Scientific Application of Vedic Knowledge in Today's World

Soma Basu

Abstract

Physical Science speaks of the truth of nature or more precisely of the laws and properties of nature. So, a proper scientific investigation of *adhibhautika* part of the stanzas of Vedic deities can enlighten us about the presence of the concept of elements of physical science in the *samhita*s of the Ṛgveda. We have come across a huge number of Physical Science related Vedic words/phrases in the *adhibhautika* part of the stanzas dedicated to Agni of the Rgveda like *sahasas putra* 'the son of strength' etc. (RV 1.27.2) where it may be noted that the relation between Work or Force and Heat or Light is established by Joules much later, i.e., only in the 18th century. The expression *visvabharasam* 'all-sustainer' (RV 4.1.19) may be explained from the angle of science as - thermal energy is a must for sustaining the universe which is the deduction from kinetic theory of matter which confirms the findings of Vedic seers. Instances may be multiplied. The terms *saptarasmi, saptajvalam* 'having seven rays' in the Rgveda may be interpreted from the angle of science as - presence of seven different colours in visible white ray which is demonstrated by Newton as late as in 17th century. Air excites Fire (i.e., *Agni*) was known to Vedic seers much before the age of modern science. In this paper an attempt has been made to show that if an arduous scientific investigation can be made of the stanzas of the Rgveda then the presence of elements of Physical Science in Vedic literature can be brought to light.

Full Paper

1.1 Preamble

Vedic corpus which is essentially spiritual by nature very naturally precludes the idea of science in a positive sense because not all of the stanzas talk about science entirely, a part may contain science; again doubts concerning the meaning of specific words and phrases are very much present (we know about words which even Sāyaṇa, the great commentator of the Vedas, could not interpret and left as they were in his commentary) simply because of the fact that the nature of the corpus of Vedic literature being so archaic.

Prof A. P. J. Abdul Kalam observes, "The Ṛgveda talks about an advanced civilized predominantly urban and maritime society which has used ships, boats and 75 different types of houses which include hutments and palaces. Vedic literature reveals that Indians have very advanced knowledge of mathematics and were possessing extra ordinary knowledge of astronomy."

1.2 Introduction

There is no doubt about the fact that Vedic religion actually revolved around the sacrificial institution, which is an elaborate and enhanced form of fire-worship. Prof. P.V. Kane has expressed it as "...the underlying idea of this emphasis on the worship of Agni seems to be that the oblations thrown into the fire reach the sun, that sends rain, from which springs corn, that is the sustenance of all beings".

Physical Science speaks of the truth of nature or more precisely of the laws and properties of nature. So a proper scientific investigation of *ādhibhautika* part of the stanzas of Vedic deities can enlighten us about the presence of the concept of elements of physical science in the *Saṃhitās* of the Ṛgveda.

The divine is conceived by man through its revelation in nature. Vedic deities are but a deification of the natural forces or phenomena done by the poetic imagination of Vedic seers. Therefore, various deities when stripped off of their divine attributes practically superimposed on them can be identified as standing for the different aspects of nature. If an arduous scientific investigation can be made of the particular stanzas of the Ṛgveda then the presence of elements of Physical Science in Vedic literature can be brought to light at least with certain extent of conviction which when applied in today's world may bring about a sea change in explaining modern scientific concepts.

1.3 Existence of Scientific Concepts in Vedic Literature

The Ṛgveda, which turns out to be the very first of all Indian written material and the most ancient of the whole corpus, is almost religious by nature and therefore, provides for the most part mythological stories illustrating different feats of various deities of the Vedic pantheon and so we have to be extra careful about the fact that the stanzas cannot in themselves be viewed as representing scientific elements transparently or in very clear scientific wordings. This theme is not very well known nor discussed in current literature. Rudimentary concept of Physics, Chemistry, Architecture i.e., *Vāstuvidyā* or *Sthāpatya*, engineering, the profession of the physician *bhiṣaj* (though thoroughly despised in later literature), practice of medicine ***bheṣaja***, the wonderful knowledge of anatomy etc. can be discussed in the light of concepts related to common occurrence with the aid of prayers and praises found in Ṛgveda. Vedic deities are apart from anything else personified natural phenomena and each of them can be interpreted in the light of Physics which deals with laws of nature. The Agni which abides in water in the form of hydrogen (Ṛgveda 1.23.20 etc.) is nothing but energy which is one of the components of water, which is invoked to approach and fill man with vigour. It is a wonder indeed to say that there is no oxygen but hydrogen in the Sun and the Ṛgvedic seers in 1.23.17 expresses that there is water in fire and also in the Sun. The sun is referred to as the Creator because from the sunlight all the terrestrial creations have originated.

oṃ bhur bhuvaḥ svaḥ |
tat savitur vareṇyam bhargo devasya dhīmahi|
dhiyo yo na pracodayāt || -Ṛgveda 3. 62.10
-"May we attain that excellent glory of Savitar the God: so may he stimulate our prayers."
(R.T.H. Griffith's translation of the Ṛgveda).

Vedic Āryans knew very well that contact with sun-rays, the primordial source of energy, infuses medicinal or healing power in water. Ṛgveda (1.50.11) says, 'do thou, O Sun, remove the sickness of my heart and the yellowness (of my body)'. The *Aitareya Brāhmaṇa* (8.37.4) observes that rain-water charged with the rays of the sun is a medicinal or potent drink.

1.3.1

1. Again Agni is described as the remover of diseases - *amīvacātanam* and we have seen that the characteristic of heat or Agni as the remover of diseases was also known to the Vedic seers. The word *amīvacātanam* or *rogāṇāṃ nivā-rakaṃ* and *amīvānāṃ rogānāṃ ghātakam* means– 'disease removing' or 'as who drives away sickness'. This kind of use by the seers in the Vedic stanzas is indicative of their knowledge of Agni as having healing power – a kind of physiotherapy of modern medical treatment.

2. We have come across a huge number of Physical Science-related Vedic words/phrases in the *ādhibhautika* part of the stanzas dedicated to Agni of the Ṛgveda like *sahasas/balasya putra* 'the son of strength' etc.. A.B. Keith in *The Religion and Philosophy of the Vedas and Upanishads* (Harvard 1925) mentions in this connection of Agni's being credited with ten mothers, because friction is engendered by the action of ten fingers of both hands. Ṛgveda 1.27.2 says-

sa ghā naḥ sūnuḥ śavasā pṛthupragāmā suśevaḥ |
mīdhvān asmākaṃ babhūyāt ||

In substantiation of this view Macdonell (*Vedic Mythology*, Strassburg 1891 p. 9) refers to a passage of the Ṛgveda that states that Agni, the fire god is never separated from the element which he represents – "rubbed with strength is produced by men on the surface of the earth". Ṛgveda 6.48.5 says -

yam āpo adrayo vanā garbhamṛtasya piprati |
sahasā yo mathito jāyate nṛbhiḥ pṛthivyā adhi sānavi ||.

Now, it may be noted that the relation between Work or Force and Heat or Light is established by Joules much later i.e. only in the 18th century.

3. The expression *viśvabharasam* 'all-sustainer' (Ṛgveda 4.1.19) may be explained from the angle of Science as the thermal energy which is a must for sustaining the universe. From the perspective of modern-day researching it may be mentioned that this is the deduction from kinetic theory of matter which confirms the findings of Vedic seers.

4. In Ṛgveda 1.35.4 sunrays have been mentioned as polychromatic...*āsthād rathaṃ savitā citrabhānuḥ*...etc. the many-rayed adorable Savitṛ.... or two Ṛgvedic stanzas (1.50.8-9) mention seven rays as contained in the sunrays... *sapta tvā harito rathe*...thy seven coursers...and *ayukta sapta śundhyuvaḥ* ...the Sun has yoked the seven mares that safely draw his chariot.

   For describing the characteristic features of Agni in the Ṛgveda, the terms like *sapta-raśmi*, *sapta-jvālam* 'having seven rays' may be interpreted from the angle of Science as the presence of seven different colours (VIBGYOR) in visible white ray which is demonstrated by Newton as late as in 17th century. When heat energy reaches up to a certain height of temperature, fire glows maximum emitting white ray. First rays of the Sun contain less heat energy because of the wavelength with the earth all the rays are not dispersed. We do not get the total emission of sunrays at dawn; due to the spin motion of the earth actually the temperature gradually increases with the gradual rise of the Sun. The Sun is of unattainable brightness, when shines with wonderful lustre he is like the white Sun as the white colour contains all seven colours.. Again, there are 21 properties of fire… *tri sapta*… according to the Ṛgvededic stanza 1.72.6 and 1.72.8 it has been stated that seven rays emitted by fire are supporting this universe.

5. The fact that air excites Fire or Agni was known to Vedic seers much before the age of modern science. From modern-day scientific knowledge we know that air helps combustion where oxygen is a constituent, the fact came to be known only after the discovery of oxygen in a much later age. Without air i.e., oxygen nothing can burn and the flame will be brighter in contact with oxygen. From the references shown above may we not assume that the knowledge of the effect of air i.e. oxygen on burning was noticed by the Vedic seers long before the discovery of oxygen and its effect on air by Cavendish.

1.3.2

On analyzing these above-mentioned findings we cannot but be dumbfounded by the brilliance of the Vedic seers' wisdom in selecting Agni to act as messenger among all deities for sending their message of invitation to other gods in heaven, mid air and earth and bring them to the sacrificial altar and also for carrying sacrificial oblations to gods in three regions. In the Ṛgveda itself

we find the concept of light as the speediest element. Agni is the messenger of man to reach the oblations to the gods and who else than the fire is the most suitable who has been stated as speedier than the mind '*manojuvā'*

1.3.3

Now the question is why this selection of Agni as messenger or oblation-bearer, while other gods endowed with great physical attributes like the ever-moving (*satata-gamanaśīla*) Maruts and the most powerful Indra were left out to act as the same? Modern science has shown that nothing can travel faster than light. When the velocity of sound is 3.5 x 104 cm/second, light travels with a velocity of 2.99 x 1010 cm/second. Light takes about 8.25 seconds to travel from the sun to the earth. Moreover thunder or sound needs a medium for propagation, but light does not. It can travel to any region, celestial or on the earth, most rapidly and without any medium. In 1690 a Dutch Physicist Huygens presented a theory and proved that light travels in the form of waves in all directions. As the propagation of light occurs also in vacuum Huygen postulated vehicle for these waves an omnipresent, all-pervading, universal and continuous medium called luminiferous ether. So the selection of Agni i.e. light as accepted messenger of the gods and bearer of oblation by various seers in the Ṛgveda confirms the presence of pragmatic realization of a scientific truth in their imagination and observation that Agni i.e. light is the fastest moving, travels in all directions and all-pervading which is imagined and proved by the Physicists at a much later stage.

This kind of attempt towards explaining existence of scientific concepts in Vedic literature is of great value that cannot be denied by large.

1.4 Conclusion

To conclude, we may say that Vedic literature may not contain everything but what it contains is no doubt stupendous and a rich storehouse of not only our past but also of human knowledge system. A celebrated scientist like the stature of no other than Dr. Meghnad Saha did acknowledge the importance of the Vedas and the other ancient texts when he dealt with the problems of calendars in depth, despite pointing out their limitations too. By further researching into the different phases of scientific history and development it is possible to shed considerable light on the causes and motivations behind the ancient Indian scientific traditions. There is little doubt that the ancient Indians had a high realization of natural phenomena. The manner in which these natural phenomena with all their scientific elements shook the minds of the ancient seers points to the earliest stage of scientific thought.

Should it be called pre-scientific stage of man's intellectual realization?

References

1. This is an excerpt from the address at the seminar on 'Scientific Dating of Ancient Events before 2000 BC', New Delhi July 30, 2011.
2. 1941, vol.2.1, p. 680; quoted in *Vedic Domestic Fire-Ritual : Sthālīpāka (Its Performance & Exposition)* by Mutashi Tachikawa and Madhavi Kolhatkar, Delhi, 2006.
3. Ṛgveda 1.12.7 and 7.8.6.
4. Ṛgveda 1.12.7; 7.8.6.
5. Wilson comments though, "...they can scarcely be referred to as the prismatic rays, although the numerical coincidence is curious".
6. Ṛgveda 1.66.3.
7. Ṛgveda 1.66.3.
8. Ṛgveda 1.23.3 etc.