

# Conceptual Bases of Vedic Technology

PREM SAGAR CHATURVEDI

It is now well-nigh affirmed that there is no dearth of creative skills and technological actions in the Vedic literature. A number of technologies relating to wood, leather, basketry, textile, lithic, ceramic and others were being practiced by the Vedic-Aryans quite deftly and with a high degree of workmanship.<sup>1</sup> Very often, the technological feats of the age have been expressed by the different derivatives of the Sanskrit root *takṣ*, Greco-Roman *technos*, Avestan *tas*, etc., meaning to fashion, fabricate etc.<sup>2</sup> which sired the modern English term 'technology'. The allusions to root *takṣ* and its cognates in a number of Indo-European languages<sup>3</sup> seem to provide us with the very substratum for the evolution of the later day technology.

Apparently, what we perceive of a technological function is a kind of manual action expressed through certain skills, innate in the person of a technician which gain significance by their physical outcome. In the process, whatever is apparent becomes so prominent that rarely do we think of the underlying ideas and concepts bringing into fruition the concerned technological act. Obsessed with the external expression of such an act we define the man in the parlance of early technologies as a 'tool-maker' or 'homo faber' because the evidence of his tool-making activities are found in abundance throughout the ages in the shape of different artifacts. While framing such kinds of definitions we hardly consider that behind every kind of technological action there is a preconceived idea, a notion, a concept, originating in the mind which propels the concerned action in a systematic and organized manner. However, for any technological act, to come to fruition, a correlation of the mind and physical act is a must and in the absence of any one of these, the technology is sure to remain a non-starter. This means that technologies are at first envisioned in the mind and then replicated into actions. In the ancient Indian tradition, this has aptly been expressed by Yāska in his *Nirukta* (III.7) where he defines men as

*matvā karmāṇi sīvyanti*, 'those, who after thinking weave their actions.' Thus, thinking and action are the two interrelated characteristics of man in which thinking precedes human actions. Technology is, hence, an activity, which involves both mind and manual action, the latter being processed by the former.

Interestingly, in the Vedic literature and especially in the *Ṛgveda*, a creative or technological act is often assumed to be the outcome of an inherent mental or spiritual power referred to variously by the terms *śacī*, *māyā* and *viṣṭi*. An analysis of the contextual data relating to these terms makes the sense abundantly clear.

### *Śacī*

The term *śacī* is mentioned many times in the *Ṛgveda*. It has rightly been interpreted by Sāyaṇa as *prajñā* i.e. knowledge or intelligence or mental faculty (*śacīti prajñānāmaitat*, IV.20.9). Several kinds of creative skills and technical acts have been described as being inspired by *śacī*. In the *Ṛgveda* (IV.56.3), one of these acts is the creation of heaven and earth by Prajāpati evidently by the power of *śacī*. In the *Ṛgveda* (X.89.4), heaven and earth are assumed to have been fixed on two ends by the *śacī* of Indra as the wheels of a chariot are fixed by the axle:

*Yo akṣeṇeva cakriyā śacībhi viṣvaktastambha pṛthivīmuta dyām*

Some of the marvellous acts of the Aśvins are alluded to as flourishing from this mental faculty. It is said that with these faculties they have enabled Parāvṛja to walk, the blind (Rjṛāśva) to see and the cripple Śroṇa to go and with the same they have set free the quail when a wolf seized it:

*Yebhiḥ śacībhiṣṣaṇā parāvṛjam prāndham śroṇam cakṣasa eta ve kṛthaḥ!  
yābhirvartikām grasitāmamuñcatam tābhirūṣu ūtibhiraśvinā gatam //*

*RV., I.112.8.*

It is this faculty by which Aśvins have rendered the aged Cyavana young:

*yuvam cyavānamasvinā jarantaṁ punaryuvānam cakrathuḥ śacībhiḥ*

*RV., I.117.13.*

The wondrous acts of the Ṛbhus, the famous artificers also originate from *śacī*. In the *Ṛgveda*, IV.35.5, they have been accredited with making their parents young, fabricating the *camasa*, the drinking bowl of the gods, and shaping the two horses of Indra swifter than an arrow from a bow:

*śacyākarta pitarā yuvānā śacyākarta camasam devapānam /  
śacyā harī dhanutarātaṣṭendra vāhāvṛbhavo vājaratnāḥ //*

In another passage (III.60.2), all these feats have again been described along with the shaping of a cow from the leather of a dead one:

*Yābhiḥ śacībhiścamasan apimśata yayā dhiyā gāmarinūta carmaṇaḥ /  
yena harī manasā nirataḥsata tena devatvamṛbhavaḥ samānaśa //*

Here, *śacī* stands equated with *dhiyā* i.e. intelligence as being instrumental in the execution of this act. The creative abilities of the Ṛbhus find expressions differently in a number of other passages. The *Ṛgveda* (I.III.1) alludes, "The Ṛbhus possessed of skill in their work, constructed (for the Aśvins) a well-built chariot; they framed the vigorous horses bearing Indra; they gave youthful existence to their parents; they gave to the calf its accompanying mother." A number of passages (*RV.*, I.20.6; 110.5,161.2; 4; IV.33.5, 35.2; 3; 4; 5; 36.4.) depict their marvellous feat of turning a single *camasa*, the drinking bowl of the gods, into fourfold. Likewise, in several verses, they are referred to as fashioning riches (*ataḥsantvṛbhavo rayim naḥ*, *RV.*, IV. 33.8; also, IV. 33.10; 11; 34.2; 5; 7; 10; 35.6; 8. etc.). They are also the givers of valiant progeny. In the *Ṛgveda* (X. 80.7), they are spoken of as fabricating praise for Agni and sacrifice for the sacrificer (*adhvaramataṣṭa*). In IV.33.7, they are accredited with making the fields fertile, leading forth the rivers, causing the plants sprung upon the waste and rendering waters spread over the low places:

*sukṣetrākṛṇvannanayanta sindhūn dhanvātiṣṭhannoṣadhīrnimmāpaḥ*

Other things that they are sought to bestow include prosperity and wealth in cattle, horses and heroes and also vigour, nourishment, offspring and dexterity (*RV.*, I.111.12). All these acts are the outcome of the inherent mental power of the Ṛbhus, often referred to as *śacī* and *dhī*.

### Māyā

Another term which, stands for innate creative energies and is equivalent in meaning to *śacī* is *māyā*. Sāyaṇa often grasps it as a synonym of *śacī* and interprets it as a mental power or intelligence—*śacī māyā' iti prajñā nāmasu pāṭhāt*. As a creative energy, it is found associated with a number of deities such as Agni, Aśvins, Varuṇa, Mitra, Tvaṣṭṛ and Indra. It is the energy by which Agni purifies all the worlds:

*sa vahniḥ putraḥ pitroḥ pavitravānpunāti dhīro bhuvanāni māyayā/*

*RV., I.160.3*

He is found investing the heavens, the waters and the clouds over the unbounded firmament by the energy of *māyā*. When invoked during the sacrifices, the immortal Agni graces the occasions at first so that he may direct the ceremonies by his *māyā*:

*hotā devo amartyaḥ purastādeti māyayā/  
vidathāni pracodayan // RV., III.27.7.*

Asvins are also assumed to be possessed with this power, as they sunder apart the wickerwork for the liberation of the terrified (V.78.6). In some of the passages, *māyā* is described as a creative energy of Varuṇa, who, abiding in the mid-heaven has meted the firmament by the sun as if by a measure (RV.; V. 85.5). The running of water shedding rivers towards the oceans is also a wonderful act of Varuṇa (RV.; V.85.6), obviously impelled by his *māyā*. He is spoken of as encompassing the entire universe by such kinds of wondrous acts (RV.; VIII. 41.3). In some of the passages Varuṇa has been mentioned in the company of the deity Mitra. Both of them are spoken of as causing the variegated clouds in the sky (*citrebhirabhrairupa tiṣṭhatho*), sending down the rains and sustaining the sun (*sūryamā dhattho*) by their combined energies. The *Ṛgveda* (X.53.9) alludes to the fashioning of the drinking vessels of the gods by Tvaṣṭṛ, the divine artificer, and refers to the knowledge of his craft as *māyā*.

*tvāṣṭā māyā vedapasāmapastamo bibhratpātrādevapānāni śaṅtamā*

Amongst all the Vedic deities, Indra is unique in the sense that he stands as the main repository of *māyā*. Several passages in the *Ṛgveda* refer to this energy of Indra in generating innumerable forms and causing destruction to his enemies. He is said to have fixed the mountains, directed the course of waters downwards, upheld the earth, the nurse of all creatures, and stayed the earth from falling:

*sa prācīnanparvatāndṛṃhadōjasā dharācīnamakṛṇodapāmapaḥ/  
adhāryatpṛthivīm viśvadhāyasamastabhñānmāyayā dyāmavasrasaḥ //*

*RV., II.17.5*

He has generated the sun, the dawn and the firmament:

*ātsūryam, janayandyāmuṣāsam,*

*RV., I.32.4*

He has spread abroad upon the earth by his *māyā* the swollen Sindhu (RV., IV.30.12). Being capable of affecting the desired form, Indra

can manifest himself in any form:

*ni māyino mamire rūpamasmin,*  
RV., III.38.7.

He is, therefore, called the omniform (*pururūpa*, RV., VI.47.18) as every visible form is a prototype of Indra himself (*rūpam rūpam pratirūpo babhūva*). The sense has been rendered beautifully in the *Rgveda* (III.53.8) "Maghavāna becomes repeatedly manifest in various forms by employing *māyā* with respect to his own peculiar person." *Māyā* is rightly explained by Sāyaṇa as the potency to assume different forms (*anekarūpagrahaṇa sāmārthya*) or as *jñāna* i.e. intelligence. It is with this power that he strikes down his enemies such as Namuci (RV., I.53.7), Ahi (RV., II.11.15; V.30.6). Vṛttra (RV., II.11.9), Dasyu (RV., III.34.6), Yātudhāna (RV., VII.104.24) etc.

The concept of *māyā* as an innate principle of creativity, sketched in this earliest treatise of the Āryans is of considerable significance for in the highest philosophical gropings of the later days specially in the systems of Vedānta, the entire phenomenal existence is assumed to be springing forth from this generative principle.

### *Viṣṭi*

That there is a potent mysterious power, manifesting itself into creative skills of extraordinary importance is also evident from the root, *viṣ* 'to be active'<sup>4</sup> and its several derivatives *viṣṭi*, *viṣṭvi*, *veṣaṇa*, *viveṣa*, *veviṣat*, etc. The term *viṣṭi* occurs in the *Rgveda* (I.20.4) in reference to the *Rbhus* who are said to have rejuvenated their parents through their *viṣṭi*:

*Yuvānā pitarā punaḥ satyamantrā rjūyavaḥ /*  
*r̥bhavo viṣṭyakṛta //*

Obviously, *viṣṭi* stands here for a mysterious power transformed into an extraordinary creative skill. Veṅkaṭamādhava rightly interprets it as glyptic skill (*takṣaṇa karma*, Veṅkaṭamādhava on the RV., I.20.4). It is noteworthy that there are a number of passages (I.20.4; 110.8; 111.1; 161.3; 7; IV.33.3; 34.9; 35.5; 36.3) in the *Rgveda* which describe among the uncommon acts of the *Rbhus* the glorious feat of rejuvenating the parents who are spoken to be old and infirm (*sanājurā*, RV., IV.36.3) and lying as decaying posts (*yūpeva jaraṇā śayānā*, *Rgveda*, IV.33.3). A reference to the same further occurs in the *Rgveda* (IV.33.2), wherein it has been expressed by the term *veṣaṇa*. Sāyaṇa, who erroneously expounds *viṣṭi* in the earlier passage as *vyāptiyuktāḥ* 'having pervaded' equates *veṣaṇā*, i.e. the



rejuvenating of old and aged parents, with the acts of fashioning the *camas* (*camasanirmāṇādikarmabhiḥ*, Sāyaṇa on the *Ṛgveda*, IV.33.2) Indirectly, like, *viṣṭi*, *veṣaṇa*=*veṣaṇā* also connotes an inherent power to create the objects.

To corroborate this meaning, we would refer to some other passages of the *Ṛgveda*. In I.92.3, it has been mentioned: *arcanti nārīrapasona viṣṭibhiḥ samānena yojanenā parāvataḥ*- 'the Dawn damsels, as they engage in action illumine'<sup>5</sup> the sky, the entire firmament, through their *viṣṭi*. The idea, which *viṣṭi* conveys in this picturesque account, is the wondrous act of the illumination of the sky and firmament, which resemble the colourful painting of floors and walls of a house (Skandasvāmī uses the term *upalepana* on the *ṚV*, 1.24). In other words, *viṣṭi* is used here in the specific sense of skill expressed through artistic actions<sup>6</sup>.

We come across the terms *viviṣmaḥ* and *viviṣtaḥ* in some of the passages of the *Ṛgveda*. In VI.23.6 we read:

*brahmāṇi hi cakṛṣe vardhanāni tāvatta indra matibhiḥ viviṣmaḥ-*

'O Indra, you have composed the auspicious hymns so also we have created them through intellect'.

Here, the term *viviṣmaḥ* encompasses the power to create the literary compositions comparable to those fashioned by Indra. The *Ṛgveda* (X.117.9) makes an allusion to *viviṣtaḥ* and avers that though both the hands are equal, they are not endowed with similar potency to work:

*samau ciddhastau na samam viviṣtaḥ*

Evidently, it is the capability to act, perform, or work, which has been referred to by *viviṣtaḥ*.

It is to be noted that in comparison to ordinary creations, the different derivatives of the root *viṣ* signify a kind of mysterious or divine power converging itself into creative skills. This can be rendered clear by certain examples.

The Ṛbhū, who because of their glorious acts are compared to the priests named Vāghataḥ in the *Ṛgveda* (I.110-4), are spoken as:

*viṣṭvī śamū taraṇitvena vāghato martāsaḥ santo amṛtatvamānasuḥ*

'the priests through action speedily brought about the *viṣṭvī*, although mortals, they obtained immortality'.

Here, *viṣṭvī* stands for that mysterious power which enabled the Ṛbhū to fashion a drinking bowl (*camasa*) by joining together its four parts. Interestingly, it is by this mysteriously potent action that

the Ṛbhū who were ordinary mortals, obtained immortality. The sense becomes further clear from the *Ṛgveda* (III.60.3), where, as in the previous context, *viṣṭvī* occurs in association with *śamī*, another term denoting good actions. It has been stated that the sons of Sudhanvan, i.e. the Ṛbhū obtained immortality because of *viṣṭvī*:

*saudhanvanāso amṛtatvamerire viṣṭvī śamībhiḥ sukṛtaḥ sukṛtyayā*

In fact, there are several allusions in the *Ṛgveda* which explicitly describe that the Ṛbhū were common mortals but because of their marvellous creative feats they rose to the ranks of gods.

In the *Ṛgveda* (X.94.2), this mysterious power is assumed to be inherent in a grinding stone used in the ritual extracting of the juice from the Soma creeper. It is stated that the grinding stone of benign action obtained *viṣṭvī* inasmuch as it tasted the oblations before the priest:

*viṣṭvī grāvāṇaḥ sukṛtaḥ sukṛtyayā hotuścitpūrve haviradyamāśata*

Mysterious power manifesting itself into creative skills, as alluded to by the root *viṣ* and its derivatives, finds its culmination in the concept of Viṣṇu, a prominent deity of the Vedic pantheon. Derived from the root *viṣ*, Viṣṇu literally means to perform action, to pervade and to enter. There is no doubt that in several passages, he emerges as a Creator – god, Most illustrative among them is:

*viṣṇuryoniṃ kalpayatu tvaṣṭā rūpāṇi pīmśatu,*  
RV., X184.1

‘Viṣṇu prepares the womb and Tvaṣṭṛ adorns the forms’.

In this context, both Viṣṇu (from the root *viṣ*, ‘to be active’) and Tvaṣṭṛ (from the root *tvakṣa* which is similar to *takṣ*, ‘to fashion’) are mentioned in connection with the fashioning of the world. It is being assumed that creation of multifarious facets of the world is the product of the joint venture of Viṣṇu and Tvaṣṭṛ. In the process, the former performs the foundation work by preparing the womb, whereas the latter carves the superstructure by creating different forms.

That Viṣṇu is a prime creator of the world is evident enough from a short hymn of three stanzas in the tenth book of the *Ṛgveda* (X.15.3). It commences with an invocation to Viṣṇu to help the formation of the female womb as a breeding place for children. “May Viṣṇu form and mould the womb”, so opens the hymn. Other gods, Tvaṣṭṛ the artificer, Prajāpati the creator, and Dhātār the preserver are also invoked to play their specific roles in the entire process of

successful human procreation. Significantly, the entire corpus of the Vedic literature is replete with the parallels of embryology in reference to the manifestation of creative and technical skills.

From the foregoing analysis of the meanings of the terms *śacī*, *māyā*, and *viṣṭi* in the *Ṛgveda*, it is quite evident that in the earliest concept of technology, the works involving creativity or application of techniques were perceived as proceeding from a latent mysterious power inherent in the creator. These notions could not remain confined to the *Ṛgvedic* people alone; they left their lasting imprint on the Indian thought of the later times. The doctrine of *māyā* as elaborated in the philosophical systems of *Vedānta* or that of *Vijñāna* in the Buddhist school of *Vijñānavāda* has basically been built up on the edifice of these rudimentary ideas. *Māyā* in the *Vedānta* philosophy is not a human construction. It is prior to our intellect and independent of it. It is verily the generator of things and intellects, the immense potentiality of the whole world.<sup>7</sup> Likewise, in the *Vijñānavāda*, *Vijñāna* or consciousness stands at the substratum of entire existence (*sarvaṃ buddhimayaṃ jagat*). To it, matter is an idea and nothing more. Things are clusters of sensations. The objects of knowledge are either ideas actually imprinted on the sense, or those perceived by attending to passions and operations of the mind. External objects independent of consciousness are not intelligible<sup>8</sup>.

It is not our objective to discuss here the soundness or unsoundness of the philosophical notions, which give primacy to a kind of unmanifest power or energy over its actualization through creative actions. All that we intend to state is that there existed an intellectual tradition right from the times of the *Ṛgveda* which conceived of all sorts of creations as emerging from a latent mysterious power, called variously as *śacī*, *māyā*, or *viṣṭi*. This acquires immense significance from the standpoint of technology, as a technician is assumed to accomplish an act by the potency of a mysterious and mental power inherent in his person. The notion made its lasting impact on the ancient Indian art tradition where an artist is viewed as an agent replicating the powers of Viśvakarman, the divine repository of technical skills, through his meaningful actions.

#### NOTES AND REFERENCES

1. P.S. Chaturvedi, *Technology in Vedic Literature*, New Delhi: Books and Books, 1993; P.S. Chaturvedi "Vedic Technology" in, G.C. Pande, Ed. *The Dawn of Indian Civilisation*, New Delhi: Munshiram Manoharlal, 1999, pp. 637-663.



2. P.S. Chaturvedi, *Technology...*, pp. 3 ff..
3. C.D. Buck, *A Dictionary of Selected Synonyms in the Principal Indo-European Languages*, Chicago, London, pp. 9.45,
4. W.D. Whitney, *The Roots, Verb-Forms and Primary Derivatives of the Sanskrit Language*, Leipzig, 1885, p. 161.
5. J. Gonda, *The Vision of the Vedic Seers*, The Hague, 1983, p. 134.
6. G.K. Rai, *Involuntary Labour in Ancient India*, Allahabad, 1984, p. 53.
7. S. Radhakrishnan, *Indian Philosophy*, Vol.1, (Centenary Ed.) New Delhi: OUP, 1989, p. 36
8. *Ibid.*, p. 626.

A critical examination of the theory of language and technology and its relation to the American rural system will be the subject of the next chapter. It would also entail a comparative analysis of the technological development in India which are significantly different and that of the different states of India in order to study the various stages of development by considering the growth of the rural sector in each state in the context of India's economic development and the development of the rural sector. The study of the rural sector in these states is to be done through a comparative study through the study of the rural sector in each state in the context of the rural sector in India. The study of the rural sector in these states is to be done through a comparative study through the study of the rural sector in each state in the context of the rural sector in India.

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