



THE INDIAN TRADITION OF PHYSICS IN VAISESIKA

ASHALATHA S.G.

Research Scholar

SREE SANKARACHARYA UNIVERSITY OF SANSKRIT KALADY, KERALA, INDIA

ABSTRACT: This article is tried to show the inclination of the Nyaya – Vaisesika systems toward science. Some of the subjects like light, sound, atom, Category, etc. which drew the attention of ancient seers can be seen made the subjects of study in modern science also. Particularity the Vaisesika system deals with metaphysics. Among the seven Categories, ‘Dravya’ (Substance) is the material cause of the composite elements. There are totally nine substances among which five, the Earth, Water, Fire, Air, and Ether are material objects, and four, Time, Quarter, Self, and mind are non-material. The speed or velocity that makes the major part of modern physics can be seen dealt with by the Vaisesikas while revealing the relationship between the loss of speed causing the fall of an object in motion and the force of gravitation.

Key Words: *Vaisesika* system, Substance, Categories, Atom, Molecule.

INTRODUCTION

The *Nyaya* and *Vaisesika* systems have much in common. These two schools, originated independently developed into two great systems of thought. When the *Nyaya* School was chiefly concerned with the method of debates and syllogism, the *Vaisesika* School took effort in formulating its ontological structure based on the six Categories.

The common views borne by these systems made them to be known as *samana tantras*. The founder of the *Vaisesika* School was *Kanada*, the eater of Kanas, the literal meaning of which is grains or Atom. This name might have been given to him for the discovery of atom. There is controversy regarding the antiquity of the systems since there are evidences favouring the different views.

ATOMICITY IN VAISESIKA PHILOSOPHY

Vaisesikas are notable for their theory of atoms. According to the *Vaisesikas*, all material things are made up of atoms. In their atomic state these are eternal, indestructible and invisible. The *Vaisesikas* believe that atoms are of different nature bearing the quality like smell, taste, touch and shape. A striking resemblance can be observed between the conception of molecule as portrayed by the modern science as well as the *Nyaya Vaisesikas*. The *Vaisesikas* were right when they said that atoms tend to combine to form groups of atoms containing two or more. A group made up of a cluster of atoms consisting of their pairs is the smallest structure that becomes visible to the naked eye.

Kanada, earliest preacher of *Vaisesika* philosophy is known for his atomic theory. His views are very much similar to modern atomic theory. He uses the term ‘*Visesa*’ to mean particularity that differentiates an atom from the other. It is in this sense the attribute ‘*Antya Visesa*’ meaning the final individuality is given to it. The ultimate individuality distinguishes an atom from other. This observation of *Visesa* Category made them to be known as *Vaisesikas* and their system *Vaisesika Darsana*.

The Sutras of *Kanada*, following the traditional Indian aphoristic style, convey many subtle ideas with minimum words. *Kanada* was followed by a brilliant, group of scholars who enriched this system by their commentaries and original contributions. This tradition consists of a long chain of scholars notable among which are as follows:

1. *Kanada (Vaisesika Sutra)*
2. *Prasastapada (Padarthadarma sangraha)*
3. *Udayana (Kiranavali)*
4. *Sridhara (Nyayakandali)*
5. *Vyomasekhara (Vyomavati)*
6. *Vardhamana (Dravyakiranavali Prakasa)*
7. *Sankara misra (Vaisesika sutropaskara)*
8. *Sivaditya (saptapadarthi)*

Parallel to this line of *Vaisesika* exponents still another group of scholars who were indulged in the studies of equal importance gave rise to a new system called *Nyaya*, the founder of which was the worshipped *Maharsi Gautama*.

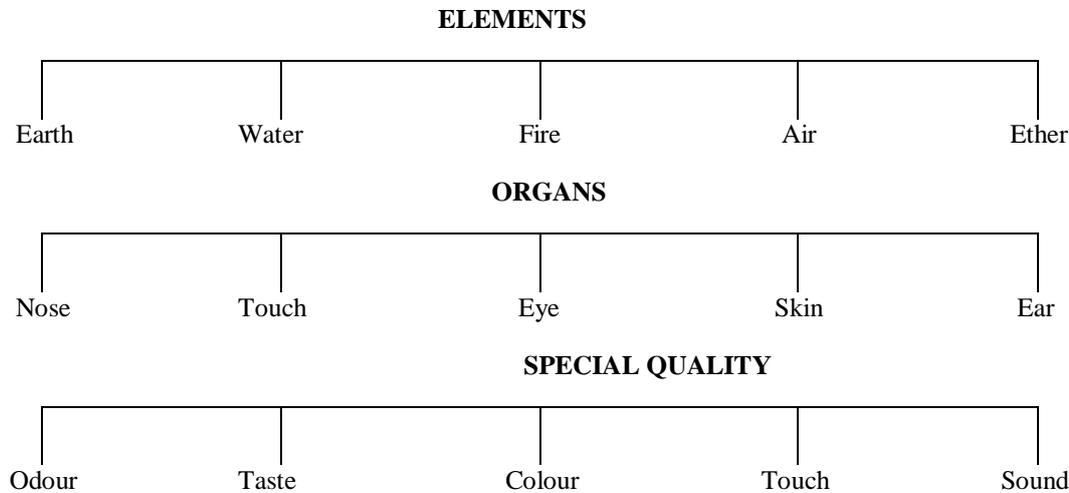
The *Vaisesika* Sutras when viewed through the eyes of the Buddhist *Vijnanavadins* will seem as an unmatched scientific treatise containing many theories of physics. The sutras themselves show quite a haphazard arrangement. The commentaries of *Prasastapada* and the like helped the later scholars to rearrange them systematically.

According to the *Vaisesikas*, all objects in the world are made up of tiny particles which are invisible, indivisible, indestructible and eternal. They are neither created nor destroyed. In other words, they were there at the beginning of the creation

and they will be there at the time of dissolution also. They are called “*Paramanus*”. They are like elementary particles of modern physics.

From the Vedic times, the Indian thinkers are seen engaged with the study of nature. They did find the atoms of the first four substances, viz. *Prithvi* (earth), *ap* (water), *Agni* (fire), and *Vayu* (air) as eternal. Including *Akasa* (ether) they formulated the *Pancabhuta siddhanta* – the theory of five elements. These five basic physical elements have a vital role behind creation. These five gross elements (*Pancamahabhutas*) are detected as the source of human sensual organs which produce the knowledge of smell, taste, colour, touch and sound. Thus the relationship between the five elements and the sensual organs responsible for producing certain qualities was brought to light. The Indian studies first revealed this secret of nature before centuries.

Among the nine *dravyas* (substances), the first five namely, *Prithvi* (earth), *Jala* (water), *Tejas* (fire), *Vayu* (air) and *Akasa* (ether) are called *Bhutas* (gross elements) since they are the abode of five special qualities called, *Gandha* (odour), *Rasa* (taste), *Rupa* (colour), *Sparsa* (touch) and *Sabda* (sound) respectively.



According to the atomic theory, each atom has its individual characteristics, and it combines with other atoms belonging to the larger entities called molecules. These are the building blocks of all objects that exist. Two *paramanus* make one *Tryanuka* and *Chaturanuka* and so on. This *Anu* (atom) possesses continuous vibratory motion which can be mentioned as spin or wave function. These *Paramanus* are distinct from the Soul. Each atomic substance has individual characteristics which distinguishes it from other non-atomic substance like *Kala* (time), *Dik* (dimensional space), *Atman* (soul) *Manas* (mind), etc.

Vaisesikas way of approach to matter is peculiar to that system. For instance, the division of time as past, present and future, according to the *Vaisesikas* come to one's notice caused of the motion of time. *Vaisesikas* observe atom as the fundamental principle of matter which they believe is beyond direct perception irrespective of the kind of instrument used to view it. Nevertheless, its presence can be inferred indirectly.

A rationalistic way of thinking can be supposed as followed by the *Vaisesikas* while examining certain Sutras. The early date of the text and the scientific observations done by the system raises two issues.

1. Was there an empirical base for the Sutras,
2. What were the causes for the cessation of physical interpretation of nature in the periods of Indian history that followed the period of *Vaisesika*.

With regards to the first issue the fact that in some cases *Kanada's* giving explanations to show how certain conclusions are derived clears the doubt. The fall of an arrow shot, on ground due to the loss of speed is the best sort of proof given to the existence of gravitational force. As early as the *Yajurvedic* period there are evidences to believe that the Indians had the knowledge of metallurgy. The *Atharvangiras* includes the results of some chemical operations. Thus between the Vedic period and that of *Kanada* one can naturally expect a considerable growth of technology which may have tempted *Kanada* to follow the path of science as far as possible while composing the aphorisms. However, given the style of Indian aphoristic literature, here is no reason to expect any of the empirical observations to occur explicitly in the text.

With regards to the follow – up on *Kanada's* work we see that in the early phase of development *Vaisesika* advanced rather rapidly with *Prasastapada* expanding the theory of the ‘*Paramanu*’ and its derivatives. He also analyses the thoughts of *Kanada* and provides sound explanations for many of the Sutras. Nevertheless, in the following centuries, *Vaisesika* was possibly being further distanced from its empirical roots and was forced to face the adversity of the lack of new observations on natural processes. Simultaneously the rise of Vedanta after the 5th century CE blew up *Vaisesika* to a great level so that any further development became *impossible* for them in that direction. *Advaita* amidst the schools of Vedanta was particularly successful in driving the Indian mind away from the rationalistic thinking and turning it towards the search of the undefined ‘*Atma*’. Really such a clash between *Advaita* Vedanta and *Vaisesika* was purely superfluous bestowing no benefit to both.

CONCLUSION

The school of philosophy which contributed the ideas of atom first was the *Vaisesika* School. They found different types of *Paramanus* forming the four substances. Each *Paramanu* has a peculiar property on which depends, that of the substance to which it belongs. It was because of this conception of peculiarity of *Paramanu* (atom) this system of *Kanada* came to be known as *Vaisesika Darsana*. *Kanada* arrived at several conclusions which have relevance even at this period.

It is really amazing to know that it was an Indian who first discovered the existence of *Paramanu* (atom) before centuries. Besides atom, the objects that drew the attention of the modern scientists like light, sound, speed etc. also who made the subjects of study by the ancient *Nyaya Vaisesika*.

REFERRED BOOKS

1. Robert Browning: A Reassessment in The Light Of Hindu Vision, Arti Gupta, Sarup And Sons, New Delhi, 2002.
2. *Vaisesika Sutra Of Kanada*, Debasish Chakrabarty , D.K Printworld (P) Ltd, New Delhi, 2003.
3. Introductory Special Relativity, Rosser.W.G.V, British Library Cataloguing In Publication Data, UK, USA, 1990.
4. The Systems Of Indian Philosophy, Subodh Kapoor, Cosmo Publications, 2004.
5. *Tarkasangraha*, Swami *Virupakshananda*, Sri Ramakrishna Math Mylapore, Madras, 1994.
6. A History Of Ancient And Early Medieval India: From The Stone Age To The 12th Century, Upinder Singh, Library Of Congress Cataloging In Publication Data, Delhi, 2008.