

SCIENCE, RELIGION AND INDIAN SCIENTIFIC TRADITIONS

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Religion is the greatest gift of God to humanity and is also the most ancient friend of man ,and in the coming future it will prove itself to be the savior of human race. The teachings of moral responsibilities evolved into different religious traditions of this world. God created man in His own image, a microcosm and provided not only for his physical and mental development but also for his spiritual regeneration. India has a rich scientific tradition. It has been a scientific country right from Vedic to modern times with useful fluctuations that can be expected of any country. Knowledge and science are accorded an exalted place throughout. The apathy which manifests itself amongst the most intelligent classes, especially amongst scientific men, in respect of religion, is due to the fact that religious matters are more or less shrouded in sentimentality, mysticism and dogmatic faith and are void of that practical and matter-of-fact research which distinguishes a scientific study. To endow religion with practical and scientific interest, it is essential that research should be conducted on the same lines as those employed in scientific research, that is to say, the object in view should be clearly defined and practical measures should be prescribed and adopted for the attainment of that object.

INTRODUCTION

“Religion is the greatest gift of God to humanity and is also the most ancient friend of man ,and in the coming future it will prove itself to be the savior of human race.” (D.E.I, 2207:2) The teachings of moral responsibilities evolved into different religious traditions of this world. There was, however, an eternal polarization in the Supreme Being, as it were, one which was replete with spiritual energy (called the positive pole) and the other which had its spiritual energy depleted (called the negative pole). “The magnetic field has a positive pole, a negative pole. There is a field of magnetic action or force, so also this created a field of spiritual action or force and this resulted in the first great spiritual current or what is known as Adi-Chetan Dhar (purely spiritual region which is called white matter of the brain) issuing forth from the Supreme Being towards from the region nearest to the negative pole and proceeding towards the positive pole and then returning to the negative pole. This Adi-Chetan Dhar or the first great spiritual current at the commencement of the creation was accompanied by a sound because there were vibration in this spirit emanation.” (Huzur Maharaj Sahab, 2009: 5).

“As a consequence of eternal polarization in the Supreme Being three distinct regions were formed in the Supreme Source itself. The infinite region of full spirituality, the region of neutral zone of spirituality and the region of depleted

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spirituality. The sound and spirit currents that emanated resolved into three divisions each.” (D.E.I,2011:01) Man has even conquered the forces of nature and come to have a higher order of intelligence and then wisdom. Through intelligence he learned lessons based on his experiences collected and coordinated them acquiring wisdom. With this wisdom he made rules of conduct for the society. He made use of five senses, and when he found that the knowledge acquired through them and mind is inadequate, he experimented further and discovered hidden and latent senses in the head, more and more of them. In pursuing the inner path, man realised the Ultimate Reality. The body of knowledge derived through physical senses was called *Apara Vidya* (profane knowledge) and that acquired by the hidden senses was called *Para Vidya* (transcendental knowledge).

India is specially blessed with the advent of several moral responsibilities and is the home of great religions of Hinduism, Jainism, Buddhism and Sant Mat the Radhasoami Faith. Christianity and Islam which originated in Central Asia, Jerusalem and Arabia came to India early in their history and got integrated into the religious fabric of India. Sant Mat or Radhasoami Faith is the ripe fruition of all this religious Endeavour and blessing.”The religion of Saints is very easy to follow so much that the practice prescribed by it can be performed by a child of seven years, by a young person or an old person of eighty years, male or female. It is limited to four words-True Guide, True Name, True Association and True Love.” (Dayalbagh, 2009: 178).

India has a rich scientific tradition. It has been a scientific country right from Vedic to modern times with useful fluctuations that can be expected of any country. Knowledge and science are accorded an exalted place throughout. It is universally recognized that the world owes much of its mathematical knowledge to India. However the period of decline in India coincided with that of ascendancy in Europe and this made Europeans first believe that all modern science is European. But recent modern researches have brought to light the great contribution of Egypt, China and especially India to civilization and science. In the last century also Europeans who worked in India and then Indian scientist themselves made rich contribution to science. Since the spirit of science had already existed in India, it did not take long for Indian scientist to absorb the modern developments and to start afresh making their own advances in science. This is how India has again caught up with front ranking countries in sciences and technology.

The technology of Indus valley civilization reached a standardized stage. The layout of the cities, well-baked bricks of controlled size and domestic pottery reveal a methodical system of measures and weights. The Vedic seers recognized nature working through her various phenomena. It culminated in the wonderful grammar of Panini, the *Astadhyayi* which is unique in the world. Pingala considered by tradition as his brother had used the binary number system in describing Vedic prosody. In this way the sign for zero, binary number system, the ideas of meta

rules, algebraic transformation, recursion, hashing, mathematical logic, formal grammars and high level language description arose first in India.

Rigveda contains references to the spherical shape of earth, axial rotation and annual revolution. It describes sun as the maker of the day and night and as the cause of the seasons. Universe comprised Prithvi, the Earth, the Antriksha, the Atmosphere and Dyaus, the Heaven. It is said that sun never sets or rises and that the cause of solar eclipse is occultation of the sun by the moon. The twenty seven Nakshatra ,i.e., constellations are also mentioned. Baudhayana in his Sulbasutra and Srutasutra states that the diagonal of the rectangle produces the area which its length and breadth produce separately, earlier than Pythagoras.

In the Atharvaveda the distance of the heaven from the earth is given as one thousand days journey for the sun bird. The same argument could also be seen in Christopher Marlowe's play "Dr Faustus"-

*"Meph. As are the elements, such are the spheres,
Mutually folded in each other's orb,
And, Faustus,
All jointly move upon one axletree,
Whose terminate is termed the world's wide pole:
Nor are the names of Saturn, Mars, or Jupiter
Feign'd but are erring stars."* (Ramji Lall,1999:131)

"The spiritual Material Region i.e.the Region of Universal Mind with six subdivisions-Sunn, Trikuti, Sahasdal Kamal, Vishnu Loka, Brahma Loka and Shiva Loka." (D.E.I,2011:01) This is the Brahamanda Region which is called Universal Mind (Gray matter of the brain). The Vedas recorded different views on the origins of universe from the artistic, mechanical, instrumental and philosophical stand points. It is described that the elements earth, sky, wind and also moon and sun are formed by the dismemberment of the primeval spirit Adipurusha. "When the third phase of creation (material plane) commenced there was a Big Bang in the barrier region between the regions of Brahamanda and Pind called Chidakash and innumerable Pinds i.e. Material Spritual Regions were created. There are six subdivisions in this too namely-Moon-Orb,Sun, Earth, Jupiter, Saturn and Naptune further below being the Hell."(Huzur Maharaj Sahab, 2009: 178).

The Vedic Samhitas classify the animals into two categories-those supported by bones and those supported by flesh. It mentions gold, silver, copper, bronzes and iron. They recognized the five elements-Earth, Vayu, Aakash, Jal, Prithvi. The geographical material of the Puranas is mostly contained in their first sections called Lakshanas. The total number of Lakshnas are eighty-four (Chaurasi laksh). "The three Gunas (qualities-sattva, rajas and tamas) in their downward course became associated with the twenty-five prakritis mentioned in Article 93, and also entered into combination with each other. Thus eighty-four compound currents,

viz, seventy-five currents of matter and nine of the qualities referred to, descended into the third division of creation. These eighty-four subtle currents are known as the chaurasi laksh. The material constituents and the functions of all animate and inanimate creation in the third grand division have been evolved out of these eighty-four currents. The seventy-five material currents are in the nature of elements known to us, each endowed with separate properties in accordance with the nature of the various forces they were subjected to and with reference to the tattvas from which their material elements was derived.”(Sahabji Maharaj, 2007).

The Puranics concept of the cosmic cycle is the corner stone of their cosmographical and cosmological theories. Creation, preservation and dissolution are mentioned as (i) incidental,(ii) elemental, and(iii) absolute. The incidental is that related to Brahman occurring at the end of Kalpa, i.e.,4,320 million years. The elemental is that which takes place after two existence. The age of earth normally thought of by geologists as 4,500 million years is tallying well with Brahma’s day or Kalpa.” According to Swami Dayanand, 1,96,08,52,976 years had passed till 1876 since the creation came into existence, but the translator of the Rig-Vedadi Bhashya Bhumika wrote on page 5 of the preface to the book that this calculation of Swami Dayanand was wrong because he had omitted to add up the time of seven sandhis, i.e. 1,20,96,000 years. According to astronomical calculations, the age of this earth in 1876 comes to 1,97,29,48,076 years.” (Huzur Maharj Sahab, 2009:117). The Vedanga Jyotisha records the ancient system of lunar-solar reckoning of months and years, in cycles of five years of each of 366 days. A year of 12 months is retained omitting 31st and 62 months from each cycle. Vaisheshikas developed an atomic theory very early. The Parmanu or Trasarenu is given as 1/343925 of an inch in size.

Ancient Hindi mathematicians had a great interest in large numbers expressed in power of ten (e.g.10⁵³), in the nature of number and their factors (24 factors of 720) and the division of time into its smallest units such as muhurta, ghata, vighati, prana, nimesha and so on. The Sulbasutras describe construction of sacrificial altars and deal with construction of squares and rectangles, the relations of sides to the diagonals, construction of equivalent to squares and rectangles and constructions equal to two or more given squares or equal to the differences between the two squares with intricate formulae. The irrationality of e^2 was understood by the time of Sulbasutra.

Ancient Hindu medicine goes back to Atharvaveda where it is termed Bhesaja-denoting medical charm. It is psychosomatic approach to healing. Dhanvantari was the custodian of Amrita and system of medicine came to be known as Ayurveda, wisdom for life. Susutra 1st C, AD mentions specialized surgical equipment consisting of 20 types of knives and needles, 30 probes, 20 tubular instruments and 26 articles of dressing. The human body is maintained healthy by three humors of Vata, Pitta and Sleshma in proper proportions. The basis of Hindu deities and

pharmacology was the theory of six Rasas. They are different flavors in foods and specific substances in our humors.

Buddhist Jatakas mention a physician Atreya who taught at Takshasila at the time of Buddha. However, Charaka Samhita is the best source of our medical knowledge of the times. The field of study, Hindu medicine, was divided into eight sections including pediatrics, obstetrics, treatment, consequences of treatment, effects of age and seasons on the patient, professional conduct of the physician. Aryabhata's astronomical work is Aryabhatiya of which thirty three slokas alone have come down to us. Bhatadipika, a commentary on Ariyabhatiya of Paramesvara of 1430 AD gives us in a condensed form the achievements of Aryabhata in the 5th C AD. Certain topics by his time clearly emerged such as square and cube roots, properties of circles, sines, arithmetical progressions and value of e as 3.1416. Algebra emerged as a separate study-Bijaganita. Brahmagupta was a great mathematician and geometrician. His work on the properties of cyclic quadrilaterals and concept of sines of angles is noteworthy which he applied to rising and setting of planets. In the time of Bhaskara II indeterminate analysis reached its zenith. He found solution of first degree equations in terms of a pulverization Kuttaka and the solution of general equation by Cakravata or a cyclic method. Elementary ideas of calculus of integration and differentiation are also found in this age. Lilavati was translated into Persian in 1587 AD on the orders of Akbar and Bijaganita in 1635 AD for Shah Jahan. In Bijaganita we have a simple demonstration of proof of Pythagoras theorem.

In 4th C AD, the pure copper Buddha at Sultanganj, Bihar and the Iron pillar near Delhi stand testimony to the technological skill of those times. Sulphates of copper and iron, realgar, orpiment, iron oxide, iron sulphide are described in Charaka Samhita. Formation of sulphides, uses of coral, oxides of iron and copper, sulphides of antimony are also described. The process of photo-synthesis is described in the Mahabharata. The Brihatsamhita of Varahmihira gives different classifications of plants and also speaks of the plant diseases and their remedies. He mentions certain classification of animals into rural, wild, aquatic, terrestrial. Varahmihira's Brihatsamhita contains a chapter on earthquakes. Different causes of earthquake are discussed. The Yukti Kalpatru ascribed to Bhoja gives an elaborate and analytical study of ship building in India.

In modern times also the contributions made by C.V Raman to the study of molecular scattering of light; by J.C. Bose to physiological response of plants to light measuring extremely short intervals of time and rates of reaction; by Srinivasa Ramanujan to mathematics are noteworthy. Now India is one of the great countries of scientific advancement in the world. "Just as man's body has been created and endowed with life by his spirit, in like manner the entire creation has been brought into existence and endowed with life by Parama Atman who is known as Supreme Being Since the essence of the Atman and the Parama Atman or the spirit and the

Supreme Being is one and the same, the human body has been accepted as the miniature of the whole creation and the creation is called the Macrocosm and the human body, the Microcosm.” (Sahabji Maharaj, 2007: 01).

Thus Science is very popular now a days and millions of people, due to spread of education are now able to discriminate between what is good for them and what is bad and also between knowledge and ignorance. The apathy which manifests itself amongst the most intelligent classes, especially amongst scientific men, in respect of religion, is due to the fact that religious matters are more or less shrouded in sentimentality, mysticism and dogmatic faith and are void of that practical and matter-of-fact research which distinguishes a scientific study. To endow religion with practical and scientific interest, it is essential that research should be conducted on the same lines as those employed in scientific research, that is to say, the object in view should be clearly defined and practical measures should be prescribed and adopted for the attainment of that object.

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