



VIMS-6 INTERPRETATION OF SANKARACARYA'S MAYAVADA IN THE LIGHT OF MODERN SCIENCE

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Indian philosophy which is essentially spiritual in nature is apparently much removed from physical sciences. Scientific experiments and discoveries are mainly concerned with the material world. It is supposed that there is no place of spirituality in science. The developments of physical science support materialism, since the concepts of space, time and such other material objects are its subject matter. Some scientists may be spiritual in their beliefs and may be very God-minded. However, they generally keep their personal beliefs and their scientific experiments in two different air-tight compartments. But the discoveries of modern physics are slowly taking us towards spiritualism instead of materialism. Sir Arthur Eddington opines, "We are now on the border-land of the spiritual and the material worlds as approached from the side of the latter."¹ Of course it is not true that science has actually become spiritual.

However, the discord of spiritualism and materialism of the modern sciences is not the subject-matter of our study. Hence, leaving aside this discord we here propose to discuss some of the theories of Advaita Vedanta in the light of modern science. The aim of the present write-up is to show that some theories propounded by Sankaracarya and his followers centuries ago can be easily understood with the help of the modern scientific discoveries. But it is not our contention that science and Vedanta are completely similar. We also do not claim that Sankara has established his views on the basis of scientific experiments. Whatever Sankara propagated was actually preached in the Upanisads, which he has established with the help of logical argumentations.

Sankaracarya propounded non-dualistic Vedanta which is also known as Mayavada. The cardinal points of his philosophy are: Brahman is the only Reality, the individual selves are non-different from Brahman and the world is false.² Sankara's Supreme Reality is non-dual Brahman, which is qualityless, differenceless and immutable. It is existence, consciousness and bliss (*saccidanandarupa*)³, one without a second (*ekamevadvitiyam*).⁴ Existence is its very nature; there is nothing existent without Brahman. But this existence of Brahman is not material existence, as Brahman is consciousness also, which is its very nature. If Brahman is said to be *sat* and *cit* only, then this may imply that there is no emotive aspect in Brahman. Hence, Brahman is defined as bliss also; the bliss of Brahman is unlimited and unbounded. This Brahman is infinite and eternal.⁵

In pursuance of the Upanisadic statements like "*yato va imani bhutani jayante, yena jatani jivanti, yatprayanthyabhisamvisanti*"⁶ etc., Sankara regards Brahman as the cause of the world. In Sankara's view Brahman is the only cause of the world; it is both the material cause and the efficient cause thereof.⁷ But the question is: how can Brahman which is an impartite spiritual being



become the cause of the world? It is generally seen that the material cause is transformed wholly or partially into the effect. Hence, if Brahman is said to be the material cause, then transformation or change in some form or other must be admitted in Brahman which is changeless. In order to solve this problem, Sankara takes the help of the theory of *vivarta* or appearance. He argues that a thing can be the cause even without being transformed into the effect. The example here is the rope-snake. The rope appears as the snake; the cause of the snake here is the rope itself, even though the rope does not really change into the snake. "The riddle of rope is the riddle of the world."⁸ That means, in the view of Sankara, the world is an apparent manifestation of Brahman.⁹ And as the world is an appearance of Brahman, says Sankara, it cannot be real. For Sankara real is that which is existent for all times and is never contradicted. But the world being an appearance is not existent in all times, it is also not self-explanatory. The true knowledge of Brahman, the unity, contradicts the knowledge of the world of multiplicity. This is what is called *mithya* by Sankaracarya. In Sankara's view, *mithya* is not totally non-existent. The world, according to Sankara, has a pragmatic reality (*vyavaharika satta*). For an ordinary being the world is real, but for one who has acquired the knowledge of Brahman, the world is nothing but Brahman, it has no reality of its own.¹⁰

But the question is : why does Brahman appear as the world and why do we perceive the multiplicity in the place of unity? The relation between real and unreal is impossible. For solving this cosmological mystery Sankara takes the help of *maya*. According to Sankara, it is *maya* which is responsible for the plurality of our perception.¹¹ *Maya* is an indescribable cosmic principle, because of which Brahman appears as the *jiva* or empirical selves and the world. It is because of *maya* that the non-conscious and unreal world seems to be existing independently of Brahman. Again, it is because of this *maya* that the self or the *jiva* which is non-different from Brahman appears to be different from it.¹² That is why, Sankara's philosophy is also called *Mayavada*.

In this way Sankara has shown that the world of our everyday perception is imaginary, it is our mental construct. It is *maya*. But what is *maya*? Sankara describes *maya* as a creative power, an energy which actually transforms into the world.¹³ *Maya* is consisted of three *gunas* of *sattva*, *rajas* and *tamas*.¹⁴ *Maya* is also called *Prakrti* just like the Samkhyas. But unlike the *Prakrti* of the Samkhyas *maya* is neither real nor independent. The nature of *maya* is indescribable and has no existence of its own. Like its product, i.e. the world, *maya* is also imaginary; it is the construction of our mind. There is no existence of *maya* beyond space and time.¹⁵

These are, in short, some of the main postulates of Advaita Vedanta. Now, we propose to show how modern science can contribute to the understanding of some of the postulates of Sankara.

During last hundred or more years the scientific discoveries of many a great scientists have brought about a tremendous change in the interpretation of the physical world. The Theory of Relativity, the Quantum theory, wave mechanics etc. are some of the new findings of physics which have similarity with the ideas of Vedanta.

Einstein's Special and General theories of Relativity have proved that everything in this material world is relative and depend on the perception of the perceiver. In 1905, Einstein published a paper titled "On the Electro-dynamics of Moving Bodies" where he forwarded two major postulates :

1. The laws of physics are the same in all inertial reference frames.

2. Measurement of the speed of light always gives the same numerical result regardless of the relative velocity of the source or of the observer. This is known as the Special Theory of Relativity.¹⁶ But this theory is valid only for inertial systems, i.e., systems moving with constant relative velocity. In 1915 he announced to the world his General Theory of Relativity. The first postulate of this theory states that "The laws of physics may be expressed in equations having the same form in all frames of reference, regardless of their states of motion."¹⁷ Before the discovery of the law of Relativity scientists believed that there was an absolute space. "Newton supposed that all objects of the Universe could be located in absolute space and that all events, wherever they occurred, could be assigned positions uniquely and objectively on an ever-flowing stream of absolute time."¹⁸ But the main deduction of the Theory of Relativity is that space and time are not absolute but are relative. Einstein demonstrated that since everything in this material world is moving in the space at tremendous speed and as space and time are relative, there can be no absolute measure of length or time. The concept of time is relative depending upon the velocity of the observer in the space.¹⁹ Sankaracarya also said that space and time are relative. In his view, the universality of space is only relative and whatever is limited in space is limited in time also.²⁰ Thus, what Sankara speculated is established by Einstein through scientific experiments.

The Theory of Relativity also shows that space and time are not metaphysical categories. The concept of space and time results from our experience of the being and becoming of matter. All motions are relative; bodies move relatively to one another. The speed of a body in the physical world is measured in relation to another, which is supposed to be at rest. But there is nobody which is in absolute rest. The physical research is leading us a point where the line of demarcation between subjective and the objective is diminishing. The Theory of Relativity first shows that the picture which an observer draws of the world is in some degree subjective. In the words of Sir James Jeans, "Even if the different observers all make their pictures at the same instant of time and from the same point of space, these pictures will be different unless the observers are all moving together at the same speed; then and then only, they will be identical."²¹ Hence, M.N. Roy says the "external world is a misnomer"²² according to modern science.

Now when Sankara says that the world is false and is relative; it is nothing but the creation of our mind, people find it difficult to comprehend this. The question is asked : how can the very world of our everyday perception be false or non-existent? But it should be remembered that the denotation of the term '*mithya*' is different from '*asat*' or non-existent in Sankara's philosophy. *Mithya* here does



not mean that it is totally non-existent; it is existent for an empirical being, but it is not existent for a liberated being. Hence, *mithya* does connote negation; it only means the relativity of the world. The Theory of Relativity also proves by scientific method that the world is relative. Hence, it can be said that the theory of Relativity only confirms the view of Sankaracarya by scientific experiments.

Again in modern physics energy is accepted as the source of all. The scientists have proved that there is nothing material in this world; everything is made of energy. In 1905 Einstein published a short paper, "Does the Inertia of a Body Depend on its Energy?" In this paper, he first stated, among other things, the equivalency of mass and energy. The energy associated with matter is shown in the equation, $E = mc^2$. Here E stands for energy, m is mass and c is the velocity of light which is a constant.²³ This means that energy and matter are mutually convertible. Energy is a form of matter and matter is a vibratory substance.

Atomic physics has also reduced matter to energy. In 1911 Lord Rutherford proved by experimentally smashing the atom that there is nothing real in this world except energy in the form of electricity. He found that the atom consists of empty space full of electrical energy. Inside the atom there is a nucleus, round which revolve some electrons which are merely negative charges of electricity. The nucleus consists of protons which are positive charges of electricity and some electrons cemented with these protons.²⁴ Lord Rutherford also assumed that the inside of an atom is like a miniature solar system where the nucleus corresponds to the Sun and the revolving electrons as planets.²⁵ But the nucleus of an atom is inert; the source of activity is the electrons in an atom. Hence, all sorts of activity or transformation in this universe are due to the activity of the electrons. In 1912, Neil Bohr propounded that the electric constitution of the Rutherford atom was governed throughout by the quantum of action. Bohr concluded that the atom radiates energy, as a photon, in going from one stationary orbit to a lower limit. Bohr's theory of atom is called the old Quantum Theory.²⁶ It is based on quantizing the orbits of the electrons in the atom. But it had limited success in explaining the spectra of atoms. In 1924 Louis de Broglie discovered the wave nature and the wave length of electrons. This is the beginning of the new Quantum Theory. The new Quantum Theory unified our view of waves and particles and gave firm principles for applying quantum conditions.²⁷ Following up the new line of approach Professor Schroedinger, in 1925 conceived the electrons not as tiny particles of matter; but as electric charge distributed around the nucleus of the atoms. He pictured this micro-cosmic electrical field as in a state of vibratory motion. On the foundation of that hypothesis he formulated the theory of Wave Mechanics.²⁸ Thus, de Broglie, Schroedinger and other scientists have proved by their discoveries that there is no substance in this universe; The universe is made of waves and particles; this is the universe of wavicles.

In the foregoing lines we have tried to give in short the fundamental principles of the Quantum Theory and the Theory of Wave Mechanics. The Quantum Theory and Wave Mechanics have made considerable progress after

their first propagation. But constraint of space in this paper does not allow to go deeper into the developments of these theories. Moreover, our main purpose of explaining the Advaitic philosophy is served by the fundamental concepts of these theories, hence we are not going to discuss them in more details.

From the above discussion it is clear that, according to modern physics, there is nothing inside the atom but mere emptiness. There are no doubt electrons revolving round a nucleus, but it was found that even these consist of electro-magnetic waves and nothing else. It is the conclusion of modern science, based on numerous experiments that in the universe there is nothing real except waves of electrical energy. The waves of the Wave Mechanics are, again, the mental constructs of our own which are propagated in conceptual spaces. We can say that modern science has successively reduced solid matter into empty atoms, then into electrical particles, then into electro-magnetic waves which ultimately are nothing but forms of energy and at last into mere ideas. Sir Arthur Eddington points out "It is pertinent to remember that the concept of substance has disappeared from fundamental physics; what we ultimately come down to is form. Waves! Waves!!, Waves!!! Energy which, since it is conserved, might be looked upon as the modern successor of substance, is in relativity theory a curvature of space-time, and in quantum theory a periodicity of waves".²⁹ Both sets of these waves are again mental constructs. Jeans makes this idea very clear when he says, "When there is no human knowledge, there are no waves; we must always remember that the waves are not a part of nature, but of our efforts to understand nature."³⁰ And again he says, "The electric and magnetic forces are mental constructs of our own, resulting from our misguided efforts to understand the motions of particles."³¹ Thus, science has made this world as a mental construct of our own.

Now, Sankaracarya also maintains the same idea. *Maya*, which is the material cause of this universe is nothing but the material energy. It is clear from our foregoing discussion about *maya*. Again according to Sankaracarya also *maya* is not real; it is not a substance. Sankara identifies *maya* with *avidya* or ignorance, which is subjective.³² Sankara has repeatedly affirmed that there is no plurality at all apart from individual's *avidya* or ignorance. He also says that the world is an illusion like a piece of silver imagined on the nacre and that it is like a dream.³³ Hence, in Sankara's view, there is nothing in this world except the energy or power of God, which is also not real, but imaginary in the ultimate analysis. There is nothing called substance in this world. These types of ideas which even the philosophers criticize as making a tragic joke of life are actually established by the modern scientific experiments. The Advaita Vedanta of Sankara believes in the theory of '*ajati*' or non-origination.³⁴ The world is not produced or evolved, but seems to be so on account of our limited knowledge. Modern science also says that there is nothing which is created anew. It is impossible to create new substance or energy.³⁵

In this way we can explain the theories of Sankaracarya relating to the world with the help of modern physics. But science cannot go beyond this universe. It cannot say



why the world is a mental construct. And in this respect Sankaracarya's philosophy transcends physics. He with his insight and tremendous logical power has come to the conclusion that as there is only one self and as all men have a common soul, it is imperative that the world of plurality must be false or mental construct. Sankaracarya also maintains that *maya* as a power cannot remain without a substratum and this substratum is, in his view, Brahman, the 'Ultimate Truth of the world. Science has not yet been able to reach this stage, as Brahman is beyond space-time; while scientific experiments are performed in the limit of space-time. But we can hope that in near future physical science will also accept Brahman as the Ultimate Reality and support the non-dualism of Sankaracarya.

NOTES AND REFERENCES

1. *New Pathways in Science*
2. brahma satyam jaganmithya jivo brahmaiva naparah. *Brahmajnanavalimala* of Sankaracarya, 20
3. Sankaracarya's *Sarvavedantasiddhantasarasamgraha*, 2
4. *Chandogyopanisad*, 2.1; Sankarabhasya on it
5. cf. *Vedantaparibhasa*, p. 292
6. *Taittiriopanisad*, 2.1
7. Cf. *Brahmasutrasankarabhasya* (BSS), 1.4.23
8. Radhakrishnan, S., *Indian Philosophy*, Vol. II, p.
9. Cf. BSS, 2.1.14 ; 1.4.26
10. Cf. *ibid*, 2.1. pp. 16-19
11. Cf. *ibid*, 2.1.14; 1.3.19 etc.
12. Cf. *ibid*, 2.3.30 ; 1.2.6 etc.
13. *Vivekacudamani* of Sankaracarya, 108; BSS, 1.4.3
14. 'trigunatmika para', *Vivekacudamani*, 108
15. Cf. BSS, 1.4.3
16. *Introductory Physics*, Warren, Mashul L., p. 133
17. *Modern Physics*, p. 24
18. Sir James Jeans, *Physics and Philosophy*, pp. 57, 63
19. Cf. *Samkhyakarika* of *Isvarakrsna*, Radhanath Phukan, p. 572
20. BSS, 2.2.41
21. *Physics and Philosophy*, p. 143

22. *Science and Philosophy*, M.N. Roy, p. 70
23. *Introductory Physics*, p. 112
24. Cf. *Introduction to Samkhyakarika* of *Isvarakrsna*, Radhanath Phukan, p. 574
25. *ibid*
26. *Introductory Physics*, p. 525
27. *ibid*.
28. *Science and Philosophy*, M.N. Roy, p. 96
29. *The Philosophy of Physical Science*, p. 110
30. *Physics and Philosophy*, p. 171
31. *ibid*, p. 200
32. BSS, 2.1.14, 1.4.3
33. *Atmabodha* of Sankaracarya, 6, 7
34. *Mandukyakarika*, 4. 22-28
35. *Bharatiyadarsane Adhunik Vijnan*, Prasanta Pramanik, p. 23.

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