writer*, which appeared in 2005.

Dr Ranjit Nair

The Secular as Sacred: Science and the Spirit

The Einsteinian dictum 'science without religion is lame, religion without science is blind' employs the term 'religion' in the sense of a belief in a cosmic order that science tries to comprehend. This cosmic order is not something that is directly evident to our senses, but one that needs to be unravelled through the disciplined exercise of reason. The religion of science is an austere search for truth that does not take the deliverances of the senses to be anything more than an imperfect reflection of an underlying unity with its moments of epiphany when truth is glimpsed, if only in part. For science, the distinction between the sacred and the secular, so pronounced in our cultural ancestry, ceases to exist. In the Indian tradition there was a distinction between the *astikas* (from *asti para lokah iti*, 'there is a world beyond') and the *nastikas*, the nihilists who were in denial. These terms were largely put to polemical use by ancient disputants, although there is a sense in which they are illuminating even in the contemporary context. Science is committed to a world beyond sense appearances to explain phenomena, and in this sense the scientist is an *astika*. In the contemporary world and across all cultures, a renewed understanding of science as an inherently spiritual quest could not only unite the descendants of the Tower of Babel but also rekindle the sense of wonder and mystery that lies at the root of the sacred, amplified manifold by the extraordinary success of science in uncovering new realms.



Ranjit Nair Director of the Centre for Philosophy and Foundations of Science, New Delhi, which he helped found in August 1998 along with a group of scientists and philosophers working in the foundations of quantum theory. Since 1996 he has convened an annual Congress of Philosophy and Foundations of Science in New Delhi, bringing together national and international scholars. He has edited *Mind, Matter, Mystery: Questions in Science and Philosophy* and is the Coordinating Editor of a new 12-volume series entitled *Foundations of Philosophy in India*. He is the convener of the biennial World Science Festival and Conferences. His current projects include a collection of the essential writings of Shankara in translation as well as an anthology of Indian philosophy.

Professor Makarand Paranjape



Makarand Paranjape is Professor of English at Jawaharlal Nehru University. A critic, poet, and novelist, he is the author of *The Serene Flame*, *Playing the Dark God*, and *Used Book* (poetry); *This Time I Promise It'll Be Different* and *The Narrator* (fiction); and *Mysticism in Indian English Poetry*, *Decolonization and Development*, and *Towards a Poetics of the Indian English Novel* (criticism). The books he has edited include *Indian Poetry in English*, *Sarojini Naidu: Selected Poetry and Prose*, *Nativism: Essays in Literary Criticism*, *The Best of Raja Rao*, *The Penguin Sri Aurobindo Reader*, *In Diaspora: Theories, Histories, Texts*, and *Saundarya: The Perception and Practice of Beauty in India*, and *Dharma and Development*, and *The Penguin Swami Vivekananda Reader*. He is also the founding editor of *Evam: Forum on Indian Representations* and the current Chairperson, Centre of Linguistics and English, JNU.

Professor Rajendra Prasad



A Professor of biochemistry and molecular medicine, Rajendra Prasad has spent a number of years teaching in prestigious institutions both in the USA as well as around Europe. He has published numerous articles in various science journals as well as important textbooks. He is also a member of all the Indian Academies of Science (FNASc, FNA, FASc).

Professor M.H. Qureshi



M.H. Qureshi is a Professor at the Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi

Professor CK Raju

The religious roots of Western mathematics

Present-day science relies upon mathematics. And mathematics has always been closely connected with religious beliefs in the West. Thus, Plato, in his *Republic* advocates the teaching of mathematics for its beneficial effects on the soul, and expressly not for its practical applications. Likewise, Socrates' demonstration of the slave boy's intrinsic knowledge of geometry was explicitly intended by Socrates to prove the existence of the soul, and how its recollections could be elicited by a philosopher acting as a midwife. These beliefs about mathematics were so strong a force in Islamic rational theology, that even staunch opponents like al Ghazali allowed that even God was bound by the laws of logic. Accordingly, Christian rational theologians regarded mathematics, not as a means of practical calculation, but as teaching a 'universal' means of argument and proof, aimed at those who did not accept an appeal to their scriptures as a means of proof. They also accepted al Ghazali's contention that the empirical world had to be contingent to allow for the creation of the world by God—although they denied his belief in continuous creation, held also by the Dunsmen, whom they labeled dunces, and subscribed instead to the belief in one-time creation. It is against this theological background that the Western thought reached the peculiar conclusion that only metaphysical procedures (like logical deduction) can incorporate necessary truth (truth valid in all possible worlds, truth that binds God) though any empirically based truth must remain forever contingent (true in only some possible worlds, truth not binding on God). In present-day (formal) mathematics, the locus of this belief in necessary truth has been shifted from theorems to mathematical proof, regarded as completely divorced from the empirical. The completely cultural nature of the belief that metaphysics is somehow superior to physics, that deduction incorporates certain or necessary truth becomes crystal clear the moment one turns towards Buddhism or Jainism. Both use logics which are different from the logic culturally assumed in Western thought. If decisions about logic are purely cultural, why should one use one logic rather than another? Both Buddhism and Jainism, like all other Indian schools of thought, incidentally, accept the empirically manifest (pratyaks.a) as the first means of proof, while also accepting it as fallible. Therefore, if, on the other hand, decisions regarding logic are empirical (and based on beliefs about the nature of time), they are bound to be inductive, and fallible. This provides an important example of how deep seated cultural assumptions are woven into the content of present-day, mathematics, scientific theories, and also the philosophy of mathematics and science.



CK Raju headed the application group of the initial C-DAC team which built India's first super computer—Param.. He has also been associated with the Nehru Memorial Museum and Library, where he coordinated an Indian National Science Academy project on the Indian origin of the infinitesimal calculus, and its transmission to Europe. He has been on the editorial board of the Journal of Indian Council of Philosophical Research. Currently, as an Editorial Fellow of the Project of History of Indian Science, Philosophy, and Culture, he is bringing out a volume on Cultural Foundations of Mathematics, advocating a new history and philosophy of mathematics. He is also Professor and Head of the Centre for Computer Science at the National University of Journalism, Bhopal. His books include *Time: Towards a Consistent Theory* and *The Eleven Pictures of Time*.

Professor Raghuram Raju

Sri Aurobindo and Krishnachandra Bhattacharya's Views on Science and Spirituality

The antagonistic relation between modern science understood as materialism and religion or spiritualism existing in the West during the nineteenth and through the twentieth centuries provided a challenging background to contemporary Indian thinkers. Some of them passively accepted this dichotomy; some were ignorant of it; there are others who either accepted materialism or spiritualism. However there exists yet other set of thinkers who tried to actively negotiate this antagonism between matter and spirit. A long braid of thinkers beginning with Bankim, through Swami Vivekananda, Sri Aurobindo, S. Radhakrishnan attempted to make some significant changes, though working within the orientalist categories rightly explicated by Edward Said. These thinkers however, tried to modify this antagonistic relation making it continuous. They argue how matter is important but how it alone is not sufficient: it is necessary to add *spirit* to this matter therefore making it continuous. Adding to this dichotomy their political programme of making a case for Indian independence, they maintained that materialism (available in plenty in the West) is important but it alone cannot suffice. Spirit (the spiritualism is available in the East, i.e. India) needs to be added to it. Some aspects of this formulation fall outside the Saidian formulation. That is, though they worked within the parameters of orientalism, after modifying their ideologies to suit their practice, some of them fell outside it, particularly when it came to their attempt at converting what was dichotomous into continuous. This paper discusses the various aspects involved in the modificatory nature of this relation. To dispel the impression that all Indian thinkers have embarked on this convergence the paper introduces a counter instance available in the writings of Krishnachandra Bhattacharyya. He repudiated contemporary Indian philosophers attempt at making the continuous relation between matter and spirit without necessarily endorsing the antagonistic relation as available in the West. He referred to the problem in Kant, arguing how matter by its very nature repudiates the very existence of spirit. In contrast to the synthesising attempt, Bhattacharyya institutes a one-way denial, namely that science denies metaphysics or philosophy. In this context the paper discusses the distinctions he introduces, of empirical thought, pure objective thought, spiritual thought and transcendental thought. In conclusion the paper critically evaluates three ways of the relation between science and spiritualism.



Currently a Professor of Philosophy at the University of Hyderabad, Professor Raghuramraju's areas of interest and teaching are social and political philosophy, contemporary Indian philosophy, postmodernism and postcolonialism, as well as science, technology and society.

The relation between science and spiritualism is one of the intellectuals tools ingeniously used by contemporary Indian philosophers, be it Swami Vivekananda, Sri Aurobindo or Krishnachandra Bhattacharyya and others. The ingenuity lies in coming up with novel alternative formulation to then existing western stereotypes. These alternatives apart from their intellectual novelty also were put to political programme of freedom struggle.

Professor Vijaya Ramaswamy
Spiritual Hysteria: A Gendered Perspective

The phenomenon of 'spirit possession' occupies a grey area in the spiritual domain. It is most commonly seen among women (cutting across class/caste lines) and low caste men than in upper caste men. While among indigenous people the 'possessed' person commands both awe and respect, religious purists tend to dismiss the manifestation of possession as either hysteria brought about by weak nerves or the deliberate act put on by a mercenary charlatan. Parapsychologists like C.G.Jung make a major intervention in this debate when they talk of a close similarity between possession, trance and ecstasy on the one hand and schizophrenia, hysteria and drug induced conditions, on the other. In their external manifestations psychic disorders can appear strikingly similar to divine madness or the state of god intoxication. It is significant that many women saints have been labelled as 'mad' — Meera 'divani', Lalla 'mats' etc., (although this would be better understood as a state of inspiration rather than madness). In many cultures there has been a close connection between women and the phenomenon of possession whether afflicted or ecstatic. The most striking feature of afflictive possession is that by definition it cannot liberate or empower women but it can only be temporary manifestation of power by virtue of being 'possessed' by a spirit or deity, either benevolent or malevolent. Hence in the state of 'possession', the possessed person continues to be owned or possessed by a stronger power.



Vijaya Ramaswamy is a Professor at the Centre for Historical Studies, Jawaharlal Nehru University. Her books include *Research Indian Women, Crafts and Artisans in South Indian History*, and *Walking Naked: Women, Society, Spirituality in South India*

Professor Anjali Gera Roy

Faith outside the Lab

Science and spirituality are often placed in a conflictual relationship. This is based on the essential differences between the rational-scientific and intuitive-spiritual modes of cognition. Modern science, however, has undergone certain paradigmatic shifts. Systems science, for instance, has attempted to explore the possibility of marrying science with spirituality by adding to the understanding of the harmonies and interactions between the two subsystems. These fundamental shifts in the literature and philosophy of science do not seem to have percolated to practicing scientists who continue to presume that everything is done by rational means and individual willpower, and tend to regard the spiritual leaders' insight with skepticism. Interactions with scientists and technologists at the Indian Institute of Technology have confirmed the dichotomy observed between scientific pursuit and religious or spiritual practice. Their faith in the rational scientific method appears to have nothing to do with their personal beliefs. They seem to have resolved the contradiction between the spiritual and rational through compartmentalizing their personal and the public lives. While applying the rational-scientific mode in their professional activities, they practice their chosen faith in their personal lives. This paper explores if the difference is a problem amenable for further study, within both science and spirituality through interviews with some of the leading scientists and technologists at IIT Kharagpur,



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Professor Ramashray Roy

Spirituality, Science and Man: A Thematic Exploration

Both spirituality and science constitute major reference points for man so that he may manage his pragmatic affairs in a world full of uncertainties. If spirituality constitutes the source of morality for man to regulate his relations in society and with nature, science helps him, through technology particularly, to mobilize resources for provisioning, at the minimum, and for a better life, at the maximum. Traditionally, a hierarchy of spirituality, morality and technology was believed to have existed. This hierarchy has, however, been violated by releasing technology from the bondage of morality. It is this breakdown of the hierarchical relationship between spirituality and science that separates the traditional ways of thinking from the modern ones. This paper focuses on this separation, that in the opinion of the author, constitutes a civilizational problematique.

Ramashray Roy was one of the founding members of the Centre for the Study of Developing Societies, New Delhi. He has also been associated with the Indian Council for Social Science Research, the Indian Institute of Advanced Studies, and the Indian Council of Historical Research. He is currently a Visiting Fellow at the G.B. Pant Social Science Institute, Allahabad. He has written extensively on political parties, bureaucracy, development, the vedic worldview and political order.

Dr Prem Saran

An Axiology of Indic Culture and its Mystical Interface: A Social-Scientific Model

This paper draws on the scholar's field research in the Kathmandu Valley, and his participation-observation praxis as an initiate of the Tantric cult at the Kamakhya temple in Assam. He expatiates on four **core** themes / values in Indic culture: a *mandalic/holon*ic personhood that conduces to the mystical experience, highly positive attitudes to pleasure (sensuous, intellectual, etc.), a positive valorisation of playfulness (whether intellectual or metaphysical), and gender-complementarity/mutuality. In the crucial orthopractical terms of *sadhana* therefore, these four "cultural competencies" can be seen to underpin the *kundalini*-system, as an all-pervasive master paradigm within the pan-South Asian yogic complex, the main and empirical aim of which is to trigger the mystical experience. Further, such minimalist interpretations of the religious experience can be seen to resonate with the contemporary Western / modern episteme, so much so that on the one hand the work of the early-medieval Nagarjuna has been compared to that of Wittgenstein in the twentieth century, while the theories of the tenth century Kashmiri-Shaivite aesthetic philosopher Abhinavagupta can be seen to be quite as subtle as those of Umberto Eco on the other. Again, these aspects of the Indic worldview also gell with the eminent psychologist Abraham Maslow's sophisticated yet non-reductionistic theories about "peak experience" / "transcendence" and "self-actualization". Moreover, using mainstream split-brain research, the Indic can justifiably be termed a "*right-brain* culture", within which the *non*-rational aspects of human life get due appreciation. Or better, in Ashis Nandy's terms, it is a "**non-modern**" culture, which can encompass both modernity and post-modernism, science as well as spirituality. For, vis a vis the religious experience, it gives significantly free rein to the workings of reason, for example *post* the experience of mystical union. Finally, the above Indic model has wide cross-cultural *and* cross-disciplinary outreach. It is thus potentially replicable in the increasingly unethnocentric and open-minded West, as indicated for instance by the current vogue of Indo-Tibetan Buddhism there. And it is also relevant to a number of contemporary knowledge domains, such as Human Resource Development, environmental conservation, and learning methodology : in modern India, as also elsewhere.



Prem Saran is an IAS officer with a Ph.D. in Cultural Anthropology from the University of California, who is presently the Commissioner of the Hill Area, Department of the Government of Assam. His books include *Tantra: Hedonism in Indian Culture and Yoga*, *Bhoga and Ardhanariswari: Individuality, Wellbeing and Gender in South Asian Tantra*.

Professor Sergei Serebriany

The Transfer of Modern Science to Russia and India: Two Parallel Cases

For a Russian Indologist it is a permanent temptation to compare India and Russia, and interestingly these comparisons actually have an objective basis (reason, justification). As A. Toynbee has put it, both India and Russia belong to “the great non-Western majority of mankind”. The history of both India and Russia during the last three hundred years (the 18th–20th centuries) is, to a considerable extent, a story of confrontations with the West as well as a story of the transference (transplantation) of many Western cultural products to the non-Western “soil”. The transfer of modern science to Russia began as early as the 18th century, after the so called reforms of the tsar Peter I, who drastically intensified the westernisation of the country. In the history of India, the establishment of the British rule was a kind of counterpart of Peter’s reforms. In case of India, the westernisation and the transfer of modern science as part of the process, began later and progressed in a different way. The factor of time as well as the differences between the receiving cultures (Russian and Indian respectively) must have conditioned the differences in the indigenisation of modern science in the two countries. But at least one feature of this process has been common: in both Russia and India science as a “foreign” and “materialistic” invention was often opposed to “our” spirituality (in Russian *dukhovnost*). This opposition has not yet become a thing of the past either in India or in Russia.



Sergei Serebriany is an indologist in the truest sense of the word. Fluent in Sanskrit, Hindi and Bengali, he has many translations and other publications to his credit including works on Kalidasa, Bhartrihari, Jayadeva, Tulsidas, Rammohan Ray, and Rabindranath Tagore. He is currently a Professor at the Russian State University for the Humanities

Professor Keshav Sharma

Impact of Kriya Yoga Techniques of Paramhansa Yogananda on the Breath Rate, Heart Beat, Power of Concentration and Human Aura.

Kriya Yoga is one of the most potent techniques for controlling the life force (Prana). It consists of a number of techniques which, if every practitioner follows properly, they report a significant reduction in the rate of heart beat and breath and also experience better control over mind resulting in better power of concentration. The investigators, in order to test these hypotheses, conducted an exploratory experiment on a group of subjects which were practicing kriya yoga. This paper elucidates and explores the results of this experiment.



Keshav Sharma is a teacher, researcher, preacher and I.T. consultant of great fame. He is a disciple of Sri Sri Paramhansa Yogananda and a musician under the tutelage of Pandit Ravi Shankar. His books include *Educational Philosophy of Paramhansa Yogananda*, *Microteaching*, and *Simulated Teaching*. He is Chancellor (Designate) of upcoming Paramhansa Yogananda University, Himachal Pradesh, India.

Dr Suresh Sharma

Dr Suresh Sharma is the Director of the Centre for the study of Developing Societies. His main areas of interest are history of ideas and cultural anthropology. He is currently working on two studies: Hinduism and the colonial and experience, and a comparative reading of St Augustine's *Confessions* and Gandhi's *Autobiography*. His books include *Tribal Identity and the Modern World*.

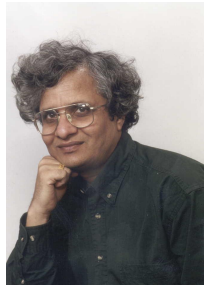
Shruti

A Delhi Ratna award recipient, Shruti is an accomplished musician, sound therapist, educationist and mathematician. She has been conducting her Nada Empowerment workshops internationally for many years, to experientially teach powerful methods of healing with sound vibrations in India and abroad. She teaches methods for diagnosis, treatment and healing of physical disorders and defines ways of enhancing mental capacities and curing psychosomatic diseases, and is currently the Director of the India Archives for the Infinity Foundation.

Professor Bal Ram Singh

Utilization of Modern Scientific Ideas to Elaborate Spiritual and Philosophical Concepts

Most spiritual and philosophical concepts are considered “off limits” to any scientific analysis and evaluation, because modern scientists believe that science has taken its ideas from the observation of matter. This is far from the truth. There are several examples in which philosophical concepts dominated the development of scientific ideas. Some of the contradictory attitudes may actually stem more from historical conflicts between religion and the empirical development of scientific principles rather than from a real divergence between the philosophical concepts and scientific ideas. In fact, a sympathetic approach to understand the interconnection between science and spirituality/philosophy reveals a more commonality and synergism than conflicts and mutual exclusivity. This paper elaborates on this aspect taking examples of some of the most fundamental concepts of physics thermodynamics and Newtonian laws of motion, chemistry (analysis of substance through chemical principles and Vaiseshika school of Indian thoughts), and biology (evolution of soul vs. body, the application of mind and genes).



Bal Ram Singh is a Professor in the Department of Chemistry and Biochemistry at the University of Massachusetts, Dartmouth. He is also the Director of the Centre for Indic Studies at the same university. He is the author of numerous articles in the areas of biochemistry, philosophy and religion.

Dr Navjyoti Singh

Can Spirituality be Founded on Reason?

There are two contentious philosophical stances regarding human access to reality: the first is that reality is experienceable (anubhutatva) but not necessarily knowable (aprameyatva), and the second is that reality is knowable (jñeyatva) but not necessarily experienceable (adrśyatva). Attempts at founding spiritualism on the basis of the first stance are well known (by religions, Advaita and Sāṃkhya-Yoga) whereas the second stance (mainly scientific, Nyāya-Vaiśeṣika and Mīmāṃsā) is usually regarded as deeply antagonistic. This paper analyzes the possibility of 'rational spiritualism' but based on the second stance. It formulates a criterion of truth that makes possible 'abductive realism' enabling determinate reasoning regarding phantasmic reality. It also locates spiritual objects in the schema of formal ontology by proposing ontology of spiritual objects, thereby characterizing them formally and explaining their ontological necessity as well as their power in constructing an upright person, and argues that a non-parochial outlook requires a non-experientialist foundation capable of rationally accounting for 'experience' including spiritual experience.



Navjyoti Singh is a philosopher who was trained as an engineer. His research interests include history and philosophy of science, crossroads of Indian analytic traditions and science, consciousness studies and formal ontology. He is currently working at National Institute of Science, Technology and Development Studies, New Delhi, India. His forthcoming books are *The Spirit of Reason: Reconfiguring Indian Heritage*, *Antah karan a: Mechanics of Phantasm* and *Punctuating Reality: Formal Foundations of Justice, and History and Society*.

Dr Renuka Singh

Science and Spirituality: A Tibetan Buddhist Perspective

The two great world traditions, namely science in the West and Buddhism in the East, have for the last two decades had several exchanges. Currently, an ongoing dialogue between scientists and His Holiness the Dalai Lama is taking place in India, Europe and the USA. Science and technology deal with material progress and ably solve many of the problems facing humanity. However, mental peace and healing pain can occur only through mindfulness and compassion. Hence it is imperative to synthesize this inner science of mental investigation and external scientific and technological development to move towards human progress and happiness. This paper explores the convergences and divergences in this field and emphasizes the need to pose questions related to the notions of dependent arising, emptiness, the role of the participator, perception, method, karma, death and subtlety within consciousness and the relationship between inner consciousness and material objects, meditational states, etc.



Dr Singh is an Associate Professor at the Centre for the Study of Social Systems, JNU as well as Director of Tushita Mahayana Meditation Centre in New Delhi. She is the author of many books including *The Womb of Mind*, *The Little Book of Buddhism* and *The Path of Buddha*.

Professor RP Singh
Spirituality, Logic and Science

Spirituality and science are seen by many as two separate things. *Science* is what which we can observe, experiment, analyze, measure and prove. From that perspective, *spirit* or *spirituality* will be among the last things to be encountered under any microscope. The science of spirituality may not be so easily measured by the parameters of normal science. This paper discusses the logic between spirit and science. It is based on the Upanishads, where the distinction between *parā vidyā* and *aparā vidyā* at the level of knowledge and between *niḥshreyas* (attainment or fulfilment) and *abhyudaya* (achievement) at the ethical level, has already been made. In Western philosophy, Hegel's Science of Logic places logic in the middle of spirit and science, the position of Absolute Monism. The *kenopanishad* says that where the eye is unable to go, where neither speech nor the mind is able to reach, we cannot have a conception of that space except that it is beyond all that is known as well as all that is unknown. Sankara and Hegel would agree with one another that the comprehension of the Being as immanent in all other categories is the most fundamental category of all things. Sankara says that existence or being is "pure, subtle, indefinable, all-pervading, one, taintless, indivisible, knowledge". On the concept of pure being, Hegel says something very similar, that the pure being is complete indeterminacy, absence of all qualities, a vacuity, an empty concept. Therefore Being is the most irrepressible category for both these philosophers.



A Professor of Philosophy at JNU, New Delhi, RP Singh's main areas of academic interest are Western philosophy as well as Indian and Buddhist philosophy. His books include *The Philosophical Heritage of Immanuel Kant* and *Reason, Dialectic and Postmodern Philosophy: Indian and Western Perspectives*

Dr Sampooran Singh

Science and Spirituality in Modern India

Man's psychosocial evolution has for aeons led us to enquire whether humanity taken a wrong turn responsible for the chaos that we live with, and has led us to question what needs to be done to preserve our very existence and bring out a new culture. We have begun to live in a construct of the past mind and this has compromised our present. There is sharing of energy between the object and the subject, and both are deformed, and this has led to duality and pain. In the seventeenth century, Kepler and Galileo independently formulated the Principle of Measurement. After the introduction of this system, there was no longer an exchange of energy between the objective world and the subject of cognizance. An objective world (fact) was constructed that followed a materialistic approach. It is a movement from the known to the modified known, which is at a higher sensitivity. If objective observing is followed for long periods of time, the objective truth (fact) is concealed and the subjective truth is perceived. We have to restructure the dimensions of subjective science, so that it reveals the *wholeness* or *oneness* of life, and this is called the spiritual dimension. Nature, in its benediction, has provided us a secret potential of consciousness which can be energized, known as intelligence. It is unconditioned energy, unpolluted, impersonal. It is the higher level of consciousness that is responsible for mutations in the psyche. A communion with the Divine, the Eternal, the Infinite, the Life Field is taking place now.

Dr. Benjamin Smith

Yoga, Science and the Embodied Self: Towards a Possible Dialogue?

Recent developments in cognitive science have spurred new thinking on the topic of consciousness, emphasizing the embodiment and 'world embeddedness' of cognition. This has significantly altered the ways in which cognitive scientists and philosophers approach the linked questions of cognition and 'the self'. This paper engages with this recent work, which I juxtapose with my own, phenomenologically-informed work on the practice of yoga. (In particular, my work focuses on the yoga method taught by Sri K. Pattabhi Jois of the Ashtanga Yoga Research Institute, Mysore, and his guru, Sri T. Krishnamacharya, both of whose yoga methods are founded on the *Yoga Sūtras* of Patañjali). This juxtaposition raises questions about the convergence and discrepancies between forms of scientific, philosophical and spiritual inquiry, 'Western' and 'Eastern' understandings of the self, and the cross-cultural or intercultural transferability of ideas, experiences and methods for inquiring into the nature of selfhood. The starting point for this paper is the apparent convergence between understandings of selfhood and self-consciousness developed through the practice of yoga, and recent developments in cognitive science and the philosophy of cognition, which echo earlier phenomenological critiques of the Cartesian separation of mind and world. In particular, I consider the understandings of embodied mind and selfhood developed in the work of John Campbell, on the structural features of human thought and human self-consciousness (Campbell 1994), Thomas Metzinger, on 'conscious experience' and 'subjectivity' (Metzinger 2003), and – most recently – Wheeler (2005) and Rockwell (2005), both of whom have argued for fundamentally non-Cartesian approaches to cognitive science. Of particular interest in this context is Metzinger's interest in engaging with 'proto-concepts of mind' (including the *koshas*) and 'folk-phenomenological concepts of "soul"', and his radical critique of the notion of the 'self' (see Metzinger 2003, 2005). With regard to the philosophy and practice of yoga, the work of these cognitive philosophers suggests potential dialogues on the constitutive relation between embodied selfhood (ego-personality, or the 'lower' self, *asmita*, *ahamkara*) and world (*samsara*), and the nature of 'true self' (*atman*, *purusha*), topics that lie at the heart both of the philosophy and practice of yoga. Given that yoga – particularly in modern India - has itself been promoted as scientific (see Alter 2004), do recent developments in cognitive science point towards mutually-beneficial dialogues between a scientifically-informed 'Western' philosophy and the forms of self-inquiry developed within various yoga traditions? Or are the differences in approach and purpose evident between these forms of inquiry an impediment to meaningful dialogue between them? And does the rationale that underlies a commitment to the practice of yoga necessarily exceed the remit of 'science'?



Benjamin Smith is Postdoctoral Research Fellow at the Centre for Aboriginal Economic Policy Research at the Australian National University. He is currently working on an Australian Research Council-funded research project on 'Outcomes for Aboriginal People from Land Claims, Transfers and Purchases in Central Cape York Peninsula'. Dr. Smith has carried out both academic and applied research with Aboriginal people in Cape York Peninsula and other locations across northern Queensland.

Dr V Sujatha

An Exploration of Siddha Medicine

The burgeoning market of health care services has caused alternative medical systems like Ayurveda, Siddha, Acupressure, Homeopathy and the like, to coexist with biomedicine, a condition referred to as *medical pluralism*. The revival of indigenous medicines has fuelled debates on the criterion of validation of medical knowledge other than biomedicine. This debate brings to the fore issues regarding what constitutes science, how scientific knowledge is known and verified and whether or not laboratory science is the only model of science. In India, the government health departments and large research units that deal with Indian medicine subscribe to the laboratory epistemology, and disenfranchise other aspects of indigenous medicines that do not fit into this model. This has led to the selective appropriation of traditional pharmacology and therapeutic techniques while negating their theoretical basis. This paper examines the medical knowledge of the ordinary people (referred to as 'folk' in anthropology) in central Tamilnadu and its relation to professional Siddha medicine, in order to throw light on certain crucial but neglected epistemological features of indigenous medicine in India.



V. Sujatha currently teaches Sociology at the Centre for the Study of Social Systems, Jawaharlal Nehru University. Her research interests are in the area of sociology of knowledge, sociology of medicine and health.

Shri Pavan Varma



Pavan K. Varma joined the Indian Foreign Service in 1976. His career as a diplomat has seen him serve in several countries, including New York and Moscow. In New York, he was with India's Permanent Mission to the United Nations. He also served as Executive Assistant to the Chairman of the Group of 77. In Moscow, he was the Director of the Jawaharlal Nehru Cultural Centre in the Indian Embassy. His assignments in India include that of Press Secretary to the President of India, the Spokesman of the Ministry of External Affairs, speech writer to Prime Minister I.K. Gujral and Joint Secretary for Africa. He was High Commissioner of India to Cyprus and is currently Director of the prestigious Nehru Centre in London. Parallel to his diplomatic career, he is also a writer of depth and insight. His books include a biography of the Urdu poet Mirza Ghalib entitled *Ghalib: The Man, The Times*, *Krishna: The Playful Divine* as well as a book on the havelis of Old Delhi. Mr. Varma's first book on a contemporary subject was the path-breaking *The Great Indian Middle Class*. A public speaker widely in demand, Pavan K. Varma was the Chairman of the Organizing Committee of the prestigious Commonwealth Writers' Prize held in New Delhi for the first time in April 2000. He is a popular columnist, both in English and Hindi, and currently writes a weekly column Hyde Park Corner for the Hindustan Times web paper.

Professor H.S. Virk



Superannuated Professor at the G.N.D. University, Amritsar in addition to being Professor Emeritus, Indian Institute of Science and Religion, Pune and Visiting Professor, Yangon University, Myanmar, H.S. Virk has over 35 years of teaching experience behind him. He has published over 300 research papers in the field of the Physical Sciences as well as several books on topics related to science, technology as well as literary themes. He is widely travelled and currently serves on the Boards of among the most prestigious science institutions in India and abroad.

Dr Bhaskar Vyas

PSI Phenomenon: Micro-sensing by Indian Mystics

Patanjali describes that in the process of Sadhana along the Raj Yoga route propounded by him, eight Siddhis incidentally accrue. These kind of phenomena fall into the broad category of paranormal occurrences. It is difficult to validate them, but there are authentic records of investigations by some mystics and occultists that point to the fact that they did succeed. If we can establish that paranormal phenomena do occur, then the only explanations to support them would be transpersonal, transpatial and transtemporal. This paper is a brief account of micro-sensing as it is chronologically catalogued in the literature of the Theosophical Society. While there may be a similarity between the incidences of insight, intuition, inspiration, creativity and aesthetics, the micro-sensing did not just incidentally occur. Two stalwarts of the Theosophical Society, Annie Besant and C.W. Leadbeater deliberately engaged themselves into investigating the minutest constituent of matter. It makes the point that mystics live in a different mode of consciousness. But they have the intact faculty of ordinary perception and cognition. Their conceptualization can also be intelligently meaningful. This different state of consciousness is called the Fourth State- turya (meaning fourth) in classical Indian tradition. (Sri Aurobindo called it Overmind).

Bhaskar Vyas, a plastic surgeon by profession, has many varying interests. He has studied and practised Hindu and Buddhist meditation and has a deep understanding of Patanjali's Ray Yoga as well as the Vajrayana practice. He is also interested in philosophy and psychology, and has written widely on the two areas. His books include *Space-time-consciousness: The Fifth Dimension*, *Changing Course of Brahmaputra*, *Dalai Lama*, *the Change Initiator* and *Towards Holistic Health*

Dr Rajni Vyas

Shri Aurobindo's Concept of the Evolution of Consciousness

A major unexplored arena in biosciences today is consciousness. Science does not have any answer as to how this epi-phenomenon manifests in individuals. Sri Aurobindo was the first modern *rishi* to expound the existence of **supramental**, that modern science is now investigating as Supracortical Consciousness. He describes how different people, from the ordinary masses to emancipated ones like Mahatma Gandhi or the enlightened ones like Vivekananda and Ramana Maharshi, function at different levels of consciousness. While illustrating that different people perform and undergo phases of life at each level, he emphasizes the continuum and describes integral yoga *sadhana* in detail so that anybody can aspire and achieve the *supramental*.

A gynaecologist and obstetrician by profession, Rajni Vyas is also a teacher. In addition to her skills as a medical doctor, she is also a hypotherapist and has studied and practised Hindu and Buddhist meditation. She has published numerous articles in both national as well as international journals. Her books include *Sex Education*, *Towards Holistic Health*, *The Collision of Culture*.

Dr SR Vyas

On Demarcating Science and Spirituality

The paper deals with the conceptual understanding of science and spirituality and discusses their distinction from each other. It then elaborates the demarcating factors and examines their independence under the question of whether this independence is primarily acceptable or not. It presents the implications of either accepting or rejecting the independence of these demarcating factors. It will then question the consistency in relation to a conceptual understanding of science, spirituality and their demarcating factors. In the third and concluding part, the paper endeavours to present the view that spirituality at its core point reveals divinity and science reveals neutrality which is the other form of subtle naturality. Can the subtle naturality and divinity be understood as being antagonistic to each other?



SR Vyas is an eminent figure in the sphere of Indian philosophy. He is currently the joint Secretary of the All India Philosophical Congress as well as the Member-Secretary of the Indian Council of Philosophical Research, a body which is under the aegis of the Human Resource Development Ministry of the Government of India. He was Professor and Head of Department of Philosophy at the University of Udaipur.

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