

Natural Musicology: A New Inclusive Method for the Domain

Subroto Roy

*Bharata Arsheya Sansthan, 06 Purushottam Apartments,
18 Shilavihar Colony, Erandawane Pune – 411038.*

Corresponding author email: bhasa@drashta.co.in

Abstract

Natural Musicology is a new inclusive method to understand, write, teach, and research in Musicology. Academic domains concerning music and music analysis are anthropocentric, barring the new faculty known as Zoomusicology. Technology-based faculties added remained anthropocentric. Zoomusicology, is restricted to music produced by animals. I now broad base in musicology to study impact of music on animate and the inanimate. This approach, I term as Natural Musicology in which the trigger to aural experience may or may not originate from human sources. Natural Musicology breaks the barrier of anthropocentricity and takes into account not only music and musical human communities but also analyses role/s played by, behavioural responses of, and morphological or morphogenetic changes in the animate and inanimate worlds. Generating and being music both concern Natural Musicology. Any music that has some acoustic value is analysable giving the normative or scientific approach its platform. But it also allows material and immaterial approaches. E.g: employing studies based on the pañcamahabhūta. Yet Natural Musicology also deals with that which is not an object of the auditory sense, but is esoteric, or even subjective. Concepts which are in themselves like causes of music or its semblance or even just representations making the Semeiotic approach possible. Natural Musicology allows musicality suggested through experienced and imagined music. The music of the Sāma Vēda is the mitochondrion of Natural Musicology since it is both the seed and the flower which at the same time energises and can make everything tripta (a form of satiation).

Keywords: Anthropocentric, Behavioural, Bharata Muni, Cultural Musicology, Ethnomusicology, Natural Musicology, Pañcamahabhūta, Pātāñjali, Sāma Vēda, Semeiotic, Svara.

1. Introduction

The present work is discursive in nature and is based on library research and insights gained in performance and research. Since the purpose is to introduce a new faculty in musicology, the discourse shall possess elements of justification as to why a new faculty was needed. The faculty itself is rich in potential for the application of deductive logic employing an empirical approach as well as observational, and experimental approaches, apart from trans-disciplinary treatments. It also allows other methods like the Popperian 'Conjecturing & Refutations' much in keeping with the ancient Bhāratīya vāda tradition of dialectics and the seeking of truth through the

doctrine related to '*néti néti khalu tat'*. The faculty provides an appropriate platform for the study and research of Indian Art Music and its application, but it has the potential to align to various cultural areas, soundscapes, and settings. Therefore, the need for some exhaustive illustrations as to how the faculty shall operate and organically grow in all possible directions from the traditional to new fields like zoo-musicology or even *ādhyātmic sarigīt*. We find roots of several musicology-s in ancient Indian *śāstra*-s.

The present research is a working paper and inaugurates the search for providing a fit framework for examining Indian art music so that terminological, epistemological, etc issues do not crop up. Importantly, this is to ensure that an emic view is afforded for musics that are typical to the subcontinent.

To quote from Samron (2000:135) inter alia here is important; "Modern science has confirmed that life basically consists of sound...Music is a vital energy which penetrates all forms of manifestations...enough to maintain and renew life," he says.[1] Present is a working paper and its fruition will be in the form of a monograph available to teachers, students, and researchers in the area of musicology and other areas which can creatively find cross-pollination with it. The present article inaugurates the new domain which has been named Natural Musicology. The morphology and signification of the new name is out of the scope of this paper and shall be the subject of a sub-topic in future writings. Now, Anthropology and Cultural Anthropology were devised almost at the same time in 19th century Europe, of which Ethnomusicology later became a part of Cultural Anthropology. The study of social and cultural lives of people being the latter's main interest, musicians also were naturally its part. But it was only in 1950, that Dutch musicologist Jaap Kunst coined the term "ethnomusicology," which was a combination of two disciplines: musicology (the study of music) and ethnology (the comparative study of different cultures). Ethnomusicology started as the study of Western classical musician communities as opposed to music of the rest of the world, but now it has broadened into the study of musics of the world. Then, several methods of musicology like Historical Musicology, Analytical Musicology, Empirical Musicology, and Cultural Musicology, among others were employed. In that, The UK took a lead in quantitative analysis of music while the rest of Europe stayed on the forefront as far as qualitative research was concerned. Now, Cultural Musicology according to Wim van der Meer "can be understood both as the cultural analysis of music and the musical analysis of culture" through a variety of disciplines, including science and hence, has a broader coverage than Musicology or Ethnomusicology if not separate in approach than the latter. An interesting addition to Musicology was Zoomusicology which analyses music created by animals although it ran the risk of valorising as music what might be simple animal/bird calls. Zoomusicology, is again, restricted to music produced by animals. Even many more faculties which were added taking assistance of technological advancements remained anthropocentric. Music faculties of Performing Arts all over the world covered all 'performing' arts as separate from the 'Fine' Arts. These faculties are of Western origins and terminology, paradigms, and epistemology are

naturally befitting to that milieu and not to the Indian or even Eastern *milieu*. Take the example of the word 'tone' it is not the same as *svara*. Svar is a superset of tone in the context of music and in the context of phonetics. Even in music it has theistic, astronomical, and other implications which are the topics of my work as it progresses. Natural Musicology is a new inclusive method to understand, write, teach, and research in the domain of Musicology attempting to minimise anthropocentricity. I now broad base studies on what humans understand and/or experience as music as well as what other animate and inanimate entities experience the elating effects of music without implying that the two sets are watertight. Even 'non-living things' may be the subject of Natural Musicology to apprehend the effect of music broadly on matter and various forms matter takes. In Natural Musicology the trigger to aural experience may or may not originate from human sources. It takes into account not only music and musical human communities but also analyses role/s played by, behavioural responses of, and morphological or morphogenetic changes in the animate and inanimate worlds including. Generating and being music both concern Natural Musicology. Any music that has some acoustic value is analysable giving the normative or scientific approach its platform. Yet, Natural Musicology also deals with that which is not an object of the auditory sense, but is esoteric, or even subjective. Even musical patterns that we observe within us and outside shall be the concern of Natural Musicology. It also allows material and immaterial approaches. E.g: employing studies based on the *pañcamāhabhūta*. They may be concepts which are in themselves like causes of music or its semblance or even just representations making the Semeiotic approach possible. Natural Musicology also allows musicality suggested through *yogic* doctrines like *spāñda*, *sphota*, *dhvani* and categories of experienced and imagined music. The music of the SV is the mitochondrion of Natural Musicology since it is both the seed and the flower which at the same time energises and can make everything *tripta* (a form of satiation). SVB says:

ऋग्यजुर्धर्ववेदह केवल मन्त्रमयः ।

सामवेदस्तु मन्त्रामयोपि गानमय इति अस्य वैशिष्ट्यम् ॥

तत्र कुष्टादिसप्त स्वरेण साम्ना प्रयुञ्जमानेन देवमनुष्यादि सकल प्राणीनाः ओषधिवनस्पतयः ।

स्थावर अपि त्रिप्त भवन्तीति साम्विधानब्राह्मणेन प्रतिपाद्यते ॥

rigyajurdharvavedaha kevala mantramayaha I

sāmvedastu mantrāmayopi gānamaya iti asya vaiśiṣṭhyam II

tatra Krushtādisaptasvaréna Sāmnā prayunjamānén devamanuṣyādi sakala prāṇināhā

oṣadhivanaspatayaha I

sthāvara api tripta bhavantīti Sāmvidhānabrāhmaṇéna pratipādyate II [2]

(Summary: Sām satiates the animate and the inanimate worlds due to its music-mañtra-s).

There is scientific evidence to support the inclusion of music in educational curricula; The effects of Apthoryama Soma Yagya on humans, animals, and plants which was conducted in Bangalore from April 17-26 2007 and 'Environment, Random event generator (REG) was used to measure its effects on consciousness field. Significant changes occurred on several occasions on all days' (Thakur, Nagendra, Nagarathna; April 2012). [3] It was shown live on DD Bharati. The results were encouraging. Here we see the *mañtra*-s and their intonations played an important role. Such changes have been seen elsewhere by employing music.

2. Scope of the Domain

2.1 Need for Natural Musicology

This is a working paper and is part of my research for the purpose of establishing this new approach to music analyses and beyond. The scope is hence indicative. In this, I see a distinct possibility of discarding even the word music wherever necessary because it is different from *sarigīt*.

Although 'Musicology' is a term used to mean 'study of music' which involves all its aspects including history etc., it only deals with music created by humans.[4] It looks at music objectively. Ethnomusicology which began almost at the same time Anthropology deals with the culture of people who do music.[5] This field too suffers from anthropocentricity. There have been critics of ethnomusicology as Meer (2015) writes in his blog: "Ethnomusicologists around the world further reinforce and endorse this world hearing by the very fact that they maintain the binary of musicology and ethnomusicology— a binary many of them acknowledge as obsolete. This is hypocrisy of an absurd magnitude when one considers that by sustaining a defunct binary while yet acknowledging its emptiness many of them implicitly or explicitly support the idea that 'western' music is the only real music, or at least the best, the highest, the most developed, and therefore universal. In the past it was common to consider the study of primitive or ethnic music as a way to know the origins of what had become the pinnacle of musical development, including Curt Sachs, Walther Wiora and Jaap Kunst. This unilinear evolutionism is a classic example of primitive ethnocentric reasoning. Sadly, even some of my contemporary colleagues entertain such views." [6] Gilbert Chase in 1972 proposed that since according to him, Ethnomusicology was 'colonial', a better approach would be on lines of Cultural Anthropology and coined the term 'Cultural Musicology' which was later supported by Lawrence Kramer in 2003 by renaming New Musicology as Cultural Musicology. Meer stresses that it goes beyond the binary of western and non-western musics. He writes: "The meaning of music is about agency, it investigates what music does to man and the world, but it also looks at music as a medium of communication between self and other, between man and cosmos. All this is typically the domain of cultural musicology, and it also encompasses philosophy of music, critical musicology, anthropology of music and music sociology, to mention a few. The form of music is encoded in what we usually call music theory, which also comprises acoustics, music cognition, systematic musicology and psychology of music." [7] Natural Musicology more explicitly makes it move away from anthropocentricity despite its overlap with Cultural Musicology. It focuses on everything that humans valorise as music irrespective of source. For instance, if humans have

found the *koel* 'sing' then Natural Musicology is concerned with it. If humans find wind making a musical sound while passing through a bamboo forest, then it concerns Natural Musicology. Or, the analyses of best species of bamboo for making flute is also the concern of Natural Musicology. Natural Musicology focuses on the overlap of musics of humans, non-humans, and the inanimate worlds, but without discounting that it is after all how humans see these sounds. But at the same time animal, plant, material behaviour when subjected to music is also an important part of Natural Musicology.

2.2 Comprehensiveness of Nāṭyaśāstra

In the Nāṭyaśāstra (NS) of Bharata Muni (around 300 BCE-100 CE), we encounter an enumeration of meters or *chāṇḍa*-s. Many subclasses of each of these meters are named after birds and animals. Eg: Makarśirsa, Siṃhalilā, Gajavilasita, etc. based on their movements. [8] Conversely, these are impressions we humans get on hearing certain music. In NS there is a preponderance of cultural geography with regard to performing art while dealing with the arrangement of instruments. For instance, the *pravritti* names depend upon the place and dress - Āvanti (probably Kaśmīr and others), Dākṣiṇātya (South of India), Pāñcālī (Western India or Rājputāna and others), and Odramāgadhi (somewhere in Bihār and Odissā). NS also enumerates the four materials (dhātu-s) or metals which are used for different musical instruments which are in turn further divided into 4, 5, 5, & 10 types, respectively.[9] Then, Bharata does not miss out on aesthetics, and qualities of musicians and musicology proper in terms of *śruti*-s and *svara*-s. Interestingly, he delves deep into the nature of men and women who participate in art which is a knock at the door of psychology. [10] The link of music to SV is made clear many times by Bharata. Rather interestingly, he refers to two Ṛṣi-s of SV - Aṅgiras and Kāśyapa. Incidentally, the seven Ṛṣi-s who appear in SV sandhyā vañdanam are - Atri, Bhrigu, Krutsa, Vasiṣṭha, Gauthama, Kāśyapa, and Aṅgiras. In the SV *saṃhitā*, there are others like Bhāradvāj.

2.3 Ādhyātmic Considerations

The Yogic Connection of Svara Natural Musicology, as mentioned earlier applies beyond matter. It could be employed in musical patterns, in meta-analyses, as well as in the domain of Yoga. As such Natural Musicology can be employed in both ādhibhautik as well as ādhyātmika domains. Pātañjali's famous ashtāṅga yoga are integral part of performance (action within a situation) of *rāga*. Without *yama*, *niyama*, *āsana*, *prāṇāyāma*, *dhāraṇā*, *dhyāna*, the higher experiences of *rāga* cannot be achieved leave alone communicated. *Svara* in the context of music is seen deeply connected to Yoga. Bonshek (2011), a follower of Maheś Yogi writes *inter alia*: "The third self-referral group or cluster in the Mandala of Natural Law of the Vedic literature which is dedicated to Sruti includes the Gandharva Vēda, the music of Nature..." [11] "The physiology (of humans), Gandharva Vēda is found as the seven sympathetic ganglia on each side of the spinal-cord which participate in the modulations of the rhythms of the heart. These correspond to seven *svara*-s or musical notes of Gandharva Vēda ... These seven impulses ... correspond to flat notes *re*, *ga*,

dha, ni. Nader also notes that the parasympathetic or Vagal innervations also connected to the heart corresponds to the sharp note of *ma* (*tivra*). [12]

2.4 Mridaṅga – Power of the Inanimate

Natural Musicology goes along with Sāyaṇācārya's view of Śabda ('meaning testimony of past experts', consists of Vēda, Purāṇa-s, Itihās, and other related ancillary sources). [13] This, I see as the true Indic approach - leaving a stone untouched, yet allowing someone to mould it into a beautiful icon; not considering anything as ultimate but seeing the ultimate possibility in what may appear to be an icon of stone.

Even the importance of *mrida* (mud) is such that the percussion instrument played along with Carnatic music as well as with Dhrupad music is known as Mridaṅga (*mrida* + *aṅga*). The interesting thing about this morphology is that without the *aṅga* the word does sound like a *sva*...just like in Gaṅgā.[14] Also, the *aṅga* represents the form of the instrument which is such that its contents are mud, leather, etc and its form is critical to its tonal quality and sound output. Importantly, the two sides of the instrument sound different, but when the sounds meet at the centre of the *aṅga* or body, the sound is believed to be Nāda Brahmā (primordial sound).

3. Signification

3.1. Multiple Concerns Included

Says, Craig Hogan (2006, p.534): "*Einstein's theory of spacetime tells us that the real universe is not silent, but is actually alive with vibrating energy. Space and time carry a cacophony of vibrations with textures and timbres as rich and varied as the din of sounds in a tropical rain forest or the finale of a Wagner opera. It's just that we haven't heard those sounds yet. The universe is a musical that we've been watching all this time as a silent movie.*"[15]

As such, it studies the music implied due to *anāhat nāḍ* and therefore goes deep into the theosophical bases of music embedded in SV and Kaśmīr Śaiva Darśan. Note that all the Western approaches to music and music analyses are available in Indian ancient texts and traditions, barring of course the 'historical' perspective considering that 'history' as a paradigm is not *itihās* (which is part of Natural Musicology). However, a historical perspective is allowed in Natural Musicology despite it essentially is an extension of Indic perspectives on musicology. Natural Musicology is a new faculty based on ancient Indian framework of knowledge and is not a mere combination of Western logics. It entails an epistemology in the field of music studies which is at variance with existing ones, but have found reflection in ancient Indian traditions and literature.

Natural Musicology recognises the fact that all what is being comprehended is a human undertaking. But as a consequence of the said overlap, Organology, Zoomusicology, etc get a place within this domain; they do not need separate faculties. The contributions of the inanimate materials are being factored in. Bharata includes Organology as part of his NS. I am separating the concerns of music from within NS into an independent faculty, but including non-human and inanimate worlds into it. However, whatever is extra-musical, but connects directly with music, is included. If we consider the origins of NS everywhere, then Bharata tells us that Brahmā created it for everyone.

भवब्दिहिर् शुचिर्भूत्वा तथा अवहित्मानसैही ।

श्रूयतान् नात्यवेदस्य सम्भवो ब्रह्मानिर्मितह ॥

bhavabdihir śuśirbhūtvā tathā avahitmānasaihi I
śrūyatān nātyavédasya sambhavo Brahmānirmitaha II 1/7

“O Muni-s please listen with pure and concentrated citta to (that) Nātyaved created by Brahmā. (my trans of Hindi trans by editor). [16]

Now, as NS includes music and its analysis and if Natural Musicology has to consider the study of music in the Indian context, then this esoteric angle must not be eschewed. As such, the logic behind including anomalous behaviour in relation to music, in its epistemology is justifiable. The use of the term ‘musicology’ is indisputable as we know of ‘Hymnology’ in the study of Western. [17] Also, since Natural Musicology will also look into historical aspects the use of ‘-logy’ is proper. The logic behind having a separate ‘Musicology’ is that it differs in its logic and epistemology as compared to the other ‘Musicologies’. Also, Natural Musicology is concerned with the relationship of Vēda with Tañtra, how it has changed from time to time and what bearings it has had on the universes that musics are related to. There is a parallel in the journey of the Greek epistēmē and technique and how their relationship has changed in human perception. [18] The above-mentioned areas are indicative and not exhaustive. Natural Musicology is primarily, not only about music analysis, but also about its natural origins. Fundamentally, it identifies man as part of nature and his music as natural. But the degree of ‘naturalness’ will make some music more natural than others, albeit the term ‘natural’ here does not differentiate between voluntary and involuntary, and assumes human volition as natural. However, the philosophical aspect like free will shall naturally fall within the ambit of Natural Musicology. In this context, the matter of study within the area of musicology could also extend to animal, plant, and land behaviour and their motivations towards and responses to various musics. So we see web of signification within music from ancient India up until the end of 16th Century and then this type of scholarship, dwindling with the advent of the Mughals.

3.1.1 Sāma Veda as a Fit Case for Natural Musicology

‘Véda is the ultimate source of knowledge’ declared the United Nations Educational Scientific Cultural Organization (UNESCO) on 8 November 2003, commenting on the value of the Védic oral tradition. It has termed this heritage as a ‘Masterpiece of Oral and Intangible Heritage of Humanity’. The then Director-General Koichiro Matsuura and President Juan Goytisolo at the UNESCO headquarters in Paris declared the following inter alia: [19] ‘Although Védic texts were recorded in writing 15 centuries ago, their principal means of transmission remains oral. The outstanding value lies not only in the rich content of its oral literature but also in the unique and ingenious techniques employed by the Brahmin priests in preserving the texts intact over three and a half millennia...The Ṛg Véda is an anthology of sacred hymns; musical arrangement of hymns...Although the Véda-s continue to play an important role in contemporary Indian life, this ancient oral tradition now faces many difficulties owing to current economic conditions and modernisation. Experts claim that the four noted schools of Védic recitation may be in imminent danger of disappearing.’

3.1.2. Music Mañtra

Here is the most ancient music-mañtra tradition - the Sāma Véda (SV) in which Natural Musicology is applicable in many ways. See Figure 1 (Page 11) in which the singing of SG is accompanied by finger movements as given. A normal palm has a thumb and four fingers. Each finger has three bone segments and three joints. In the following discussion one can very well see the philosophical concept of *yathā pinḍé tathā brahmāṇḍé, yathā brahmāṇḍé tathā pinḍé*; “As is in the microcosm, so it is in the macrocosm; As is in the macrocosm so is in the microcosm”. [20] Translations of Sāman-s without heed to Stōbhākṣara-s (See Plate 1) like auhovā, idā, etc leave the reader high and dry as to what it all means. For instance, take the first Sāman of SV without its svara-s.

3.1.3 Translations/Interpretations

Let’s see the various translations/interpretations and then compare them with my interpretations factoring in the svara-s as well as the stōbhākṣara-s:

Plate 1: Mantra Without Intonations & Stobha-s

अग्न आ याहि वीतये गृणानो हव्यादातये
नि होता सत्सि बर्हिषि ॥

Mañtra 1/1 without musical *svara*-s and Stōbhākṣara-s. Sāmvéda Samhita.

Sāṭavḷékar (2000:1) enters 'vīṭhi= to go, cause motion, cause growth, consume, to eat, to clean, to divide'. [21] He places vīṭayé before yā hivi and constructs it as "vīṭayé yā hivi" and translates it as 'Come in order to eat the havi or offerings.' Gaṇapaṭi (1978: 1) translates it without details as 'āgni moves and arouses the desires of the devotee and bestows oblations. [22] He presides down below in the existence and binds us with desires to the motley sense activities.' Tulsi Ram (2013, 1) translates quoting RV (6-16-10) it with details as: Come Agni, sung and celebrated, to join our feast of enlightenment, accept our homage to create the gifts of life and yajnic performance, and take the honoured seat in the assembly. He draws from Saṁskṛit etymology and yoga and translates the words on the following premises: agné= agrāṇirbhavaṭi (Nirukṭa 7. 4.15), vīṭayé = vī gaṭi/speed, vyāpti/spread, prajan/creation or procreate, kānti; lustre, etc, grīṇānaha=grivijñāné cūrāḍi, and 'pūrvésāmapī guruḥ kalēnānvcedāt' Yog 1/26 etc. [23]

Dévi Čaṇḍ (1981, 1) translates it as: 'O God! We realise thee, as Thou art Luminous, Pervading and Giver of enjoyable objects. Thou art Worthy of adoration, present in the world and our soul, like a *hotā* in the Yajña'. He writes in the footnotes '*āyāhi* means 'come'. [24] Griffith (1895) translates the above mañṭra as 'Come, Agni, praised with song, to feast and sacrificial offering: sit as *hotār* on the holy grass!'"[25] In the above citations meanings of Stōbhākṣara-s are not factored in. Gāna, the operative part form of SV remains uninterpreted. The mañṭra is seen as text with neither the accentuations or the intonations. Present is my approach to the same mañṭra taken with its intonations indicated in the book of songs of SV. Take the following formation of the above mañṭra as below:

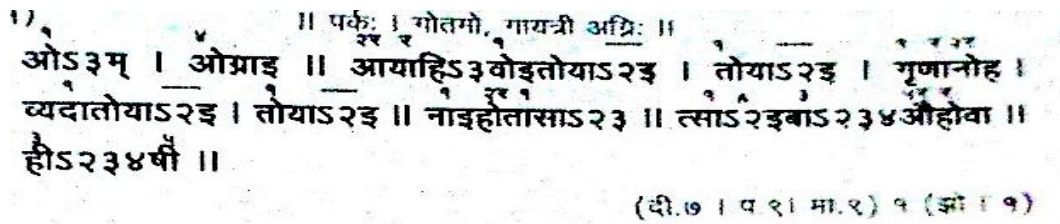


Plate II: Grāma Géyē Gānātṁakaha

Table1: Triunity of Svāra, Mūdrā, & Tatva

Svāra	Combination	Mudra	Tatva & Sound
Pratham -1	Agni	Agni	Agni...O (ओ)
Dvitiya-2	Enhanced Agni+ Controlled Vayu	Vayu	Agni...O (ओ)
Tritiya-3	Enhanced Agni + Controlled Akash	Vanhi	Vanhi...O(ओ)

Chaturtha-4	Enhanced Agni + Controlled Prithivi	Prithivi	Amrit...O (ॐ)
Pancham-5	Enhanced Agni+ Controlled Jala	Jala	Prithivi...I (इ)

Compare Plates 1 & 2. Note that in gāna 'i' becomes ī in 'hi' making it 'hī'. This means ikār has been elongated here. Two more 'i's are added in the word *vīṭayé* and it become *vōiṭōyāi*. Now *ikār* represents *agni* (see Table 1 on Page 9) and the Stōbha 'yā' is also added in *vīṭayé* to make it *vōiṭōyāi*. As per the table we see that *yā* represents '*anna*' which represents energy as the ^ adds motion. Śankarācārya has said that *anna* is *agna* or *agni* as I have illustrated in

As such, SG is different from its text without intonations and Stobha-s. I now give the signification of 'ō/ Stōbha in terms of Figure 1 combining with Table 1. Therefore, we see how 'ō/ represents the (five great elements) *pañca-mahā-bhūta*-s indicated individually with diminished values of all other than *agni*. Translation has to be done keeping this in mind.

3.1.4 Sāma Gāna Semeiosis

Agni Kanda 2/1,3/1,4/1. The rationale of the above is given in the following matrix that summarises the functions of Stōbha-s and their meanings: C.U.1.13.1. [26]

Take the case of stōbhākṣara 'yā' in *tramardayā* in *nāmasṭau* Sām. Due to thumb touching the tips of the fingers on the extended vowel of 'yā', the significance changes when compared to stōbha 'oi': 2 ^ 3 12345 *tramardaya* s s s s s ...SVSGG 11/1 It signifies *agni* as the cause of increased quantum of *vāyu*, *ākāś*, *pr̥thivi*, *jala* *tattva*-s. Now, 'yā' is *anna* (see Table 2). So is *agni*. *Prima facie* 'yā' in this context may be interpreted as the hierarchy of the *tattvas*. But we see this part of the *mañtra* coming from *Amairmitramardayā* [meaning 'with thy might eclipse thou the foe' (Chand,1995, 2)]. This traverses 2= minimised *vāyu*, 3=minimised *ākāś*, and then all the *tattva*-s heightened in the order given. In fact, this is a praise of *agni* as the presiding deity. The musical sequence '12345' is putting *agni*'s leadership in perspective meaningfully as a cultural given. This cultural given is also signified by the fact that the mudra-s are led by the thumb that represents *agni*. Also note that '*marda*' means to annihilate and the *svara*-s which appear on this word are consequently given and represent minimising space and atmosphere which is equivalent to implosion in the opposite direction of creation meaning. This is followed by explosion represented by the *svara*-sequence 12345 all of which are in the direction of creation with not only values increasing, but originating from *agni* (1) and culminating in *jala* (5). To my mind, they, respectively represent endothermic and exothermic processes that we continually observe around us at the microcosmic as well as the macrocosmic levels.

Table 2: Triunity of *Stōbha*, *Dēvata*, & *Sām*.

Sr No.	Stōbha	Dēvata	Sāmānya Sām	Body Part
1	hāukār	prithvi	raṭhāntara	čaraṇa feet
2	hāikār	vāyu	Vāmdevya	
3	āthakār	čāṇdra	Sāms namely ‘a’ and ‘th’ the word īha	
4	īhakār	ātmā	ī; gārhyapatyāgni	čakṣu; eye mukha; Mouth
5	īkār	agni	Viśvarūpa	
6	ūkār	āditya	ē; āhvānīyāgni	
7.	ēkār	nihava	Vaiśvaḍevya	
8	āuhoyikār	Viśvaḍev	āvyaktatva	
10	hinkār	Prajāpati	svarahētuṭva	
11	svara	Praṇa	yātva	
12	yā	āna	aniruktatva	
13	hunkār	sarvakāraṇa		

Also compare with Table 3 wherein a similar triunity is seen in RV, YV, and SV semeiotics as enumerated.

Table 3: Triunity in Terms of the Three *Vēda*-s

no.	SV	YV	RV
1.	Svara Vowels ⁸	Sibilants	Consonant
2.	ākāś Sky ether/vacuum; my trns.	ātmosphere	Earth
3.	āditya Sun	Vāyū	Agni; fire, flaming zeal of activity ^{xxiv}
4.	Yaśa; Fame Success [my trns.]	Maha; might	Bharga; Light
5.	Circulatory Breath ⁹	Exhalation	Inhalation
6.	Mind ¹⁰	Ear	Eye
7.	udgātri [Yāgnic who worships the Ōmkār as āditya] ^{xxv}	ādhyāyū	Hotri
8.	Svaha	Bhuvah	Bhuḥ
9.	āhavāniya agni	Dakṣiṇā āgni	Gārhyapatyāgni

Constructed with the help of AitB 5.32; cf.5.34; KB 6.12; CU 4.17.1-8 and 3.2.5, SB 12.3.4.7-10: xix CB is common for all SVs. These two points hint at a morphology of *Vēda* before Vyāsa, as containing at least *čāñḍa*, *svara*, *ṛṣi*, and *pādya*.

3.1.5 The Gātra Vinā

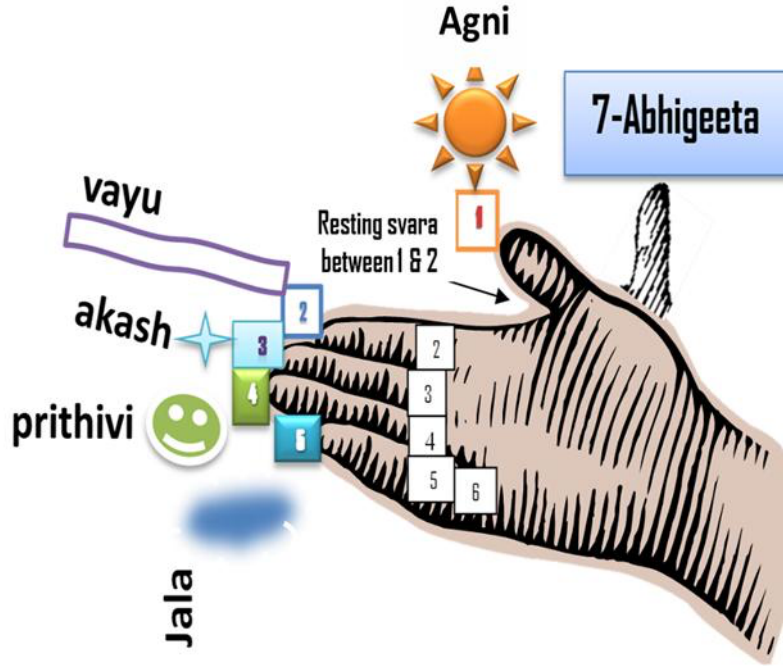


Figure 1: The Gātra Vinā essential to indicate *svara-s*, *svara positions*, *tattva-s*, *alankāra-s*, *krama* while *Sāma Gāna*, hence is part of the meaning making process.

¹The thumb has two bone segments and two joints. The segments are known as phalanges (plural of phalanx). The following common part names are used to explain the six *svara* indicators:

- Tip segment (TS) – the phalanx with the fingernail
- Middle segment (MS) – the middle phalanx
- Base segment – the phalanx closest to the hand (BS)
- Top knuckle (TK) – the upper joint, closest to the fingernail
- Middle knuckle (MK) – the middle joint
- Base knuckle (BK) – the joint that connects a finger to the hand.

In SG the BS is used majority of times to indicate *svara* touching by the tip of the thumb, each one of them starting from the index finger to the little finger; these form the four *svara-s*, *dvitīyā*, *trītiyā*, *čaturtha*, and *pañcāma* or simply 1, 2, 3, 4, 5, respectively. Now, a *svara* termed as the *abhigīta* which is higher than *prathamā* is indicated by the thumb, thrust away

¹ Illustration by Author

beyond the *prathamā* position. But this is not a *svara* but an accentuation which directly falls in the domain of phonetics. Also note the numerals on top of the tip segments. They are sung with a special emphasis that is different from the *dīrgha*/long *svara*-s and are only four in number. They are sung only on descending order which is a musicological consideration especially brought out while comparing today's 'classical music' which has both descent and ascent, with 'ālaukika Védic' music which is dominated by descending *svara*-s. It must however, be stressed that in both cases the melody is called *rāga* in practice, but not until in literature, until 6th century CE, when Mātaṅga Muni first writes about *rāga* in his *Bṛhaddēśī*. [27] Mañjunātha Śrauty of Mysore sings the seventh *svara* on the higher register imitating the cuckoo's sound indicating a research possibility of Vēda-s considering animals and birds.

4. Conclusion

As shown, the scope of Natural Musicology is infinite. As such the universe of music we're looking at is not bound by anthropocentricity illustrated by the field of Zoomusicology. Nature is not only what we consider as the animate, but also the 'inanimate'. It concerns with musics that happen and how they're understood, analysed, and enjoyed. The working paper is indicative of the nature of Natural Musicology. It is a field of study that covers the musicology humans perceived from nature and how its structures translate into what humans value as music. Musics that happen, are practised, and analysed in the cultural area bounded by Afghanistan, Iran, Bāhrain, Pakistan, India, China, Bhutan, Nepal, South East Asia are the immediate Natural Musicology which may later organically expand. Natural Musicology does not stop here and covers areas which cannot be defined by culture because it is an anthropocentric construct. The present article inaugurates the subject area and opens up a new avenue of music analysis.

Natural Musicology a new faculty introduced, in the now a little dense woods of musicology is expected to open up new vistas to study how everything in nature is musically ordered/arranged so that they respond to music.

While this gives an opening to empiricism in music analysis, it gives ample opportunity for philosophising as well as rationalising. The broadens and deepens the scope of musicology. Indian music finds an excellent platform or framework for analysis without loading such research with western concepts and terms. Due to its wide coverage it is against a fixed methodology although the paradigm is very Indic in nature which helps non-western music thinkers to break away from terminological frameworks of western models of musicology. The following items potentiate within the discourse of Natural Musicology as it expands and deepens, but may not be limited to:

- Conceptual framework and possibilities of expansion of Natural Musicology/Meta-Natural Musicology

- Limitations and strengths of other musicology streams
- Human Body and music reception, incubation, creation/improvisation, recreation etc 4. Human Mind along with the above
- Humans' musical interaction with non-human animate and inanimate worlds and vice versa
- Ādhyātma as a source and goal of music

5. Limitations

The western world has also seen and brought out numerous connections which need to be taken under one umbrella of Natural Musicology, keeping it as free from anthropocentricity as possible. Since, the author is not initiated into Western music examples from there would be conspicuous by their absence in the present article although the work in its entirety will surely have chapters dedicated to the relevance of Natural Musicology in musics other than Indian. Moreover, researchers are free to examine Western music.

Glossary of Terms

- Ādibhautik - Gross world
- Ādhyātmik - Subtler Worlds
- Agni - The presiding deity of Agni Kāṇḍ of SV. In Vēda it is second only to Indra. In this context since it is āgraganya (leading) among the pañcamhābūta it is called Agni; a Fire. Traditionally it has two faces - Gārhyapatya, Āvahānīya. It has different meanings in different traditions.
- Ālaukika: Relating to the subtler worlds which the senses cannot apprehend and higher levels of consciousness are required.
- Aniruktatva - possessing the characteristic of beyond etymology.
- Ark - Ether; Space created due to the movement of air.
- Ārṣa - is the language of the Vēda-s and Gīrvāṇ is what we call Samskrit. Āvhanīya Agni - This Agni is located on the Eastern direction of the Yajña arena and is lit up in a square altar. The four sides represent the four directions. Its detailed description maybe found in YV.
- Avyaktva - possessing the characteristic of being ineffable.
- Ācitta – An aspect of the mind.
- Dhruvad - Dhruva + Pada = fixed steps/stable pace; unchanging pada-s (roughly words) Gārhyapatyāgni - Domestic. The yajña fire that is lit inside the home of a householder for being eligible to participate in other yajña-s where community is involved. Only a nitya agnihōtri (one who has the fire burning throughout the year) is eligible.
- Indra - Deity under whose control is the composite of the pañcamhābūta; the five/six senses. Laukika: Relating to the gross world which the senses can apprehend.
- Prithivi/Vāgīś - Gross matter created in space; Earth.

- Stōbha - Sounds as opposed to Pada; two types - ones which have appeared in RV known as sārthak and those which have not appeared in RV termed as nirarthak. E.g: Om is a Sārthak Stōbha since it appears in all of Véda. But Auhovā is a stōbha which appears only in SV. It is usually called Nirarthak. It does not translate as meaningful and meaningless. Stōbha sets the pace of the Sāman and hence affects deeply the meaning making process. There are many stōbha-s in SV, like idā.
- Rathāñtara - It is a Sāman given to humanity by Maitrāvarunīvāsiṣṭh Ṛṣi. Its presiding deity is Indra and possesses the Pragāth Čhañda. It starts with the words 'abhi tvā shūr'. It is declared to be able to cure fits. The SVB declares the applications of specific Sāman-s for specific purposes. Svava - A sustained sound that possesses its own light.
- Sva+Rajari (light). Only if a vocal sound is held stable for a period of time causing rava (approximately - reverberation), only then it may qualify to be a svava (of SV or saṅgīt. But it also has to raise the temperature of the voice to be termed as svava. The voice is also called svava. Breath is also called svava. The talking/singing voice is also called svava. Svarahétutva - The ingredient/purpose/telos of svava.
- Vāmadévya - It is a Sāman recommended to be sung for procreation and prosperous life in its laukika sense. It represents the mithuna or unity of the male and female aspects of nature. I see it as the metamorphosis of dual nature into a unified one, yet maintaining the separate characteristics. It starts with 'tadvā état pashamvayam'.
- Varuṇa - Water Viśvadév - The déva in-charge for all life. It is depicted by the sixth musical svava in SG.
- Vāyu - Air; wind blowing due to fire in Indian cosmogony.

Abbreviations

AG Āraṇyagéya Gānam

AV Atharva Véda

ČU Čhāñdogya Upaniṣad

GGG Grāmagéya Gānam

KYV Kṛṣṇa Yajur Véda

MSRVVP Maharṣi Sāndīpani Rāṣṭrīya Véda Vidyā Pratiṣṭhān

NŚi Nārādīya Śikṣā

NSū Nidāna Sūtra

PS Pāṇinīya Śikṣā

RG Rahasya Gānam

RT Ṛk Tañtra

RV Ṛg Véda

RVic Ṛg Védic

SB Śaṭapatha Brāhmaṇa

SVB Sāma Vidhāna Brāhmaṇa

SG Sāma Gāna
SKS Sāma Kauthūmi Śākhā
SV Sāma Véda
SVic Sāma Védic
SV-ins Sāma Vedin-s
SVS Sāma Véda Saṃhitā
SYV Śukla Yajur Véda
YV Yajur Véda YVic Yajur Védic

References

- [1] Shamron, S., Bagiski, B. J. The Chakra Handbook. Delhi, MLBD. pp.135, 2000.
- [2] Śarmā, B.R. Sāmvidhāna Brāhmāṇa. Tirupati, Kendriya Sanskrit Vidyapeeth. Introduction, 1960.
- [3] Thakur, G.S., Nagendra, H.R., and Nagendra, R. REG investigation of the Consciousness field: Effects of an Aphoryama Yajna. Indian Journal of Traditional Knowledge. Vol.11(2). p-p362-368, 2012.
- [4] N.A. <https://www.amsmusicology.org/page/whatismusicology> accessed July 13, 2020.
- [5] University of Illinois Press Society for Ethnomusicology <http://www.jstor.org/stable/924498> accessed July 13, 2020.
- [6] Meer, W.V. I Buried Ethnomusicology. Cultural Musicology, 2015. <https://culturalmusicology.org/uncategorized/i-buried-ethnomusicology/> accessed 13.07.2020.
- [7] ibid n.d. Cultural Musicology: Why, What and How. Accessed on Nov 8, 2022 from <https://culturalmusicology.org>
- [8] Unni, N.P., Nāṭyaśāstra Vol IV. Introduction, Delhi: Nag Publications, pp.8, 1998.
- [9] ibid. p-78.
- [10] ibid. p-85.
- [11] Bonshek, A. Mirror of Consciousness. Delhi: MLBD. pp-170-177, 2001.
- [12] 12 ibid.
- [13] Ayyagari, S. The Science of Aruṇaprasna: Cosmology to Quantum Physics. Wilmington: Kovid Vani. pp.6, 2022.
- [14] Hogan. C. The Sounds of Spacetime. American Scientist. In Sigma Xi, The Scientific Research Honor Society. Vol.94, pp.534, 2006. DOI: 10.1511/2006.62.534.
- [15] Śāstrī, B.L. Nāṭyaśāstra of Bharat Muni. Vārānasi. Kāśi Saṃskrit Series.pp.3, 1984.
- [16] Richard, P. Episteme and Techne, The Stanford Encyclopedia of Philosophy, Edward N. Zalta 2020. accessed on June 5, 2024 from <https://plato.stanford.edu/archives/sum2020/entries/episteme-techne/>
- [17] ibid.

- [18] Indira Gandhi National Centre for the Arts, Report on Cultural Mapping of India under UNESCO's Programme on Cultural Industries and Copyright Policies and Partnerships. New Delhi, pp. 187-90, 2007. http://ignca.nic.in/UNESCO_Report.pdf. Retrieved on 17 November 2012 from www.ignca.gov.in.
- [19] Griffith, R.T.H. Yajurveda Samhita. Delhi, Parimal Publications. pp.12. My trans. Yajurveda Samhita, 2011.
- [20] Satavlekar, S, V., Sāma Vēḍa: Hindi Artha Va Spashtikaran Sahita. Pardi, Gujarat: Svadhyaya Mandal, pp.1, 2000.
- [21] Gaṇapaṭi, S.V., Sāma Vēḍa. New Delhi, Motilal Banarasidas, Intro, pp. xxvi, 1982.
- [22] Ram, T., Samveda. Delhi: Vijaykumar Govindram Hasanand. pp.1, 2013.
- [23] Chand, D., Sāma Vēḍa: With Sanskrit Text and English Translation. New Delhi, Munśirām Manoharlāl, 1995.
- [24] Griffith, RTH. Hymns of the Samveda. E. Lazarus & Co. New Delhi, pp.5, 1985. Retrieved on 25.11.24 from <http://www.new.dli.ernet.in/handle/2015/47949>.
- [25] Deodhar, S.K., Chandogyopashida. Marathi. Pune, Maharashtra, Prasad Prakashan, pp, 73-75.
- [26] Sharma, P. L., 1992. Brhaddēśi of Śrī Mātāṅga Muni. New Delhi, Indira Gandhi National Centre for the Arts, 1992.