

A STUDY ON PURVARCHIKA OF SAMAVEDA: CONNOTATION OF SAMA AND SOMA

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ABSTRACT: Sanskrit is the dialect of the Indo-European language group as well as the vernacular of the Aryan tribe. Samaveda is the second oldest Veda, and its contents are the smallest among the four Vedas. Samaveda is the lyrical literature of the Aryan people. It is the oldest living remnant of numerical musical notations. Samaveda is defined as Samagana, blending meter, rhythms, and lyrics. The study covers the first part (Purvarchika) of Samaveda. The discussion includes the connotation of Sama, Samagana, and the reality behind the Soma. The study is entirely based on translating Vedic literature and conducting a literature survey. The Samagana derived from the Rigvedic tetra musical concept and evolved into saptaka (seven) notations. Soma is the metallurgical and as well as herbal output of Vedic researchers. Soma is the most metaphorical or allegorical word and connotes the Vedic alchemist attributes.

Introduction

There is a liaison between the Indus Valley civilization's decay, the Iron Era's debut, and the Vedic civilization (Bhan, 2006). The Vedic civilization and the Vedic literature are cohesively related but not synonymous (Raj, 2004). The Vedic civilization is older than Vedic literature (Swami, 2002). Samaveda is the literature of the Indo-Iranian language group (dialect), and Vedic literature is related to the vernacular of the Aryan tribe (Ganapati, 1992). Samaveda is the output of elocution and philological research of Vedic natives.

The discussion covers only the Purvarchika, the first chapter of Samaveda. The study aims to discuss the connotation of Sama, musical notations of Samagana, and the meaning of Soma. The study is based on Sankara's commentary on Chandogyo Upanishad (Jha, 1923) and Samaveda. The contents of Samaveda are studied from the works of Max Muller, Patrick Olivelle, Rev. J. Stevenson, Ralph T H Griffith, and Kenneth Oldmeadow. The meaning of each phase has been derived, and the inner meaning has been discussed in light of contemporary thinking. For that purpose, a literature survey has been covered. The numerical musical notation has been analyzed in the light of Chandogyo Upanishada. The translating work of Patrick Olivelle and Ganganath Jha has been consulted to study the Chandogyo Upanishada.

The contents of the Samaveda are not new (Ganapati, 1992). It is the repetition of the seventh and eighth models of Rigveda. Samaveda consists of 1549 verses, except 75 riks (slokas), all borrowed from Rigveda (Olivelle, 1998). The Samaveda Samhita combines Brahaman, Aranayaka (Chandogyo), and Upanishada (Chandogyo and Keno) thrice. The Samaveda (Samhita) is segmented into two major parts: Archika Samhita (text of the song) and Gana Samhita (musical notations). Archika Samhita again has two parts: Purvarchika and Uttararchika. The Purvarchika is segmented into six parts: Agneo kando

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(Fire, first part), Indra Kando (second, third, and fourth), Pabaman Kando (fifth part), Aranyaka (sixth part) (Takure, 2016).

I. Etymology of Samaveda

Samaveda (Samaveda Samhita) is popularly known as Samagana (Raj, 2004). Sama comes from *Samana*, meaning even or equal (Beck, 2012). Samagana is the group song, and during Samagana, singers maintain parity in meter and tala (beats and rhythms). The Chandogyo Upanishada is an auxiliary literature of Samaveda and explains Sama's connotation. A few selected slokas of Chandogyo Upanishada have been coined to reveal the reality of Sama.

(i) *Vageva rik pranao sama omityetadakoaramudgithao, etadvaetanmithunam yadvak ca pranacha rik ca sama ca (5) Chandogyo Upanishada* (Mitra, 1862)

The Sloka (5) describes the Rigveda as the speech and the Samaveda as the breath (Ganapati, 1992). Singing combines speech (Rig) and breath (Sama). The singing involves distinct respiratory kinematics (Potter, 2006). Speaking and singing involve a voice mechanism, a combination of thrice: air pressure, vibratory, and resonating. Each subsystem relates to different body parts (breathing muscles, diaphragm, abdominal muscles, etc.). During singing, breath supports the vocal technique; the respiratory system regulates the loudness, pitch, and linguistic stress of singers (Ibid.). Therefore, breathing control is essential in classical singing training for optimal voice performance (Leborgne and Rosenberg, 2019). The Chandogyo Upanishada describes the Sama as breath, and it is the allegorical explanation of vocal technique, which is an integral part of singing science. Breath management supports the singing voice. Therefore, Sama is the singing technique.

(ii) *ya vak sa rik tasmadapranannapanannndcamabhiviyaharati ya rik tat sama tasmadapranannapanan sama gayati yat sama sa udgethastasmadapranannapanannudgayati 28 Chandogyo Upanishada* (Olivelle, 1996)

The word *udgita* is the combination of *ud-gi-ta*. *Ud* means above all (heaven), *gi* is the singing, and *ta* is the prayer (sacrifice) (Wisdom Library 2022). Sama is the lorry and glory who resides above all, either at the zenith or in heaven (Das 2013). From the astronomical point of view, Sama is nothing but the lorry of the Sun, or it indicates the Sun's worship. It is an allegorical description of the heliocentric philosophy (Ganapati, 1992). The Sama singers are known as *udgita* (Jha, 1923). It is the high-pitch singing method (Heehs, 2002).

(iii) *dyaurevodantarikham gi prthivi thamaditya evodvayurgiragnisthan samaveda evodyajurvedo gi rigvedasthan dugdhe'smai vagodohamyovaco doho'nnavanannado bhavati ya etanyevan vidvanudgithakoaranyupasta udgitha iti, 31 Chandogyo Upanishada* (Ganapati, 1992)

The concept of heaven (ud) and the position of the Sun are related to the zenith or topmost position. According to Sankara's commentary, the sky (gi) swallows the world, and air

(gi) swallows the fire (Elizarenkova, 1995). The sky and the air symbolize the atmosphere (John, 1842). The phrase 'swallowing of fire' is an allegorical description of the combustion method. Samaveda is related to the Sun, fire, heat, and combustion (Jha, 1923).

(iv) *iyamevargagniḥ sama tadetadetasamṛcyadhyudhaṃ sama tasmadṛcyadhyudhaṃsama giyata iyameva sagniramastatsama*, 47
Chandogyo Upanishada (Wisdom Library, 2022)

The earth is *sa*, and fire is *ama*. This *sa* and *ama* together make *Sama* (Wisdom Library 2022). The Vedic sages believed in three kinds of energy (heat or light): sun in the sky, lightning (thunder) in the atmosphere, and fire on earth (John, 1842). *Sama* is described as the fire of the earth (Jha, 1923). According to Sankara's commentary, the Samaveda is the union of earth and fire (Ibid.). Fire symbolizes heat, energy, and light (Das, 2013). Fire is an integral part of cooking and pottery and is related to human civilization. Samaveda is based on the fire ritual and soma sacrifices (Ganapati, 1992). The fire is related to combustion, which moves upward. Soma is the fluid that moves downwards. Instead, fire follows the anti-gravitational direction, and fluid follows gravity. Vedic literature is the fire-base ideology (Jha, 1923), and fire stands for masculinity, and Soma (fluid) stands for femininity. Samaveda is the mythopoetic union of binary gender, masculinity, and femininity within one soul (Ganapati, 1992).

(v) *antarikṣamevargvayuḥ sama tadetadetasamṛcyadhyudhaṃ sama tasmadṛcyadhyudhaṃ sama giyatr ntarikṣameva sa vayuramastatsama*.48
Chandogyo Upanishada (Sen, Tattabhusan and Ghosh, 1980) (The space between heaven and earth is *sa*, and earth is *ama*. Together, they are *Sama*).

According to Sankara's commentary, the air is described as *Sama* (Jha, 1923). The ultimate goal of singing is to produce musical sound, and singing is related to aerosol emission. The droplets and aerosol emissions during singing are everyday facts. It is a metaphoric description of the spreading of sound during vocal music as well as the breath management of the *Sama* singers (Leborgne and Rosenberg, 2019).

(vi) *atha yadetadadityasya suklaṃ bhaḥ saivargatha yannilaṃ paraḥ kṛṣṇaṃ tatsama tadetadetasamṛcyadhyudhaṃ sama tasmadṛcyadhyudhaṃ sama giyate* 50
Chandogyo Upanishada (Mitra, 1862) (The black glow of the sun is called the *Sama*; it is based on the white glow, and it is called the *Ṛik*) (Wisdom Library, 2022).

The sky appears blue, which is related to the scientific truth of the Raman effect (Hoeppe, 2007). The blue color of the sky is due to the scattering of blue rays of electromagnetic radiation (Placzek, 1959). Vedic literature used Sun, light, and sight as synonymous (Heehs, 2002). Words and light are the combinations of the electromagnetic spectrum's red, green, and blue bands (Hoeppe, 2007). Initially, Rigveda and Samaveda were the combinations of three swaras: *sa*, *ma*, and *dha* (Beck, 2012). The Vedic numerical musical notations evolve from tetra (Beck, 2012).

(vii) *atha yadevaitadadityasya suklaṃ bhaḥ saiva satha yannilaṃ paraḥ kṛṣṇaṃ tadamastatsamatha ya eṣo ntaraditye hiraṇmayāḥ puruṣo dṛṣyate hiraṇyamasrurhiraṇyakesa apraṇasvatsarva eva suvarṇaḥ 52 Chandogyo Upanishada* (P. Olivelle 1996)

According to Sankara's commentary, the Sama is the combination of both black (*paraḥ kṛṣṇaṃ*) and white (*suklaṃ bhaḥ*) parts of the Sun (Jha, 1923). The human eyes are a combination of white and black. The black part of the eyes (eyeball) provides vision, but without the function of the white part of the eyes (opaque membrane or sclera), vision does not work. The Sun's brightness is the output of singularity and high density. The singularity and intense density are related to black. Therefore, behind the Sun's brightness, there is black. Black and white are cohesively related and functionally interconnected (Jha, 1923).

(viii) *nakṣatraneyavarkcandramaḥ sama tadetatetasyamṛcyadhyadhaṃ sama tasmadṛcyadhyadhaṃ sama gayate nakṣatraneyeva sa candrama amastatsama, 1.6.4 Chandogyo Upanishada* (Olivelle, 1998) (The stars are the *sa*, and the moon is *ama*. Together, they are Sama) (Ganapati, 1992).

Vedic astronomy believed in the seven planets concept, including Earth, Mars, Jupiter, Venus, Mercury, Sun, and Moon (Keith, 1909). Vedic sages knew the moon was the fastest-moving celestial body (Kak, 1993). The moon's phases are related to the equal waxing and waning parts, and it is related to the intensity of light as well as brightness. Sama describes the moon as the allegorical explanation of swaras of ascending (*aroho*) and descending phases (*avroho*). *Aroho* means ascending from a lower position to a higher position, and *avroho* means descending from a higher position to a lower position (Keith, 1909) in musical notations. Bergaigne was the first to articulate that the Vedic doctrine is related to cosmology (Mitra, 1862). Sama is related to the cosmological explanation and moon phases, similar to ascending and descending notations.

Sama is a common word among the dialects of the Indo-European dialectal group (Whitney, 1874), such as the Khotanese language, Ossetic, Greek, and Hittite languages (Bailey, 1957). Khotanese is the dialect of the Saka language. It is a dialect of the people who live between the Tamir basin and the Tokhlamakan desert of western China (Daniels, 2019). According to the Khotanese dictionary, Sama means to fit goodness (Elizarenkova, 1995). Khotanese has two dominant dialects: Iron and Digor. In the Digor dictionary, *Somy* is phonetically similar to Sama, meaning true and oath (Daniels, 2019). In the Diron dialect, the *Somya* resembles Sama and means to fit. According to the Ossetic dictionary, Sama means to handle the heap of grain. Old Iranian or Avesta dictionary describes the word *Sam*, meaning to fit, agree, or accord (Daniels, 2019). In Greek vocabulary, *cyam* is similar to Sama; it means to fit, prepare, and tend. According to the dialect of Mesopotamia and the Hittite language, the word sama comes from savasana or savasana, which means tender of the horse (Daniels, 2019). Satapath Brahama describes the word Sama, which means to fit and to suit. According to the Pali dictionary, sama comes from sammati, which means to fit (Swami, 2002). Therefore, Sama is synonymous with well-being, goodness, fitness, and suitability (Swami, 2002).

II. Samadeva and Time

The archaeological pieces of evidence and biological evidence of the Vedic era are absent except for the Boghaz-Koi inscription Asia Minor (14th B.C), and it only mentioned names of deities like Mitra, Varun which are common deities of Vedic religion (Majumder and Dattatrya Pusalkar, 1951). Therefore, the Vedic literature is the only living evidence of Vedic culture. According to M. Witzel, there is no absolute dating for Samaveda or the Vedic period (Witzel, 2001). Jacobi expressed that the Vedic civilization is not much older than the Euphrates and Nile civilizations (3100 BC) (Simha, 1995). Bloomfield declared that people are more inclined to listen to an early date for the beginning of Vedic literature, which is earlier than 2000 BC (Keith, 1909). However, that period is too much an earlier date for the institution's beginnings and religious concepts. According to Buhler, the early Vedic literature is the fact of 1200-1000 BC (Bhan, 2006), and Max Muller divided the era of Vedic literature into two parts: the period of *Chhandas* (rhythms) and *mantras* (chants). The early hymns of Rigveda, mainly Chhandas, were composed during 1200-1000 BC, and 1000-800 BC was the era of mantras called the era of Samhita (Beck, 2012). Its scripture, combined with Brahmi and Sanskrit Languages, developed later. The oldest records of the Brahmi script are the rock and pillar inscriptions (Daniels, 2019) of the Mauryan emperor Ashoka (3rd BC). The combination of the Prakrit Language and Brahmi script was the writing tradition during the 3rd Century BC (Ginar Inscription) (Daniels, 2019). Brahmi script was most likely created during the Mauryan Empire (Daniels, 2019). The oldest combination of the Sanskrit language and Brahmi script inscription is found in the Junagarh Inscription (Daniels, 2019) or Inscription of Rudradam (150AD). According to J. Prinsep, the Girnar Inscription at Junagarh (Prinsep, 1858) (the first inscription of the Sanskrit language and Brahmi Script in on 150AD) provides the clue that the Devnagari script (Archaic alphabet) evolved from Brahmi (Prinsep, 1858). During the Gupta period, the modern version of Devnagari got its final version (during the last quarter of the 3rd Century). Therefore, it is clear that the written version of Samaveda is a descendant of ancient vocal traditions and hand gestures (Beck, 2012).

III. Samaveda and Vicinity to Old Avesta

The Rigveda is the name for laudatory verse and stanza, but Samaveda is the chant (Mitra, 2008). Though the Aryan migration is controversial, researchers unanimously agree that the Vedic culture started its journey from the western part of India and extended up to the alluvial fan of river Ganga (Swami, 2002). Rigveda and Samaveda reflect the life of a few Aryan tribes living in the western part of India (Swami, 2002). The language of Rigveda and Samaveda (lyrical version) resembles the Avesta language (Bailey, 1957). The Vedic phonetics and names of deities can be straightforward if they are discussed in the light of the Avesta language (Singh, 2003). Winckler's notable discovery (1906) at Boghaz-koi (old Hittite Capital in Asia minor) cuneiform inscription (1400BC) contains the names of Indra, Mitra, Varun, and Nasatya, etc. (Bhan, 2006). The inscription shows that the Avesta and Vedic cultures have dispersed from commonplace or decedent common cultures. The dispersion or the migration history is still ambiguous (Matlock, 2000). Moreover, the original home of people of the Indo-European language group is unknown. However, there is no archaeological and biological evidence of the invasion of the Indo-European language group to India. Nevertheless, the invasion of Babylonia during 1760 BC, the Dorian invasion in Greece (1500-1100 BC), and the Celtic invasion of Gaul (France, 800-

30 BC) are mentioned in the Boghaz-koi inscription (Bailey, 1957). Despite that, the Boghaz-koi inscription describes the proximity of the Avesta language, Vedic Sanskrit, Zoroastrian religion, and Hinduism (Witzel, 2001). It is near the dialectical group of Middle and Vedic literature.

IV. Samaveda and Notations

Frits Staal describes that melodies are not newly invented for Samaveda. Rather, it is the fusion of older melodies to the stanzas of Rigveda (Witzel, 2001). The world musical notation journey started in ancient Greece (Marfua, 2021). Homer narrated his twin's epic (750 BC) (Marfua, 2021). The musical notations of string and wind instruments are the fact of the 8th to 7th BC (Whitney, 1874). Aristoxenus (375-355 BC), Anaximander (600-546 BC), Pythagoras (6th BC), and Ptolemy (1st AD) are the leading legends of musical notations. Pythagoras believed in the harmony of heavenly bodies or the celestials' bodies. According to him, celestials' bodies vibrate (radiating) based on their orbit. Humans cannot simply hear the music of the spheres. Pythagoras is the father of musical notations (Beck, 2012). Pythagorean perception of musical harmony is reflected in the hymns of Samaveda (Heehs, 2002). Ancient Greek and Egyptian musical notations were from the 10th to 7th century BC and were alpha symbolic notations. Pythagoras pioneered the Octave system (Heehs, 2002) of musical notations. Samaveda not only defines *music* as an art. Instead, it is a description of quantitative science, and it is related to the physical description of the Universe. Samaveda believes music has magical power (Heehs, 2002) and is an ancient vocal melody document.

The most common meters of Samaveda are the Gayatri, Pragatha, Brihati, Tristup, Anustup, and Usnik (Table 1) (Wisdom Library, 2022). The Gayatri meter is the most widely used and shortest one. Samaveda starts with the Gayatri meter. Gayatri combines *gaya* and *tri* (*Gaya + tri = Gayatri*); *tri* means *trio*, and *gaya* means *singing* or is related to the cow (Bhan, 2006). It has octosyllabic sections and twenty-four alphabets. Gayatri is represented as $3 \times 8 = 24$, $4 \times 6 = 24$, $6 \times 4 = 24$, $8 \times 3 = 24$ and $2 \times 12 = 24$. It represents the number of syllables; the basic logic is the $axb=c$. The C (24 syllables) has a constant entity. The 24 is related to Earth's orbit and Solar Day and is near lunar day (24 hrs 50 minutes). The debut of Samaveda with Gayatri meter indicates the Sun-centric philosophy of the Vedic era (Heehs, 2002), revealing the reality of cosmology. Lyrics of Samaveda are derived from the Rigvedic tetra (*tri*) concept of notations (Marfua, 2021).

Table 1: Meters of Samaveda

Meter	Arrangements Pattern	Number of Alphabet
Gayatri	$2 \times 12 = 24, 3 \times 8 = 24, 4 \times 6 = 24$	24
Usnik	$2 \times 14 = 28, 4 \times 7 = 28$	28
Anustup	$2 \times 16 = 32, 4 \times 8 = 32$	32
Brihati	$2 \times 18 = 36, 3 \times 12 = 36, 4 \times 9 = 36$	36
Prakiti	$2 \times 20 = 40, 4 \times 10 = 40$	40

Tristup	2X22=44, 4X11=44	44
Jagati	2x24=48, 3x16=48, 4x12=48	48

Source: (Marcantonio and Jha n.d.)

(i) *A tveta ni shidatendram abhi pra gayata.*
Sakhaya stomavahasa.164
Chandogyo Upanishada (Muller, 1879)

Samagana was the group song (*abhi pra-gayata* means singing in front, *ni shidatendram* means sitting together) (Bishan, 2022). Sama singer is *udgata* (*udgita* means main singer or *Purohit*). Rigveda mentioned three notes: *Udatta*, *Anudatta*, and *Svrita*. The three different pitches had been used by the Sama singers with numeric notation as *Udatta* (acute or high-pitch) as 1, *Anudatta* (grave or low-pitch) as 3, and *Svrita* (circumflex of moderate) as 2. *The Udatta symbol was denoted on the top of the script, the anudatta just bottom of the script, and it is defined as syllables. Svrita was denoted by the vertical line above the syllables* (Witzel, 2001).

(ii) *kalpante hasmai loka urdhvascavrttasca ya etadevam vidvamllokesu pancavidham samopaste 111*
Chandogyo Upanishada (Muller, 1879)

“*pancavidham samopaste*” means a five-fold manner of Sama singing (Ganapati, 1992). However, the types are not clarified in Upanishada. The Samagana is the breath singing method (Bishan, 2022). It covers five attributes: the particular sitting posture, seven swaras, ascending and descending arrangement of notations, the proper pronunciation of syllables, and three-beat or four-beat rhythm (Bishan, 2022).

(iii) *Pari kosam madhuscutam soma punano aryati.*
Abhi vanirenam saptanusata.577
Samaveda (Das, 2013)

Saptanusata means the composition of Seven swaras. Sama is pronounced with the combination of seven swaras or *satpata* notes (Ibid.).

Ayaruca hariya punano visva dvesansi tarati sayugvabhi spuuro na sayugvabhi
Dhara pisthasya rocate punano aruso hari
Visva yadruva pariyasysakvabhi saptasyebhirrakvabhi.463
Samaveda (Ibid.)

(*Saptasyebhirrakvabhi* means Seven swaras. The Samagana is the seven-swaras singing method.) (Ibid.)

Samavedic lyric evolved from the tetra concept and gradually developed five Swaras, and ultimately, Samagana followed the seven notations (Beck, 2012). The successful performance of Samagana depends on vocal melodies. Samagana followed the descending order and ascending order of seven notations (*saptaka*) (Ibid.).

(iv) *Jajana sapta matribhirmedhamasasata sriye*
Ayam dhruvovrayanamciketada101
samaveda (Das, 2013) (“*sapta matribhi*” means seven notations like seven mothers)
 (Ibid.)

Sama is a combination of seven notations. The first notation was called Krishta and was Madhyam note-based (Bishan, 2022). The seven swaras are the Ma (1st), Ga (2nd), Re (3rd), Sa (4th), Dha (5th), Ni (6th), and Pa(7th). Re (3rd) and Dha (5th) are Shudh notes, and Ga (2nd) and Ni (6th) are flat notes (Bishan 2022). Samagana followed three notations: 5, 6, or 7 notes. The Samagana is sung based on Ma (Marcantonio and Jha, n.d.).

(v) *atha khalvatmasammitamatimrtyu saptavidham samopasita himkara iti tryaksharam*
prastava iti tryaksharam tatsamam, 133
Chandogyo Upanishada” (Mitra, 1862)

Saptavidham sam means seven notations of Sama, and *tryaksharam prastava* includes three beats and three accents (Das, 2013). Sama singing is related to the three-beat system, and atma-sammitam means with an equal number of parts (syllables) rather than equal rhythms (Wisdom Library, 2022). Sama verses add meaningless vocabulary sounds like oim, hui, ho, hiring, etc., to fit the desired musical harmony better (Ganapati, 1992). Those phonetical words are used at the sloka's start or end to maintain the parity of beats and rhythms (Heehs, 2002). The *tala* (beat) is a repeating rhythm pattern, and the rhythm (*laya*) is the process of separating sounds by time in music. Samaveda is the experimental output of vocal athletes of the Vedic era (Witzel, 2001).

(vi) *adiriti dvyaksharam pratihara iti caturaksharam tata ihaikam tat saman 134*
Chandogyo Upanishada (Mitra, 1862)

The word *adi* is two-syllables, and the word *pratihara* is four-syllable. If you remove one syllable from *pratihara* and add it to *adi*, they will have the same number of syllables (Hume, 1921). The sloke describes the method of stretching the syllable to maintain parity, and it may be three or four beats irrespective of the word count of the slokas (Takure, 2016). It is the basic principle of Dadra (three-beat symmetrical cyclic beat) and Kaharwa *tala* (four-beat symmetrical cyclic beat). Samaveda is also the experimental output of musical beats.

(vii) *vinardi samno vr̥ṇe pasavyamityagnerudgitho niruktaḥ prajapaterniruktah*
somasya mridu slakṣṇam vayoh̄ slakṣṇam balavadindrasya krauncaṃ
br̥haspaterapadhvantam̄ varuṇasya tansarvanevopaseveta varuṇam̄ tueva varjayet
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Chandogyo Upanishada, (Mitra, 1862)

Vinardi is the deep voice of bull, *niruktaḥ* (elephant’s clear voice), *anirukta* (heron, not very clear sound), *krauncaṃ* (bird), *mridu slakṣṇam* (horse soft sound) *vayoh̄ slakṣṇam* (peacock, hard sound) *apadhvantam̄* (goat); these are basic of seven musical notations of Samaveda (Table 2) (Wisdom Library, 2022).

Table 2: Seven notations of Samagana

	Swaras	Samaswaras	Animals/ Sound	Birds	Sama Swaras
1	Prathama	Madhyama	Heron		Ma
2	Dwitiya	Gandhara	Goat		Ga
3	Tritiya	Rishaba	Bull		Re
4	Chauturthi	Shadja	Peacock		Sa
5	Panchami	Nishada	Elephant		Ni
6	Shasta	Daiwatha	House		Dha
7	Saptama	Panchama	Koel		Pa

(Jha, 1923)

(viii) *atha yadyenamūṣmasupalabheta prajapatimsaraṇam prapanno bhuvam sa tva prati pekṣyatityenam bruyadatha yadyenam sparseṣupalabheta mṛtyum saraṇam prapanno bhuvam sa tua prati dhakṣyatityenam bruyat, 166*

Chandogyo Upanishada 166 (Mitra, 1862)

(*uṣmasupalabheta* means mutes sound and *sparseṣu* means sibilants sound) (Muller, 1879)

The proper accentuation and tonality are fundamental to Samagana. The Sama singers were alert about the articulation of mute sound and sibilant sound (Jha, 1923)

(ix) *sarve svara ghoṣavanto balavanto vaktavya indre balaṃ dadanii sarva uṣmaṇo 'grasta anirasta vivṛta vaktavyaḥ prajapateratmanam paridadaniti sarve sparsa lesenanabhinihita vaktavya mṛtyoratmanam pariharaniti 167*

Chandogyo Upanishada, (Mitra, 1862)

The pronunciation of the aspirated sound (*ghoṣavanto*) is the principal attribute of Samagana. Aspirated sounds were pounced loudly by the Sama singers. The clarity of the Mutes sound (*uṣmaṇo 'grasta*) was the essential prerequisite of Samagana. Sibilants (*sarve sparsa*) sounds were pronounced slowly, but those were pronounced distinctly and clearly separated from related sounds. The vowels were preceded by a puff of air, as in “h” and “wh,” and those are considered an aspirated onset. It leads to overall breath quality (Bishan, 2022).

Samaveda is a lyric with numerical musical notations, and it is the mythopoetic model of the universe. It combines seven musical notation (Table 2) and ascending and descending modes of singing. Samaveda defines the sound frequency of each note; it is specified by the syllable of the meter, which is based on the alphabet's count (Table 1). The meaningless phonetical sound is used to maintain the parity of the three-beat or four-beat system of rhythm. Samagana is the breath-singing method described in the allegory (Jha, 1923). The proper articulation of each sound was essential for Sama singers. Samaveda is the literature of linguistic and musical literature. Structuralism first became a specific discourse with the work of a Swiss linguist, Ferdinand de Saussure, who

developed a branch of linguistics called Structural Linguistics. Samaveda is the functional representation of phonetics, lyrics, beat, meter to a breathing pattern, position of the tongue, and sitting posture. It is an allegorical presentation of linguistic structuralism. De Saussure suggests ancient poetic texts were based on anagrams, indicating the syllables in the archaic grammatical and poetic analysis (Leborgne and Rosenberg, 2019). Vedic literature is characterized by polysemy and synonymy. Sama represents nature, not through the specific primary data but through the code-switching and clear-cut binary opposition. Sama is the Vedic experimental output of linguistic structuralism, and Samagana is an ancient document of musical notation attained by vocal athletes of the Vedic era.

V. Soma and it's Connotation

The Samagana and *Somajagya* are pronounced simultaneously. The Soma is full of allegory and metaphor. Chandogyo Upanisada is the reference and ancillary literature to explain the Samagana, but somehow, there is no ancillary literature (Upanisada) to explain the connotation of Soma. Therefore, a long debate is going on whether Soma is the reality, the mythical, or the aspect of transcendence. Purvarchika (first chapter of Samaveda) addressed about 120 hymns related to Soma (Takure, 2016).

The Soma and Hoama were common in religious rituals of ancient Indian and Iranian cultures (Oguibenine and Oguinnine, 1998). The Samaveda describes Soma as the drinks, Soma as a god, as the water, and Soma as a flammable item (Takure, 2016). Soma comes from the root “*su*,” which means to press (Padhy and Dash, 2004). The inherent character of Sanskrit literature is that a single word has a diversified meaning (Sinha, 2021). Therefore, it is difficult to conclude that Soma is the only output of pressing something. In Purvarchika, Soma is most widely described as a drink (124) (Houben, 2003), but its ingredients are not clear (Ganapati, 1992). Soma is an acceptable offering to all deities, but it is described as the property of Lord Indra (Ganapati, 1992). Samaveda's debut chapter (Agni Kando, Purvarchiksa) is free from Soma and lorry, and Soma's glory starts from chapter two (Indra Kando, Purvarchika). A few selected slokas of the Samaveda were coined from chapter one (Purvarchika) to identify the nature of Soma.

(i) *Idam vaso sutamandha piba supurnamudaram.*
Anābhayinm rarima te 124
Samaveda (Muller, 1879)

Piba means drinks. Sloka (124) describes the Soma as drinks (124), not for the proletariats. It is dedicated to Lord Indra (Wisdom Library, 2022).

(ii) *Apibat kadrava sutamindra sahasrabahve.*
Tatrādadista pausasyam.131
Samaveda, (Falk, 1989)

The word *kadrava* means earthen pot, usually used to store liquid. Soma is stored in a Kadrava (earthen pot), so It is a liquid (drink) (Olivelle, 1998). However, the physical test of Soma and its category as a drink is not mentioned.

(iii) *Ima indraya sunvire somaso dadhyasira.*
Tan a madaya vajrahasta pttaye haribham yahyoka
Samaveda, 293 (Das, 2013)

Dadhyasira means curd. The Soma is served with curd, and Soma is (*pttaye* means drinkable and *haribhyam* means greenish) greenish in color. The Samaveda and Rigveda are synchronic descriptions of poetic and lyrical language. Therefore, the word *haribhyam* is full of ambiguity and may be yellowish or greenish (Ganapati, 1992).

(iv) *Dhanavanta karambhisam apsupavantam ukthinam.*
Indra pratarjusasva na 210, Samaveda, (Muller, 1879)

Soma is related to morning prayer (*pratarjusasva* means morning prayer) and is served as breakfast with barley cake (*ukthinam* means cake) (Takure, 2016). Barley cake has been common in the Harappa civilization and in western Asia since the 3rd millennium BC (Simha, 1995), and curd is the indispensable ingredient of the Vedic Ayurvedic tradition (Sharma, 2008).

(vi) *Ya indra camasesva somas camusu te sutah Pibedasya tvamsise162*
Samaveda, (Muller, 1879)

Soma is distilled (*sutah*), and it is poured into a bowl (*camusu*) with a spoon (*camasesva*) or ladles of feeding rack (Mitra, 1862). The description is related to the utensils (apparatus) used to prepare Soma (as liquid).

(vii) *Ayam vam madhumattama suta somo divistisu*
Tamasvina pibatam tiroahnyam dhattam ratnani dasuse.306
Samaveda, (John, 1842)

Soma is described as divine and comes from heaven (Divi means heaven, suta means coming from). Soma is described as the preparation of last night (*tiroahnyam* means last night preparation) (Takure, 2016). According to Frait Staal, M. Witzel, the old Persian (Avesta) words Hoama and Vedic Soma are synonymous (Bailey, 1957). Soma and Haoma rituals were common in Rigveda and older Avesta (Daniels, 2019). Avesta mentioned that Soma is a yellow mountain plant species with branches (Padhy and Dash, 2004). Nevertheless, the species or the group of species are not defined. The ingredients or raw materials used to prepare Soma are not collected far away from the Vedic settlements. Frait Staal, M. Witzel opined that Soma and Haoma were hallucinogenic beverages (Houben, 2003). Falk stated that it is not said that human Soma drinkers feel that they are growing (Falk, 1989). Falk's view is that the hymn does not offer even half-serious evidence that Soma was hallucinogenic (Falk, 1989) or that the experience described in the hymn was ecstatic or visionary (Williams, 2009). The Soma is most lucidly described as a narcotic drink, but the statement is not justified (Slokas, 158. 180 and 511) (John, 1842).

(viii) *Indraya madvane sutam pari tostumbhantu no gira.*

Arkam arcantu karava.158
Samaveda (Das, 2013)

Madvane comes from the root *muda*, which means joyful. Therefore, some drinking provided joyful experiences to Indra (Das, 2013).

(ix) *Punanaha soma dharayapo vasano arjasi.*
A ratnadha yonim tamasya sitadasyutso devo hiranyaya 511
Samaveda, (John, 1842)

Punanaha comes from the root *puu* (Das 2013), which means to purify (Das 2013). Soma is described as a purifier, and it ignores the fact that Soma is a narcotic or an alcoholic beverage. Soma is described as joyful, a purifier of thought, the spirit of light. Therefore, Soma is nectar or a beverage with hallucinogenic properties is not the ever-justified statement.

(x) *Panyam-panyamit sotara a dhavata madyaya.*
Soman veraya suraya. 123
Samaveda (John, 1842)

The Soma is a man-made preparation (Panyam-panyamit), and it is prepared by a skilled (*sotara*) person (123) (Ganapati, 1992). The Indra Kando (the second chapter of Pruvarchika) describes Soma as the divine drink, and after skilled and careful processing, Soma becomes drinkable (Das, 2013). Instead, Soma is the distillation process's output, providing consumers with a heavenly and joyful experience (Ganapati, 1992). Chapter two describes how Soma preparation is a laborious task. Soma drinking was not the custom of mass but a group activity (Ganapati, 1992). Soma drinks are described as divine and precious. Soma is served before the religious ritual and offered before morning prayer (Takure, 2016). Indra kando (Purvarchika) never mentioned Soma as a plant or several plant products (John, 1842).

There are phonological similarities between Soma and Hoama, but archaeological evidence is absent. Therefore, it is not justified to conclude that Soma and Hoama are synonyms. Harry Falk states that Vedic sacred drinks Soma and Avestan's Hoama were an extraction form of ephedra (plant species of low evergreen shrub with small scaly leaves) (Williams, 2009). R. Gordon described Soma as derived from mushrooms (Williams, 2009). The scholars tried to identify the Soma as a plant species but could not conclude the controversy related to Soma. It is a strange fact that no hymns of Rigveda and Samaveda provide any description of the exclusive Soma plant. Therefore, it is assumed that Soma may not be a single plant species. Rather, Soma may be a group of herbals, and mixing other metallic and non-metallic products produced it. The evidence that Soma is derived from Ephedra or a mushroom is absent. Vedic literature is full of metaphoric descriptions, and allegories are inseparable from them. The Soma as a plant species or the assemblage of plant species is still in ambiguity and allegory. (xi) *Somana svaranam krenuhi brahmanbaspate.*

Kakhivanta ya ausija.139
Samaveda (John 1842)

Sloka describes that a skilled person prepares Soma. Successful Soma preparation makes the Soma makers notable (*Kakhivanta* synonyms to famous)(Das, 2013). Therefore, Soma making is not the task of common people. Some makers are appreciated and recognized by the Soma product. Soma is the experimental output of Vedic sage (139), but the attributes of the experiment are full of allegory. Lord Indra is described as a judge who recognizes the quality of Soma (136). Hence, the preparation of Soma is related to specific techniques, and it is a qualitative product.

(xii) *Brahmanadindra radhasa piba somamritaunranu.*
Tavedan sakhyamastritam.229
Samaveda (John, 1842)

The pot filled with the Soma drinks (*piba*) is described as specious and full of treasure (*amastritam*) (Beck, 2012). It is the metaphoric description of Soma. The words precious and treasure are related to uniqueness, utility, and positive-desirable output. Therefore, Soma is Vedic sages' positive and experimental output (Cox, 2009).

(xiii) *A yahi susuma hi ta indra soma pibaimam.*
Edam barhia sado mama.191
Samaveda (John, 1842)

Before Vedic religious ritual, soma drinking (*soma pibaimam* means drinking ritual) was the custom (Pandit, 1974). *Susuma* means prepared products are precious. Therefore, Soma was the result of a Vedic sages experiment.

(xiv) *Abhi tva rvesabha sute sutam srijami pitaye.*
Trimpa vyannuhi madam.161
Samaveda (John, 1842)

Soma is described as distilled (*sutam*), innovative (*srijami*), and bliss of the divine (Sen, Tattabhusan and Ghosh, 1980). Therefore, it is a metaphoric description of a Vedic alchemist's product (Cox, 2009).

(xv) *Idam hyanvojasa sutam radhanam pate.*
Piba tvasya girvana. 165
Samaveda (John, 1842)

Soma preparation was a laborious job (Rojas system). Soma resulted from physical and mental effort (Falk, 1989). The word Somarasa was common in chapter two (Falk, 1989). *Rasa* is related to chemistry, and during the Vedic era, it was related to mercury, which connects both the Indus Valley and the Vedic civilization (Houben, 2003). The *rasa*, mercury, and cinnabar are the interrelated attributes. The literal meaning of *rasa* is the science of elixir, or it means the science of mercury (Muller, 1879). The use of cinnabar (ore of mercury) has long been inherited from Indus and Vedic civilizations (Simha, 1995). The *rasa* is related to mercury, which is the most metallic planet. Mercury (Roman god) is related to commerce, communication, and travel. The Soma is related to *rasa* (soma rasa);

the word *rasa* is related to ancient metallurgy and alchemist traditions. Soma is the assimilation of herbal and metallurgical products and is used in liquid form and for healing. Dr. S. Kalayanraman said Vedic merchants purchased the material to prepare the Soma from the Munjavata mountain region (Kalayanaraman, 2003). The word Munja or Mun is related to the grassland of Asia, a minor region. Somarasa was the ancient Indian alchemist's product related to the word Kavis (Kalayanaraman, 2003). The word *Kavis* is still used in the Indian regional language, such as the Kaviraja, who is the Indian alchemist. Kalayanraran described that the word *Kavi* is also closely related to the metalsmith of Sanskrit; in ancient Persian language, the metalsmith is called *Kaveh*; in Slovenian language, it was *Kovae* Croatian, it is known as Kavac; and it is called Kovacsol, and in all are related to ancient alchemists.

In Hindu religious practice, the indispensable part is to invite the deities before any ceremony, and a typical ritual has been followed. Hinduism starts religious rituals by keeping a *kalasa* (pot) and pot (brass, silver, or gold) filled with water and adorned with a small branch of mango leaves or other sacred leaves. The pot is considered complete after putting the three streaks mark of vermilion. The metal pot symbolizes ancient metallurgy, evergreen leaf is the symbol of ancient herbology, and vermilion is the symbol of ancient alchemist activity. Vedic rituals are water and fire rituals (Das, 2013). Water and fire are prime for civilization.

The Vedic Soma is related to cosmology, atmospheric water, or cloud and water droplets.

(xvi) *Revatrina sadhamada indre santu tuvivaja*
Kumanto yabhirmadema.153
Samaveda (John, 1842)

Soma is considered precipitation (*Revatrina* means precipitation), and precipitation is associated with thunder and lightning. There is a controversy about whether the Vedic culture is agrarian or nomadic, but the rainy season and rainfall are integral to Vedic culture. Soma is related to water and water festivals (Jha, 1923). Therefore, Soma is described as atmospheric droplets related to precipitation (Ganapati, 1992). The thundering and lightning bring more precipitation. It is nothing but the rain worship. The Samaveda never describes food production or water-related economic activities, but the sloka mentions that Indra provides Soma, which brings prosperity to society by providing food and wealth (Muller, 1879). In the Indian scenario, food and wealth (*tuvivaja* plaintiffs of food) depend on agriculture and animal rearing, which are climate-related phenomena. Therefore, Soma is related to rainfall.

(xvii) *Apam phenena namuce sira indrodavartaya.*
Visva yadajaya spridha. 211
Samaveda (John, 1842)

The sloka describes that rainfall (*apam phenena* means heavy rainfall) occurs after hitting the thunderbolt to the head of the cloud demon by the lord Indra. It is an allegorical representation of a burst of monsoon. Monsoonal precipitation is the association of lightning and thunder. Cloud and water droplets are ionized particles, and due to the exchange of ions, electrical sparking, and lightning are produced. Lightning produces heat,

and heat passes through the air very quickly with a sudden expansion of air, and quick shock (*yadaajaya spridha*) waves are produced; these shock waves are heard as claps and rolls of thunder and lightning thunder accompanied by rainfall. The monsoonal rainfall started with electrical discharge by the charged water and cloud droplets.

(xviii) *Tubhyam sutasa soma stirnam barhivibhavasas.*
Stotribhya indra mriraya. 213
Samaveda (John 1842)

Distilled Soma (*sutasa* means distilled) is falling from space (*stirnam*) (Falk, 1989). It is an allegorical explanation of precipitation (Padhy and Dash, 2004). It explains the hydrological circle and evaporation, condensation, and precipitation processes.

(xix) *Pra va indraya brikate maruto brahmarcata.*
Vritram hanati vritraha satakraturvajrena sataparvana. 257
Samaveda (John, 1842)

Indra brings heavy flowage (*sataparvana* means as a flow) from a cloud (*Vritram hanati vritrahā* cloud destroyer Indra) and rainfall accompanied by thundering and lightning (*satakraturvajrena* thunderbolt). Therefore, Soma is the rainfall (Das, 2013).

(xx) *Aatvayidya sabardugham huve gayatravepasam.*
Indram dhenum sudughamanyamisam urudharam arakitam. 295
Samaveda (John, 1842)

Soma is described as milk (*Sabardugham*). The cloud is personified as a cow, and cow's milk is personified as rainfall (Ganapati, 1992).

(xxi) *Aya pavasva dharaya yaya suryamarocaya.*
Hinvano manusirapa. 493
Samaveda, (John, 1842)

Holy (*pavasva* means pious or holy) flowage (*dharaya* means coming down as a flow) of Water (*apa* means water) is the Soma (Matlock, 2000). *Suryamarocaya* means cloud uncovers the Sun after rainfall. It is the literary description of rainfall, and after rainfall, the cloud disappears, and the Sun becomes visible. It is the literary description of the condensation method. The cloud (vapor) releases the latent heat and becomes liquid (rainfall).

(xxii) *Gomanna indo ausvavatsuta sudakha dhaniva.*
sucim ca varnamadhi gosu dharaya. 574
Samaveda, (John, 1842)

Varnamadhi gosu dharaya means rainbow. A rainbow is nothing but the optical illusion of sun rays and the water droplets viewed from a certain angle, and it is the reflection and dispersion of sun rays on water droplets, producing a spectrum of light in the sky (Ganapati, 1992). Soma is a meteorological phenomenon.

(xxiii) *Tvamima osadhi soma visvastvamapo ajanayastvam ga.*
Tvamâtanorurvayntarikram tvam jyotisa vi tamo vavartha. 604
Samaveda, (John, 1842)

The Soma is a samadhi (medicines) source for plants and animals. Soma is the trial or the successful product of Vedic Ayurveda (Falk, 1989). Samagana and Soma are Samaveda's main attributes. It is unanimously established that Soma is a liquid prepared by a skilled person, which was a laborious job (Williams, 2009). According to the description of Samaveda, Soma connotes diversified dimensions, such as drinks, water, and deities (lunar deity), and Soma is flammable, too. The nature of Soma is described as liquid, which means it changes through time (Ralph, 2016) and space. The Purvarchika mainly describes Soma as the drinks and the water. Purvarchika never mentioned the ingredient of Somarasa. Soma is the liquid, follows the gravitation pull, and comes from space (cloud). Soma is the allegorical and mythical presentation of precipitation processes; the hydrological aspects of terrestrial earth and Soma are described as divine resources. Rainfall and distillation processes are related to the condensation method, which was the starting point of ancient alchemists (Witzel, 2001). Therefore, Soma is the metaphoric description of Vedic alchemist research as well as the research of Ayurveda.

VI. Result

Archaeological evidence of Samagana and Soma are absent. The Gayatri is the symbol of lyric, notation, meter, and rhythm, and it indicates the musical notations derived from the tetra system, and Samagana includes *saptaka* (seven numerical notations). Samagana sand is based on the fourth notation (ma). Samagana is the experimental output of Vedic vocal athletics. Soma is the experimental output of Vedic alchemists. Soma is described as a drink and liquid, but the physical attributes of Soma are not discussed; Soma as a plant or group of plant species are not defined. Samaveda described Soma as the moon god, but similitude is ambiguous. Despite all, *Somayajana* (Soma ritual) is considered sacred. Soma is related to fire, but its attributes are not defined. The water, plant and Snake symbolize all alchemist traditions (Kalayanaraman, 2003). Soma is described as water, drinks, and plants and is yellowish in color. The color of melting gold is yellowish and related to the literary description of moonlight. The metaphoric description of moonlight as a drink and the deluge of moonlight as the flood or flow of water is common in literature. Gold is related to ancient alchemists and merchants, and it is ever-speciously. The apparatus is essential for alchemic activities, and the description of the Soma bowl is clear (John, 1842) in 162 (Purvarchika, Samaveda) Sloka. Therefore, Soma is the oral tradition of transmitting the knowledge of aurification which was continued over the millennium to maintain secrecy (Kalayanaraman, 2003).

Conclusion

The Samaveda is the allegorical representation of the Universe. Samaveda is related to fire rituals and Soma sacrifices. Samaveda is the lorry and glory of fire and water. Fire and water are the core of civilization. Soma is the liquid, following the gravity and symbol of femininity, and fire moves the anti-gravity symbol of masculinity. Therefore, Samaveda is

described as a union of femininity, masculinity, gravity, and anti-gravity. Vedic culture is championed in its alchemic research and vocal music. Samaveda is a combination of both. Samaveda is the epitome of Vedic sages' lyrical expression and alchemist research.

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