

THE 'OBJECT' OF SCIENCE AND THE 'SUBJECT' OF SPIRITUALITY

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ABSTRACT:

From an ontological point of view both science and spirituality seem to be concerned with questions about 'what is'. If science deals with the realm of physical objects and events, spirituality by definition is a search for something essential to human life that is not material. It is true that, as far as we can tell, human beings have the most unique experience of being able to contrast the outer and the inner worlds. So, one does make an intuitive distinction between the gross, physical realm and the subtler psychological realm. But to translate this distinction into 'matter' and 'spirit' leads to a misconception that science is all about matter and spirituality is all about 'spirit'. Further it limits our understanding of both science and spirituality to the 'object' of inquiry and to what exists, rather than the process or path taken and the attitude towards them. This paper is an attempt to address some of the central myths regarding our conceptions of science and spirituality.

KEYWORDS: science, reality, methodological strategy, generalizations, epistemology.

It has been standardly argued that science deals with factual things that are external and spirituality with things of 'value' internal to the human being. Though the realms of inquiry are usually placed in opposition this is only part of what science or spirituality deals with. The worlds (inner or outer) by *themselves* do not define the scientific or the spiritual enterprise. That is, there is no scientific world or spiritual world, except metaphorically. *We just have one world and different attitudes towards it.* Take the famous advaitic *mahāvākya: Aham Brahṁāsmi*². In the spiritual context the inner and the outer world are actually identified as One. In science too, Werner Heisenberg, a physicist and Nobel laureate describes the essence of the conceptual revolution in New Physics (or what is referred to as the quantum universe) as follows: "In the experiments about atomic events we have to do with things and facts, with phenomena that are just as real as any phenomena in daily life. But the atoms or the elementary particles themselves are not as real; they form a world of potentialities

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² Swāmi Krishnānandā (Tr.), *The Bṛhadāranyaka Upaniṣad*, The Divine Life Society, 1984, 1.iv.10.

rather than one of things or facts”³. (Without entering into the debate within quantum theories, we see that “an electron cannot be regarded as a little *thing* in the same sense as a (billiard) ball is a thing”. Since, “It is not so much a physical thing as an abstract encodement of a set of potentialities or possible outcomes of measurements.But the reality is in the observations, not in the electron”⁴. At one level there is a world that is not as it seems. That is, the gross physical world is not physical anymore and so cannot function as an opposing *res extensa* to the *res cogitans* anymore. At another level, the one world is layered in terms of the gross (Newtonian) world and the subtle (quantum) world. The grosser world displays ordinary causal relations such that events can mark out individual objects and situations. The subtler sub-atomic world continues to fascinate physicists and mathematicians since it is difficult to completely determine its exact nature.

The grosser and the subtler aspects of reality tie up with the material and the spiritual in many ways. The Indian philosophical tradition explores this aspect in detail under the notion of *kośas* or sheaths of human personality. The food sheath (*annamaya kośa*) and the life-breath sheath (*prāṇamaya kośa*) are shared with other beings of the world and *akin* to Aristotelian hierarchy of species, whilst the journey towards subtler aspects of reality in terms of the mind (*manomaya kośa*) and intelligence (*vijñānamaya kośa*) is a question of spiritual access. It is clear from the above discussion that we are dealing with a reality that can have different terms of reference and access.

From an *ontological* point of view then, both science and spirituality seem to be concerned with questions about ‘what is’. If science deals with the realm of physical objects and events, spirituality by definition is a search for something essential to human life that is not material. It is true that, as far as we can tell, human beings have the most unique experience of being able to contrast the outer and the inner worlds. So, one does make an intuitive distinction between the gross, physical realm and the subtler psychological realm. But to translate this distinction into ‘matter’ and ‘spirit’ leads to a misconception that science is all about matter and spirituality is all about ‘spirit’. Further it limits our understanding of both

³ Werner Heisenberg, *Physics and Philosophy*, Penguin, 1958, p. 8.

⁴ *Ibid.*

science and spirituality to the 'object' of inquiry and to what exists, rather than the process or path taken and the attitude towards them.

In the scientific context especially of the neurosciences, the basic forms of life are *all* connected. Susan Greenfield, a researcher in Parkinson and Alzheimer's diseases writes in *Brain Story*⁵ how everything we think and feel can ultimately be boiled down to the alternating sequence of electrical and chemical events. It is said that men and Chimps share 99% of their genes and yet look so different. There are a lot of such mysteries including questions of how thinking and linguistic abilities occur and how do conceptions of self emerge in evolution. Questions of who we are and where do we come from have also motivated scientists like Darwin, Crick and Watson and many contemporary neurobiologists to study life form and habitats scientifically. For example, there is still a lot of speculation over the origins of LUCA or the 'Last Universal Common Ancestor'. She could be a bacterium or even protozoa. "Wherever you go in the world, whatever animal, plant, bug or blob you look at, if it is alive, it will use the same dictionary and know the same code"⁶. As is well described by Steve Jones, "Life...exists in a hierarchy of kinships and it is in the DNA that reveals the affinity between them"⁷. Again the space of who we are is addressed quite seriously by scientists, especially from the neuro –biological and psychological studies where a lot of conceptual categories that philosophers had earlier envisaged get a little dented. Take Antonio Damasio's famous book on *Descartes Error: Emotion, Reason and Human Brain*, which argues for the indispensability of emotions and feelings for rationality. Progress in the empirical understanding of ourselves have necessitated a reworking of philosophical categories, especially in the areas of mind and conceptions of self.

We see how a *methodological strategy* is applied to achieve an understanding of a problem in the most cogent and satisfactory manner. Thus questions of who we are and where we come from have been asked by philosophers that may include non academic seekers of truth in the spiritual traditions of the world and scientists alike since the beginning of

⁵ Susan Greenfield, *Brain Story*, DK publishing House, 2000, p. 39.

⁶ Matt Ridley, *Genome*, Harper Collins, 1999, p. 21.

⁷ Steve Jones, "Introduction" (in the 1999 edition) in James D. Watson, *The Double Helix: A Personal Account of the Discovery and Structure of DNA* (1968), London, Penguin, 1999, p. 5

civilization⁸. We see that the so called external-internal divide doesn't exist even in science. But this does not make science now spiritual in the sense of blurring the boundaries between the two. Indeed interdisciplinary studies from mathematics and biology to linguistics and cognitive sciences are exploring notions of 'intelligence' and 'awareness' to yield extremely fruitful results. For example, Roger Penrose's question of how non computational action is to be understood is a case in point⁹. Seekers of truth may therefore explore realms that are not limited in their scope of reference.

The external world of nature has been as much an object of contemplation for philosophers like Spinoza and Tagore on the path. This does not make it scientific any more than an apple falling on ones head heralds the discovery of gravitation. To quote from Baruch Spinoza "Now as regards the general *Natura Naturata*, or the modes or creations which depend on or have been created by God immediately of these we know no more than two, namely, Motion in matter and the Understanding in the thinking being. These then, we say have been from all eternity, and to all eternity will remain immutable"¹⁰. Again as Tagore in his conversations with Einstein says, "Our passions and desires are unruly, but our character subdues these elements into a harmonious whole. Does something similar to this happen in the physical world? Are the elements rebellious, dynamic with individual impulse? And is there a principle in the physical world which dominates them and puts them into an orderly organization? ... It is the constant harmony of chance and determination which makes it eternally new and living"¹¹. Here we see that it is the poets' 'inner' attitude towards nature that transforms the world of matter into the world of spirit. Tagore's very observant questions on 'external' nature can neither be termed as non scientific nor non spiritual; though one may classify it as a philosophical question that could explore a variety of possibilities.

From an *epistemological* point of view, *both* science and spirituality have to do more with open-ended methodological strategies that are required to know and to act in accordance with that knowledge. There

⁸ Note that academic philosophy as we understand it in the Universities around the world is a unique phenomenon having its own fascinating developments giving rise to its own traditions.

⁹ Roger Penrose, *Shadows of the Mind*, Vintage Books, 2005.

¹⁰ Baruch Spinoza, on *Natura naturata*, -Ethics Part I prop.29, *The European Philosophers from Descartes to Nietzsche*, ed. by Monroe Beardsley, N. Y., Modern Library, 1992, p. 236.

¹¹ Rabindranath Tagore, *Religion of Man: Being the Hilbert Lectures for 1930*, London, Allen & Unwin, 1931.

are no standardized methods in both systems. Further, from a cognitive point of view one can't really mark the threshold of scientific or spiritual knowledge. It is an *ongoing process* to know more and more about the world, its inhabitants and practices of different life forms. Various parameters mark the evolution of progress. The criteria of 'testability' (among other things), for example, is of primary importance in any scientific enterprise and (personal) 'experience' (among other things) is the mark of spiritual growth. Both begin as cognitive disciplines that seek to break existing patterns of thinking and whose progress is largely measured by the influence it has on our improved beliefs about the world. There are significant differences as well, based on methodology and it is this that marks the difference between science and spirituality. Questions in science, for example, search for antecedent events that have brought about a certain state-of-affairs. *The ideal is to be able to generalize for all similar cases whereas in spirituality the process is individual-based.* Law-like generalizations within scientific reasoning indicate validity and truths about the world. The publicly testable character of observation statements further enables setting of similar conditions for similar results. Assuming that the fundamental motivation of even religious traditions are spiritual in nature and that the results of all observations about oneself and the universe are eternal verities grasped by anyone with the appropriate frequency, one is never able to get down to a standard blueprint. It remains a *subjective* experience of universal (eternal) truths. The properties of input (of the various disciplines and pathways) to output (experience) is always underdetermined, as it were.

Is the defining characteristic all about the *appropriate attitude* of the pursuit. Can we say that science is all about the outer world that deals with the sensory world, and spirituality deals with the inner world of values and rationality? However, if one continues this line of thought, we may observe that the inner world of the scientist or the mathematician also plays a crucial role in defining the nature of scientific pursuit (and is almost spiritual process for some mathematicians like Rāmānujan). In the famous book *Double Helix*, Watson writes about his 'fear of failure' and 'excitement that one could still be on the right track': "...as the clock went past midnight I was becoming more and more pleased There had been far too many days when Francis and I worried that the DNA structure might turn out to be superficially very dull, suggesting nothing about either its replication or its function in controlling biochemistry. But now, to my

delight and amazement, the answer was turning out to be profoundly interesting. For over two hours I happily lay awake with pairs of adenine residues whirling in front of my closed eyes. Only for brief moments did the fear shoot through me that an idea this good could be wrong¹². The passion and perseverance of beliefs with which experiments were conducted by scientists inspire the young today and is indeed the motivation for future scientists.

We also see another point, that fallibility has never been a deterrent. This is also true in the spiritual traditions of the world. Spiritual values (whatever they may include) is all about practices (*sādhana*) that are tested against their visibility in life's seemingly minute actions. The countless struggles of figures like Śrī Ramakrishna Paramahansa, Swami Vivekānanda, Saints Tukārām and Kabīr as well as Socrates, Marcus Aurelius, St. Augustine and the Buddha are legendary. Failure of reaching the goal is correctible only by the efforts of the individual concerned and not by the interceding by priest or mediated through the myriad rituals of the world. Each thread of one's life has to be sorted and this remains a necessarily individual enterprise. Whatever be the metaphysical belief system that operates, it is not just the path taken that determines the end product but *how* it is undertaken that is extremely important.

Indeed, this reflects the value system that the means are more important than the end. Śrī Rāmakriṣṇa Paramahansa, the guru of Swāmi Vivekānanda used to say that you take an almanac (called a *pañcāṅga* in the Indian traditional ethos), and press it hard, but it does not yield a drop of rain. It can only indicate. And so spirituality is to do with practices, of *how* we live. Today's fast paced and goal directed strategies of profit and self interest pay little attention to the details. Indeed academia is not far behind this race for numbers and targets, forgetting the manner in which we achieve our goals, in the name of success. The seemingly inconsequential bits of daily living become most relevant.

Thus temporarily extending the myth about the inner and the outer (for methodological purposes), *it is said that science is a way of discovering how the world works*. This includes everything from the falling of stones, the rising of tides, the formation of fungi and the structure of cells to innovations for agriculture, health, industry and communication. This

¹² James D. Watson, *The Double helix*, p. 146.

entails a certain *attitude*, a way of looking at things that comes from curiosity as well as an ability to pursue questions critically. 'In questions of science the authority of a thousand is not worth the humble reasoning of a single individual'¹³ said Galileo Galilei. The possibility of error is actually what is guiding scientific research along with the goal of success marked by predictive and explanatory power of conjectures along with verifiability conditions that are public and intersubjective. *To know is to do*.

Spirituality, on the other hand, is fundamentally concerned with ways of understanding oneself and consequently one's place amongst others in the world; in short, discovering how the inner world works. It has wider connotations since it is not a theory-building exercise; rather it deals with life and living. *To know is to be*; that is, *in a certain mode*. It is necessarily individually based, and the resultant experience is a culmination of a complex path of unique struggles, beliefs and emotions wherein self-understanding is the only confirmation. One example is Gandhi's autobiographical account in a book titled *Experiments with Truth*. Another is Swami Vivekānanda's account of his interactions with Śrī Ramakrishna Paramahansa, his life teacher. There are many such examples in spiritual literature ranging from the Epics to the Upanishadic wherein it is only the *sincerity of inquiry* that thrusts the seeker forward. *Spirituality has to do with beliefs and practices that affect ones life*. It has to do with all kinds of activities like art, music, religious myths and stories that help transcend the self from limited and narrow perspectives by sharpening one's psycho-spiritual abilities of introspection and self analysis for a purpose.

Swami Vivekānanda argues that this need is universal and provides the greatest motivation for individual as well as social progress. "Man is man so long as he is struggling to rise above Nature, and this Nature is both internal and external. Not only does it comprise the laws that govern the particles of matter outside us and in our bodies, but also the more subtle nature within, which is, in fact, the motive power governing the external"¹⁴. This is the power of spirituality that attempts to understand the secrets of the subtle workings that are within the human mind¹⁵. It is supposed to be uniformly accessible by all human beings. However the approach is

¹³ Galileo Galilei in R. Spandenburg and D. K. Moser, *The History of Science from the Ancient Greeks to the Scientific Revolution*, N. Y., Facts on File, 1993, p. 51.

¹⁴ Swami Vivekananda, Vol. II, *Complete Works*, Mayavati Memorial edition, Advaita Ashrama, 1948, pp. 64-65.

¹⁵ Ibid.

necessarily picked up by an individual and doesn't really have any time frame or a universal method. Depending on the existential situation one picks up the threads of inquiry and makes one's own path, as it were. Just as one's findings about nature, both of the external and the internal world, become explicit, the generalizations over them inevitably result in methodological strategies of experimentation on the one hand and meditational or yogic practices on the other. Some do argue that the latter is also as experimental and claim that there is parity in the 'structure' of investigation in science and matters concerning the spiritual. However, it is seen that the generalizations become more and more universally acceptable in the former and more and more diverse and individualistic in the latter. Despite generalizations attempted by philosophers like Annie Besant on the science of Yoga and William James in his work on the varieties of religious experience, the many differences in the characterization of the 'ultimate experience' is still coloured by the cultural background of the practices, whether theological or monistic. The 'content' of investigation shows marked differences, particularly in the result: as pronounced by various spiritual masters of the various traditions. It requires more imagination, interpretation and empathy to secure a cognitive understanding of the spiritual state that is usually captured *holistically* with one's entire being.

What then are the reasons for apparent conflicts between science and spirituality? This is due to *methodological* differences between the two, notwithstanding possible commonality of pursuit (of knowing truth, for example). A methodology is said to be conflicting when you want to apply two opposing methodologies for understanding a phenomenon. Let us say, an experimental or causal model to explain human behavior or an intuitive method to decipher the Harappan script. Science and spirituality are not addressing the same phenomena *qua* explicandum. So when methodologies differ, the explicans will not necessarily conflict unless we tweak the goal of one, say of spirituality, towards ontology rather than the lived experiences of human beings. So, *when methodologies differ, criteria differ*.

I think spirituality is more to do with the process of knowing oneself than just the 'truth' of who (or what) exactly I am. The 'truth' that guides scientific inquiry is to do with various facts about things and events, whereas the 'truth' of 'who I am' is a *philosophical* exploration that spreads across one's entire life. *Truth is here connected more with understanding of one's attitudes in relation to the world*. It is a combination of understanding and self-understanding and to do with the path than the product of inquiry,

and it is the latter that *prima facie* divides the inner from the outer. The modalities and concerns of the two disciplines differ from an *epistemological* point of view that is governed by interests and goals rather than a metaphysical urge to know the 'truth'. Indeed the love of wisdom in ancient philosophies of the east and the west coincides with love of truth. Spiritual interests were tied up with 'true' knowledge. *Note how the 'Platonic' notion of Good or the Aristotelian notion of eudaemonia motivated all human activities.* Similarly, knowing the 'truth' about the identity of one's consciousness as expansive (to include the entire universe) and not limited to the subject – is the basis of one's spiritual life on earth in the Advaitic (Non –dual) tradition of Indian philosophy.

The motivation in almost all epistemological ventures starts with certain problem situations; how do I divide a farm, how do I measure liquids, how do I calculate and predict seasonal changes and so on. In the spiritual field, almost invariably there is certain disenchantment with the world, a restlessness motivating the search for what is sometimes called the 'meaning of life'. For example if one is familiar with the Bhagwad Gīta, it is Arjuna's *thought provoking moral dilemmas* that gives rise to Śrī Kṛṣṇā's divine song, which is a collection of verses that explain the mysteries of the universe and one's duties that need to emerge from that 'spiritual' understanding. Another classic example is the dialogue between Śrī Rāma and Sage Vasiṣṭa in the Yoga Vasiṣṭa. Here too it is Sri Rama's intense dispassion with the world that initiates the dialogue in search for meaning of life. The Buddha's motivation is seen in his seeking answers to the fact of old age and disease among other problems of living that he was kept away from, by his father, the King of the land.

Thus in actuality both science and spirituality begin with particular *problems* rather than a straight jump into the contemplation of an abstract conception or idea of 'truth'. When we pursue the latter without considering the path taken, a 'black hole' of confusion is generated in this ontological realm. What exists as true may or not coincide. We can never tell whether the atoms of the world reflect the dance of 'Śiva'. On the other hand, when we study the methodologies of science and spirituality we find that they differ significantly. In fact it is like trying to compare chalk and cheese. Both are white but you can eat one and not the other.

Science and Spirituality are about cultivation of attitudes and values that need not conflict. Values of *integrity* and *fair play* are as hotly discussed in the scientific community as are proofs and experiments. How

you reach your goal is equally important in matters of academic or nonacademic judgement; scientific or non scientific. Whether one has misrepresented and manipulated facts or indulged in plagiarism or stolen an 'idea', are all part of the story of science as well as spirituality. Indeed how else do we set criteria except to check if accepted parameters are fulfilled? Since methodologies differ, criteria differ and that constitutes checking if the path taken is a 'straight path' or a 'crooked' path; whether the process indeed has been honest. Indeed, this is an important value in the paths of both science and spirituality.

Notwithstanding the difference in the 'object' of inquiry, Wilfred Sellars, a twentieth century philosopher thinks that our conceptions of ourselves and the scientific worldview can blend together in a stereoscopic view¹⁶. Indeed the object of science or what is called the scientific worldview plays a supplementary (rather than an alternative) role to our philosophical conceptions of ourselves which is called 'the manifest image' and could "dominate (s) and mislocate(s) the scientific image"¹⁷. Yet, Sellars thinks that the two images can blend together in a true stereoscopic view¹⁸ since at least one of the images ('the manifest') involves not just a knowing about oneself but also a certain reflective attitude that is critical and evaluative, 'with an eye on the whole' as it were¹⁹. For example, he says, we *directly* relate the scientific worldview for our purposes and make it *our* own world. For: the object of the 'manifest image' happens to be 'persons' who are primarily characterized as *being* and *doing*. Thus the conceptual framework of 'persons' is not to be reconciled with but joined to the differing philosophical conceptions that we have.

So the 'object' of science and the 'subject' of spirituality are ways of relating to our images, rather conceptions that we are able to have as human beings of ourselves and the world. We need to place both in the same framework that we think and act, know and feel; whatever the answer to the ontological question. This philosophical intervention can help understand how the conflicting world views can be complementary from an *epistemological* standpoint instead of a metaphysical one. Indeed I think this approach can have deep consequences in reorienting differences in

¹⁶ Wilfred Sellars, 'Philosophy and the Scientific Image of Man', in *Science Perception and Reality*(1963), Atascadero, California, Ridgeview Publishing Company, 1991, p. 9.

¹⁷ Ibid, p. 4.

¹⁸ Ibid, p. 9.

¹⁹ Ibid, p.3.

cultures towards resolution based on dialogue and attitudinal understanding rather than the metaphysical ropes of rigid ideologies.

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