

BIOLOGICAL FACTORS IN THE VEDA AND THEIR IMPACT ON THE ECOLOGY

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[The nature is an ecosystem. The biological components, i.e., sun, moon, earth etc., the part of the nature maintain close relationship with others for their survival in the ecosystem. Highly influenced by the natural powers, i.e., heat, raining, storm, lightning, big stone etc., the Vedic seers started to worship them superimposing a deity behind each and every phenomena of nature. They eulogized and tried to satisfy them so that they would not make any harm to them and protect them in each and every danger. The Vedic seers were great scientists and ecologists. The inter relationship of the natural objects were well noticed by them in ecological manner in the Vedic mantras.

In the paper entitled "Biological Factors in the Vedas and their Impact on the Ecology", a modest attempt is made to find out the impact of biological factors towards the Ecology, taking the Vedic verses in mind.]

Introduction

Vedas are the great sources of knowledge. They reveal the early history of mankind, dealing with the social, cultural, religious, political, geographical, historical background of ancient India. The term *veda* is derived from root *vid*, to know with the suffix *ac* which primarily stands for the knowledge and secondarily for the vast body of ancient Indian literature. Dayānanda Sarasvatī etymologies the term *veda* as *vidanti*, *jānanti*, *vidyante bhavanti*, *vindati vindate labhante*, *vindate vicārayanti sarve manuṣyāḥ sarvāḥ satyavidyā yairyeṣu vā tathā vidvāmsaśca bhavanti te vedāḥ*, i.e. the Vedas are those scriptures by which man can attain true knowledge, by the study of which one becomes learned, which helps man in acquiring knowledge or sets man to think about knowledge.¹

The Vedas are called *śruti*, as they were preserved by means of oral tradition for long time. On that period, there were no pages and ink to write with. Under the guidance of efficient teachers, the Vedic mantras and activities were practiced by the students in

different branches of the Vedas, by means of recitation and sacrificial order.

Concept of deity in the Vedas

The Vedas are the great collection of verses dealing with different activities of different deities. Indeed, the worship of different phenomena of nature and earthly things has given rise to the concept of deity in the Vedic religion. The ecological order of the nature is symbolically portrayed in such mantras of the Vedas.

The Vedic seers were amazed to see the sublime and useful aspects of the universe along with their vivid applications. They comprehended the true significance of the different activities of natural objects and described them with different expression in various forms of worship. Thus, in the Vedas developed the idea of worshipping deity behind each and every phenomenon of nature.

In the *Introduction to Science of Religion*, supporting the theory of naturalism, F. Max Müller holds the view that religion sprang from spontaneous emotional reactions of wonder, awe and fear evoked in man by natural phenomena, such as the sun, the moon, rain, lightening etc. Impressed by these powerful and inexplicable forces of nature early man reacted with the emotional attitudes and behaviour to which the common people gave the name of religion.²

The Vedic texts represent a class of religious works. They have discussed different traits of different deities of nature. The philosophy of Veda is supported by the theory of naturalism. The Vedic people, highly influenced by the natural objects i.e., afraid and astonished of by storm, lightning, big stone etc. started to worship the natural objects with great devotion. And, thus, there occurred the religious devotion towards the natural objects in the mind of Vedic Aryans of India. The natural phenomena became the object of their worship and occupied the form of deity.

The Vedic deities and their relation with the Biological Environment

The *R̥gvedasamhitā* is the earliest one among the four samhitās, which marked the beginning of religious consciousness among the Āryāns to recognise a deity behind each and every phenomenon of nature. They used the term *deva*, ($\sqrt{\text{div}}$, to shine) for divine concept

which was also taken from nature. It is used as an epithet of the fire, the sky, the sun, and to all the shining phenomena of nature. Sāyaṇa in his commentary of the *Ṛgveda* has used the term *dīpyamānaḥ*,³ i.e., shining, *dyotamānaḥ*,⁴ i.e., shining etc. as the meaning of the term *deva*. It is said in *Nirukta*, *deva dānādvā, dīpanādvā, dyotanādvā dyusthāno vā bhavatīti*,⁵ i.e. *deva* is called so for making gifts (here the root is *dā*) or from being shining (here the root is *dīp*), from being radiant (here the root is *dyut*) or because his abode in heaven. Finally the meaning of the term *deva* became extended and in a more liberal sense, it was applied to the phenomena like sun, earth, wind etc.

Thus, all the natural powers, occupied the form of deities in the Vedic world. The pressing stones, i.e., mortar and pestles, used in the preparation of *soma* juice,⁶ music drums used in the battle fields, arms, arrows⁷ all are the deities of Vedic period.

Among the biological factors worshipped in the Vedas, Aditi occupies the supreme position as she is delineated as the mother earth in the Vedas. *Aditirdyaurraditirantarik śamaditirmātā sa pitā sa putrah/ viśve devā aditiḥ pañca janā aditirjātamaditirjanitvam*!⁸ According to it, Aditi is the heaven, Aditi is the mid air, Aditi is the mother, the Sire and Son. Aditi is all the gods, Aditi is five classed men, Aditi all that hath been born and shall be born. It directs that in the earth whatever is happening or whatever to be going to happen in the creation all are due to the god Aditi. She is described as the nature in the Vedas. Sūrya is mentioned as the son of her – *āyam gauḥ pṛśnirakramīdasadanmātaram purah/ pitaram ca prayantsvaḥ*, i.e. this spotted Bull hath come, and sat before the Mother in the east, advancing to his father heaven.⁹ In this line the movement of Sūrya is cited from the east direction to the west. All these viewpoints are taken from the practical sight. The sky or the Dyaus is the father of Sūrya. Not only of Sūrya, but Dyaus is regarded as the universal father, and Aditi is the mother. Both the Dyaus and Aditi are called together and worshipped in the form of *Dyāvapṛthivī* in several mantras of the Vedas.¹⁰ They are worshipped for swelling of the food.¹¹ Indeed, it indicates the biological process of conceiving the rain, produced in the sky by the earth for the growth of vegetables. Along with Indra, Dyaus is also worshipped in the Vedas for raining. The complete hymn of RV, 6.17 is devoted to Dyaus for its aspect of raining.

Sūrya is the one of the most important biological component that prayed in the Vedas. He is the concrete sun. Sūrya beholds the whole universe from the sky.¹² The deity is worshipped in different forms for his different aspects and positions in the sky. Mitra, Varuṇa, Parjanya all are the sun-god indeed. As soon as he rises in the sky, bestows life on each creature. Therefore, he is called *prāṇa* i.e., the life of the whole universe.¹³ Sūrya is the great energetic force of the universe. Helping in the process of photosynthesis and food production, he provides energy towards all the beings. Though several sources of energy are available for exploitation on earth, i.e., geothermal, nuclear decay etc., but sun is the largest source of energy for an ecosystem. An ecosystem consists of inorganic constituents (air, water and minerals, salts); organisms (plants, animals and microbes) and energy input which enter from outside (the sun). Energy and nutrients are passed around through the food chain when one organism eats another organism. Energy flow in an ecosystem would begin with the autotrophs, i.e., green plants etc. which take direct energy from the sun. By the process of photosynthesis, taking the energy from the sun, they produce food and become the source of energy for the herbivores, i.e., plant eating animals. The herbivores again become the source of energy for the Carnivores, i.e., flesh eating animals. Finally, other carnivores prey on the carnivores. Any energy remaining in a dead organism is consumed by decomposers, i.e., bacteria, fungi etc. Nutrients can be cycled through an ecosystem. In each case, when energy, passed on from one trophic level to the next, lost some energy as heat towards the environment. This is due to the fact that each organism must use some energy that they received from other organisms in order to survive. Thus, Sūrya, the sun remains as most common source of energy in every ecosystem. It, as the source of heat and light, invoked so many times in the Vedas.¹⁴

In water cycle also, energy and heat, supplied by the sun occupies an important place. It drives the evaporation from ocean surfaces or from treetops. Evaporation is the process by which liquid water becomes gaseous. The clouds, i.e., water vapors move from one place to another due to the power of sun. Therefore it becomes raining everywhere, not only over the oceans. Rainfall is necessary for any ecology that survives in an environment. The Vedic seers noticed the importance of Sūrya in the process of

raining and uttered the verse where waters are mentioned to be contiguous to the sun.¹⁵ The absorption of water by the sun is well mentioned in the *Rgvedasamhitā*. Sūrya absorbs the water and releases it down towards the earth.¹⁶ Sāyaṇācārya explains - *ayamādityaḥ suyantubhiḥ sugamanaiḥ sarvaśāsaiḥ sarvasya śāsakaiḥ abhīsubhiḥ raśmibhiḥ krivikartā nāmāni nāmakānyudakāni pravane nimne bhūpradeṣe muṣāyati muṣṇāti ādatte*. The sun sucks up the waters from the earth and again pours it down. The rays of the sun descend into the earth and rise again to the heaven with the moisture. It again descends to the earth in the form of fertilizing rains.¹⁷

It is found in the Vedas that prior to the elevation of Sūrya, the whole universe was enveloped in darkness by Vṛtra, the shades of night.¹⁸ This drives the concentration of an individual towards the period when there was no creation. Indra to render all the things visible elevated Sūrya in the sky.¹⁹ Indra is the rain god. His fight with Vṛtra or thunderbolt is very famous.²⁰ Slaying down the Vṛtra with the help of Viṣṇu, Indra releases the rain and makes the sun and the sky visible to all.

Besides these, Varuṇa is worshipped as the deity of water in the Vedas.²¹ Without the water, organisms cannot survive in an ecosystem. For such, the Vedic worshippers worshipped the water god by uttering, *ādharayataṁ pṛthivīmuta dyām mitrarājānā varuṇā mahobhiḥ*/²² Varuṇa is the supporter of the heaven, the earth and the air. Everything in the universe is under the control of him.

The earth, sky, sun, rain, water are the important biological factors, necessary for an ecosystem. The Vedic Aryans have worshipped them, deifying in the form of deities. Besides these, Agni, the fire, Uṣas, the dawn etc. are also worshipped in the Vedic hymns due to their different aspects.

A look on the Vedic ecology

Environment and ecology are two terms profusely used in the field of Biology. Both these two terms are closely connected. The whole complex of factors that influence the form and the ability to survive of a plant or animal or ecological community is called environment. Again, the scientific study of the relationship between plants or animal etc. and their environment is known as

ecology. Ecology is the study of each individual's and each species' or association of species' requirements and of their limits of tolerance in relation to environmental factors.²³ It studies the exchange of energy and matter between living beings and between living beings and the non living elements of the environment. F. E. Round holds that ecology is the study of the organisms in their natural environment and therefore the organisms and environments are of equal concern to the ecologist. The environmental factors include the anomalous properties of water, the solubility of gases and solids in water, the penetration of light, and temperature density relationships while organic factors include intrinsic growth rates, life cycles, and dispersal mechanisms of species.²⁴

The Vedic seers were the worshipper of nature. Nature remains as integral part of human life from early childhood till death. In early Vedic period, people maintained close proximity with nature. Love and harmony were observed in their relation, i.e., among the living beings and the entire environment. They were one with nature. Becoming the part of nature, the Vedic seers studied the behaviour of each and every phenomenon of nature, studied their inter relationship. Air, water, sun etc., the part of environment became the object of their worship. They invoked the air to become so pure that no impure object will ever dare to enter the atmosphere.²⁵ They thought such in a way because; they had utmost care for it. Again they showed their gratitude towards the water which purifies everything. They worshipped, *āpo asmānmātarah śundhayantu ghr̥tena no ghr̥tapva punantu/ viśvam hi ripram pravahanti devīrudidābhyah śucirā pūta emi*²⁶, i.e. may the maternal waters, purify us; may the shedders of water purify us with the effusion; for the divine (waters) bear away all sin; I come away from them purified (to heaven). In the same way the Vedic people worshipped the sun, the moon, the earth etc.

The Vedic worshippers were great scientist and ecologist indeed. They observed their surrounding environment with great care and devotion. They understood the inter relationship of natural objects, i.e., ecology. Discovering the inter relationship of the natural elements, they praised them. They found out the relation of fire and wood, relation of water and sun, relation of thunder, cloud and rain and so on. Agni is worshipped as the child

of wood in the *Rgveda*.²⁷ Indeed it signifies the flaming power of wood inheres in it. Again, sun is called as the abode of water as he extracts the water from the seas.²⁸ The Indra-Vṛtra myth is famous myth of the Vedic literature. In that myth, it is said that with his bolt Indra shattered Vṛtra.²⁹ The myth also says about Vṛtra's birth. According to the myth, Vṛtra, the cloud births from the smoke of sacrifice. In real, the cloud maintains close connection with smoke. The bolt of Indra is none but the thunderbolt.³⁰ Indra is the thunder god. As a result of their fight, water releases from heaven, Sūrya becomes visible for man, and rain enters to the earth. Raining is necessary for agriculture. The Vedic seers understood this great science of production. With a view to bring down the rain towards the earth they tried to satisfy Indra. They worshipped Indra as the supporter of earth.³¹ All the creation is called *yajña*, because it is by sacrifice the creation rolls in the earth.³² Understanding the energetic power of Sūrya, its light and heat they prayed him also. Thus they showed their reverence and responsibility towards the environment. They studied the ecology of the natural objects. Their awareness towards the nature is reflected in different Vedic verses—*mā'po mauśadhīrhi sīrdhāmno dhāmno rājastato varuṇo no* etc.³³ they worshipped Varuṇa not to harm the waters, not to damage the plants for the welfare of the environment.

Conclusion

Thus the different biological factors are worshipped in the Vedic literature. One can't draw out the scenario of nature without them. Time and tide get changed, but the great forces of environment, i.e., earth, sun, water etc. remained unchanged. Our ancestors were aware of the powers of such components of nature for why they had praised them, tried to satisfy them and worshipped them by means of mantras. Not only in the Vedas, in the Purāṇas and Epics also, were they worshipped in the form of deities for their divine concept. The Vedic worshippers, the great scientists and ecologists, examined the importance of these objects of environment. They studied the ecology, and made the path easier for the modern ecologists to know the importance of such objects of nature. With utmost care the Vedic people protected the environment. In return, the natural objects also guarded them being father, mother or protector of them.

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- ¹ *Ṛgvedādibhāṣyabhūmikā*
- ² Vide, Choubey, Braj Bihari, *Treatment of Nature in the Ṛgveda*, p. 48
- ³ R.V., 1.19.6
- ⁴ *ibid.*, 2.38.1
- ⁵ Nir., 7.15
- ⁶ R.V., 1.285.6
- ⁷ *ibid.* 6.75
- ⁸ *ibid.* 1.191.6
- ⁹ R.V., 10.189.1; V.S., 3.6
- ¹⁰ R.V., 1.159.5; 2.32.1
- ¹¹ *cf. ūrjam no dyauśca pṛthivī ca pinvatām pitā mātā viśvavidā sudamśasā/ samrārāṇe rodasī viśvsambhuvā sanim vājam rayimasme saminvatām// ibid.*, 6.70.6
- ¹² *ibid.*, 10.85.1; *cf. tvamantariḡṣe carasi sūryaḡ, Praśnopaniṣad*, 2.9
- ¹³ *cf. udayannu khalu vā ādityaḡ sarvāni bhūtāni prāṇayati tasmādenam prāna ityācakṣate*, A.B., 25.6.; *prāṇaḡ prajānāmudayatyeṣa sūryaḡ, Praśnopaniṣad*, 1.8.
- ¹⁴ R.V., 1.113. 9, 16; 1.59.3
- ¹⁵ *ibid.*, 1.23.7
- ¹⁶ *cf. pra va ete suyujō yāmaniṣṭaye nīcīramuṣmai yamya ṛtāvṛdhaḡ/ suyantubhiḡ sarvaśāsairabhiśubhiḡ krivirṇāmāni pravaṇe muṣāyati// ibid.*, 5.44.4
- ¹⁷ *ibid.*, 1.164.47
- ¹⁸ *ibid.*, 1.33.8
- ¹⁹ *ibid.*, 1.7.3; 1.51.4
- ²⁰ *ibid.*, 4.18.11
- ²¹ *ibid.*, 7.87.1
- ²² *ibid.*, 5.62.3
- ²³ Vide. Vannucci, M., *Human Ecology in the Vedas*, p. 76
- ²⁴ Vide. Round, F. E., *The Ecology of Algae*, p. 1
- ²⁵ Ś.B, 1.1.3.2
- ²⁶ R.V., 10.17.10
- ²⁷ *ibid.*, 6.3.3
- ²⁸ *cf. āpaḡ sūrye samāhitaḡ*, T.A., 1.8.1
- ²⁹ R.V., 1.32.5; 10.89.7 etc.
- ³⁰ Vide. Macdonell, A.A, *Vedic Mythology*, p. 55
- ³¹ R.V., 2.15.2

³² *ibid.* 10.90.16

³³ *ibid.* 1.90.6,7,8; V.S., 6.22; 6.28

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