ŚAṂKARA AND THE PHILOSOPHY OF SCIENCE

I

The aim of this paper is twofold, first, to refute the charge that the Advaita Philosophy of Śaṁkara hampers the progress of Scientific thought and secondly, to demonstrate that his philosophy has increasingly been confirmed by the discoveries of modern science and the resultant Philosophy of Science. It will be shown here that Śaṁkara has given the rudiments of a philosophy of science that has grown up in the West in the twentieth century. Paradoxically enough, Śaṁkara's doctrine of Ne science can be regarded as the Philosophy of Science *par excellence.*

The charge that Advaita Philosophy hampers the progress of scientific thought rests, by and large, on three arguments. At first, the age of domination of Advaita Philosophy in Indian thought is the age of scientific decadence in India inasmuch as no important scientific discovery, has been made in India since the time of Śaṁkara to the end of the Nineteenth century. Secondly, the Advaita Philosophy of Śaṁkara declares that the world is unreal and reality is to be discovered in the inmost being of the self. This view of reality is antagonistic to scientific thought because it disregards the human knowledge of the external world which is the concern of science. Thirdly, Śaṁkara himself has condemned the philosophy of Nature in the most unambiguous terms and maintained with a sense of pride that his philosophy is a philosophy of values which has very little to do with the philosophy of Nature or the Cosmological thought.[1]

But a little consideration of these arguments will indicate that the charge of unscientific character of Advaita philosophy is entirely baseless. The first argument is an example of *post hoc ergo propter hoc.* For instance, every student of the History of Western Philosophy knows that the decadence of scientific thought during the Middle Ages cannot be attributed to Greek Philosophy which dominated the entire philosophy of Middle Ages.

Similarly, the decadence of Indian Science, if any, cannot be attributed to the rise of that Philosophy. Just as there is a deep link between modern science and Greek rationalism, there is, similarly, a deep and vital link between Śaṁkara's Philosophy (rationalism) and modern science. If India suffered from scientific stagnation

in the Middle Ages and thereafter until the beginning of 20th century, its causes are to be discovered elsewhere; i.e. in non-Advaitic circles and spheres. Further, the second argument is based on the misinterpretation of Śaṁkara's doctrine of Māyā and hence is vitiated by *ignoratio elenchi*. The dioctrine of Māyā, as will be shown in the sequel, simply indicates that no scientific theory is a genuine description of that which is real. In other words, as the instrumentalist school of modern philosophy of science maintains that scientific theories are only the results of possible observations and are therefore, not to be taken as the description of the essences of observed things, so does the doctrine of Māyā declare that no description of the world can be regarded as a genuine description of Reality, for, every such description is the description of appearances and not of reality. Scientific theories are, thus, not the ultimate explanations of the visible world. The object which they deal with is a mental construction. That is why Śaṁkara calls it māyā. In other words, it is something which is observable but which is not real. Finally, the last argument is based on the misunderstanding of Śaṁkara's own statement. He has undoubtedly made a sharp distinction between the philosophy of values (*Paramārthacintā*) and the philosophy of Nature (*Sṛṣṭicintā*). But he has been careful enough in linking the philosophy of Nature with the Philosophy of values in the rising scale of sciences. Following the entire tradition of Indian thought, he has maintained that as a science, the Philosophy of Nature must ultimately lead to the self-realisation or the liberation of the soul[2]. According to him, Philosophy of Nature has no intrinsic value[3]. But it does not mean that it has no value at all. According to him its value is extrinsic i.e. it is a means for the promotion of a value-philosophy and value-realization[4]. In other words, Śaṁkara's view of the Philosophy of Nature is that it has only instrumental worth. It is not to be looked upon as a store-house of knowledge.

Śaṁkara considers the Philosophy of Nature on the analogy of a myth. For him the scientific model is similar to the mythological model. Just as there is no real object or person described in a myth, so there is no real object described in Science of Nature. The objects of myth are mere names and forms. Similarly the objects of science too are mere names and forms.[5] The ontological

status of the objects of both myths and science are the same. They are simply mental constructions; the objects of myths are images while the objects of science are concepts. Thus both myth and science are conceptual schemes or models to explain that which appears. Moreover, their sole aim is to show that a particular myth or concept is the *fons et origio* of the whole universe[6]. Śaṁkara gives the name of Brahman to that which is the origin, ground and goal of the whole universe. For him, Philosophy of Nature, is a model which points to Brahman as the origin, ground and goal of the whole universe. He has no dispute over the use of the word 'Brahman'. If Sāṁkhya philosophers call it Mūla-Prakṛti or the *First Principle* and avoid its confusion with inert matter, Śaṁkara would have no objection to accept their nomenclature[7]. Again if the modern philosophers of science call it *phusis* and understand by that term the *natura naturans* of Spinoza or the Nature whose creative role is present everywhere for all times, then Śaṁkara would have no quarrel with them in accepting *phusis* as the sole and the whole reality. Like a philosopher of science, he has tried to show that every phenomenon is essentially related to this First Principle and that the former cannot be differentiated from the latter. According to Śaṁkara there are no gaps in the universe at all.

Furthermore, science is akin to common sense. Both are based on observation which is open to all persons (lokapratyakṣa). Śaṁkara calls this observation as '*Avidyā*'. Dr. Paul Deussen rightly translates *Avidyā* as empirical knowledge or the knowledge of the external world[8]. In Platonic terminology *Avidyā* is opinion or conjecture (*Doxa*) and is to be opposed to Vidya which is indubitable knowledge (*Epistèmè*). In terms of modern philosophy of science the doctrine of *Avidyā* means that all theories of science are and must remain hypotheses which stand to be corrected by later developments. In Vedānta this very doctrine is maintained by saying that indubitable knowledge is gained through *Adhyāropa* and *Apavāda* i.e. through falsification of previous theories the most probable theory is obtained[9]. As Bhartṛhari has said, by treading the path of untruth one attains truth[10]. In this context it is significant to note that Karl R. Popper's criterion of scientific theories seems to be a Vedāntic application of the doctrine of *adhyāropa* and *apavāda* to the sphere of scientific

knowledge. When he states that " theories are tested by attempts to refute them ", or, " there is no more rational procedure than the method of trial and error, of conjecture and refutation, of boldly proposing theories, of trying our best to show that these are erroneous, and of accepting them tentatively if our critical efforts are unsuccessful[11] ", he expresses most appropriately what the Vedāntic dialectic of Śaṁkara implies or what the doctrine of *Adhyāropa* and *apavāda* means. Sureśwara, an immediate disciple of Śaṁkara, says that there are innumerable roads to self-realization or self-knowledge[12]. One of them is the philosophy of Nature (*Sṛṣticintā*). Vedānta of Śaṁkara is thus not antagonistic to science. *Per contra*, it emphaisises the cognitive value of science and clarifies a number of scientific concepts which are the *sine qua non* of the development of science.

At this place it can be objected that there is a distinction between the Philosophy of Nature and the philosophy of science and that although there is a place for the former in the Vedānta of Śaṁkara, there isn't even mention of the latter in it. The Philosophy of Science has undoubtedly developed from the Philosophy of nature, but it is a recent branch of philosophy and it cannot be attributed to the philosophers of ancient and medieval times. This objection, however, is not, by and large, valid, for, the great philosophers of antiquity were not less interested in the philosophy of science than the contemporary ones. Moreover, Śaṁkara has made genuinely critical observations upon the Philosophy of Nature. If we term Philosophy of Nature as science, the critical reflection upon the Philosophy of Nature must consequently be given a different name, viz. the Philosophy of Science.

The main observations that Śaṁkara has made about the Philosophy of Nature concern its nature, scope, limit and result. Its nature is *arthavāda* i.e. explanatory[13]. Scientific statements are explanations. They are not primary statements. They are secondary statements concerning primary statements which are ontological in character. The subject-matter of science is *avidyākalpitanāmarūpa* i.e. the formulas (theories) and forms that are constructed by the aid of *avidyā*. Further the limit of science is the limit of reason. Reason on its own standing, is limited and inconclusive, for, a well-reasoned argument is always liable to be rejected by a better-reasoned argument[14]. Finally

the result of science is the comprehension of the nature of the principle of unity that underlies the whole universe. Science tries to make this incomprehensible unity comprehensible. In this way Śaṁkara has given a philosophy of science which makes a critical reflection upon the explanations of science. It is well known to every student of contemporary philosophy and science that to discuss the aims, methods, limits, nature and results of scientific explanations constitutes the philosophy of science. So Śaṁkara has a very clear idea of the philosophy of science. It occupies a central place in his theory of knowledge. We shall take a stock of his analysis of categories of thought in order to present a clear picture of his Philosophy of Science.

II

Śaṁkara's analysis of the categories of human knowledge is a genuine attempt to discover the principle of unity which underlies the entire edifice of human knowledge concerning physical universe. The scientific concepts which have largely been used and analysed by him are Space (Deśa), Time (Kāla), Cause (Nimitta), Activity (Karma), Manifestation (Vyākaraṇa), Verbal formulation (Nāma), Form (Rūpa), Potentiality (Śakti), Structure (Racanā), Motion (Gati or pravṛtti), Materiality (Upādāna), Infinity (Anantam), Organism (Prāṇa) and a host of other categories. It is not the aim of this paper to give a complete list of all the categories used and anslysed by Śaṁkara, for, it will require an independent and lengthy treatise which the present paper does not promise. What it wants to emphasize here is the view that Śaṁkara's treatment of these categories is not incompatible with the findings of modern Philosophy of Science. *A fortiori*, Śaṁkara has anticipated the modern formulations of the most of these categories. We shall illustrate this by considering his treatment of space, time, causality, motion and substance.

It is significant to note that Śaṁkara invariably uses space and time together. For him space and time are coordinate and are the effects (Kārya) of *avidyā*[15]. As the effects of *avidyā* space and time are finite. They have a beginning as well as an end. Again space and time are objective and are not the subjective ideas of any individual (*jīva*). They are the fundamental properties of the sense-manifold (*Nānātva*). Again as the effects of

avidyā space and time are appearances, that is, they are fraught with inconsistencies. Space-time-coordinates are not the necessary characteristics of the real. They constitute a possible and observable condition (Upādhi) of the real.

This view of space and time is basically the same that is advocated by the proponents of the theory of relativity. Saṁkara anticipated M. Minkowski who made an amalgam of space and time for the first time in the West. " Henceforth space by itself and time by itself are doomed to fade away into mere shadows and only a kind of union of the two will preserve an independent reality[16]." Thus Space-time continuum is the most correct designation of what Śaṁkara calls manifold or *nānā*. Further it is called *Jagat* which means a moving *quid*. This shows that space-time continuum is not motionless but a moving manifold. It is called *prapañca* which means the interrelated texture or intertwinement of all phenomena. About motion Śaṁkara further says that althought it belongs to the *body* which moves yet it comes from the whole reality which is *natura naturans*[17]. Hence Śaṁkara's theory of motion takes space, time, matter and Nature into consideration. Motion cannot be separated from space, time, matter and Nature. In short motion and matter are inseparable. There can be no more matter without motion than motion without matter.

It is true that Śaṁkara has no idea of electro-magnetic, nuclear and gravitational fields. But it is infinitely surprising that his theory of motion is not at variance with the theory of motion that takes into consideration these fields of modern science. Modern Indian scientists can, therefore, relate the present scientific theory of motion with that of Śaṁkara's in a more satisfactory and logical way than their western counterparts do so with that of Plato's, Aristotle's or Descartes '.

Śaṁkara's analysis of causality further strengthens the view that his philosophy of science has widely been reinforced in recent times. He does not admit any ontological difference between the cause and its effect. Nor does he call causal nexus as the relation of substance and its property. According to him there is no ontological difference between substance and its property. The effect, as he says, is simply the transfigured or transformed cause[18] (Saṁsthānamātram). In other words, causal nexus is ' functional

dependence'. As Russell maintains, causal regularities are nothing but observed regularities of sequence[19]. Śaṁkara finds in his analysis that this regularity is universal and approaches the ideal unity of all phenomena. He terms it as the principle of non-differentiation or identity. Śaṁkhya philosophy has also reached the same conclusion independently of Vedānta. That is why Śaṁkara remarks that Śaṁkhya philosophy is very close to Vedānta philosophy[20]. We can further add in this context that modern science is far closer to Vedānta philosophy than Sāṁkhya philosophy. The change that Śaṁkara brought about from causal nexus to functional dependence is a change of great significance. It has well been established in modern mathematics. Prof. L. S. Stebbing writes, "the advance from the discovery of causal laws to the discovery of functional dependences involves the gradual elimination of any direct reference to a substantive thing or determinate occasion[21]." Thus there is no longer the use of the concept of substance or cause in scientific thought. Śaṁkara saw it long ago. This is the reason why he called the whole phenomenal world as Māyā or without substance. The theory of *māyā* thus gets confirmation from the theory of elimination of substances as the theory of *Vivarta* gets from the theory of functional dependence.

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NOTES

1. Natu Paramārthacintakānām Sṛṣṭāvādara ityarthaḥ. *Māṇḍūkyakārikābhāṣya*, Śaṁkara, 1.6.

2. Sā Vidyā yā vimuktaye, Indian Proverb.

3. Nahi sṛṣṭyakhyāyikādiparijñānāt kiṁcit phalam iṣyate. *Aitareyopaniṣadbhāṣya*, Śaṁkara, Chapter II, Introduction.

4. Atra ātmāvabodhārthamātrasya Vivakṣitavāt..... sukhāvabodhanapratipatyartham lokavad ākhyāyikādiprapañca iti yuktataraḥ pakṣaḥ. Ibid.

5. Na ceyam paramārthaviṣaya sṛṣṭiśrutiḥ.
Avidyākalpita nāmarūpavyavahāragocaratvāt.
Śārīrakabhāṣya, 2.1.33.

6. Brahmātmabhāvapratipādanaparatvāt. Ibid. 2.1.33.

7. Yā mūlaprakṛtirabhyupagamyate, tadeva ca no brahmeti abhidhīyate. *Śārīrakabhāṣya*, 2.3.9.

8. The system of Vedānta, Paul Deussen, English translation by C. Johnston, p. 47.

9. Adhyāropāpavādābhyām nisprapancam prapancyate Sarvavedānta siddhānta sārasangraha, Śaṁkara, 295.

10. Vākyapadīya, II, 238.

11. Three views concerning human knowledge, Karl. Popperi included in the Contemporary British Philosophy, ed. by H. D, Lewis, p. 378. See British Philosophy in Mid-century, ed. by Mace, p. 179.

12. Bṛhadāraṇyakavārtika 1,4. 402.

13. *Aitareyopaniṣadbhāṣya*, Śaṁkara, Chapter II, Introduction

14. Yad hi kenacit tārkikeṇa idam samyak jñānamiti pratipāditam, tadapareṇa Vyutthāpyate, tenāpi pratiṣṭhāpitam tato' pareṇa Vyutthāpyata iti prasiddham loke *Śarīrakabhāṣya*, 2.1.11.

15. See *Indian Philosophical Studies*, Vol. I by M. Hiriyanna, Mysore, 1957, p. 104.

16. M. Minkowski—Space and time in Einstein et al, the *Principle of Relativity*, London, 1923, p. 75.

17. *Śārīrakabhāṣya*, 2.2.2.

18. Nahi kāryakāraṇayor bheda āśritāśrayabhāvo vā Vedāntavādibhir abhyupagamyate, kāraṇasyaiva saṁsthānamātram kāryam ityabhyupagamāt. *Śārīrakabhāṣya* 2.2.17.

19. *The Analysis of Mind*. Chapter V.

20. *Śārīrakabhāṣya* 1.4.28.

21. *A Modern Introduction to Logic*. P. 376.