

Sonic Geometry in Temple Architecture

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Abstract

Sonic geometry, the physical manifestation of frequency, appears to be a promising area of study which comes closest to revealing the ultimate truth to humans. It connects the areas of Ancient Mathematics, Sacred Geometry, Sound Harmonics, and Nature in a way that no other area of study offers. Sacred sounds like ‘OM’, *Gayatri Mantra* and *Mrutunjaya Mantra* have played a significant role not only culturally but also helped in maintaining mental and physical health. Ancient manuscripts scientifically confirm that these sounds have a remarkable positive impact on the human body and mind. These geometries studied appear to be fractal in nature.

Temple architecture and its corresponding generative geometry clearly indicate fractal concepts and its intuitive application. The plan form, symbolism, the indentations, the propagation of layers, and various energy overlaps clearly depict its correlation with sonic geometry of healing frequencies.

This paper attempts to establish sonic geometry as one of the important influences of temple form generation. A study of the frequency characteristics and the Cymatics geometry produced is estimated to correlate with temple plan forms. This will also reiterate the healing capacity and justify the feeling generated in a temple space through its architecture. It may be the method of communicating with the universe. This paper therefore, critically examines and discusses the geometry of the *Sri Yantra*, relating it to the plan of Kandariya Mahadev temple in Khajuraho built around 1050ce.

Introduction

Sonic geometry is the physical manifestation of sound frequency. Though scientifically proven only recently in the western world, this connection was long established by the Vedic rishis and explained thoroughly. Ancient manuscripts, scientifically confirm that these sounds have a remarkable positive impact on the human body and mind. These geometries studied appear to be fractal in nature. This field of study connects the

areas of Ancient Mathematics, Sacred Geometry, Sound Harmonics, and Nature in a way that no other area of study offers. Sacred sounds like ‘Aum’, *Gayatri Mantra* and *Mrutunjaya Mantra*, have played a significant role not only culturally but also helped in maintaining mental and physical health (Wani *et al.*, 2020).

It is known that this primordial sound of ‘OM’ can be represented in the form of a divine diagram – ‘*Sri Yantra*’. This diagram evolves as a radial pattern, emanating from the

centre outwards. It is not difficult to correlate this concept to the generation and expansion of the universe, to the generation and expansion of sound energy and its propagation, and to the generation and expansion of temple plans and elevations. This is possible by understanding the various temple magnetic-propagation diagrams along with the evolution of the projections and niches. It has been thus noticed that the plan of a typical Hindu temple draws close similarity with the *Sri Yantra*. This correlation will be explained through drawings.

This study tries to understand, correlate and reiterate these intuitive connections and tries to explain through diagrams.

Sonics and OM

Sonics is the branch of science that deals with the practical applications of sound. Certain devices help in this process. Tonoscope is a device wherein sand grains on a flexible but stretched surface are subjected to certain sound frequencies giving rise to beautiful mandala patterns. A tonoscope is an appliance that turns sounds into patterns. The area of science called Cymatics is about the translation of sound vibrations into visible patterns. It is usually done by vibrating a fine powder or a liquid on a plate connected to a speaker. The images that can be produced with different frequencies are complex and beautiful and often look like mandalas. The *Sri Yantra Mandala* is the image of the Aum mantra, the primordial Hindu sound of creation and generation. When Aum is intoned into a tonoscope, it first produces a circle. As the tone is completed, the circle is filled sequentially with concentric squares, triangles and finally, as the "mmm" dies away, the

Sri Yantra(TONOSCOPE CREATESOLD HINDU DIAGRAM OF OM).

Hans Jenny, a pioneer in the field of modern cymatics, the study of the interrelation-ship between energy and matter, conducted a series of experiments on the *mantra* 'OM', utilizing a tonoscope which is a device that transforms sounds into their visual representations on a screen. Jenny found that when "OM" was correctly intoned into a tonoscope, a circle appeared which is then filled in with concentric squares and triangles, finally producing, as the last traces of the 'M' disappear from the screen, the core structure of the *Sri Yantra*(TONOSCOPE CREATESOLD HINDU DIAGRAM OF OM).

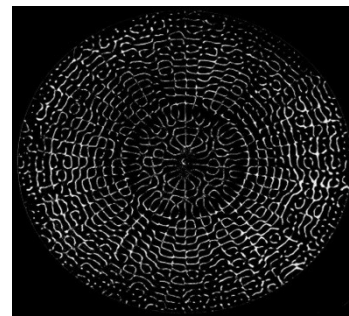


Figure 1: Cymatic Image <https://in.pinterest.com/pin/324611085619360585/>



Figure 2: The Shape of Sound <http://bassamfellows.com/entry.cfm?id=107>

AUM is considered the purest of all mantras. The syllable AUM is made out of the

three sounds a-u-m (in Sanskrit, the vowels a and u combined to become one sound of O(Gurjar and Ladhake, 2008) and the image's triple nature is key to its importance. It alludes to Atman (soul,self) and Brahman (extreme reality, total of the universe, truth, heavenly, preeminent soul, grandiose standards, information). The image AUM comprises of three syllables where the letters A, U, M and a dot on its top. The letter 'A' represents 'Consciousness', the letter 'U' the 'Dream state' and the letter 'M' represents 'dreamless sleep' state of the mind and spirit. It has been found that chanting of AUM mantra on regular basis restore the balance of the body at physical, mental, emotional and spiritual level (Dwivedi and Singh, 2016). It also establishes the connection with the divine energy that would develop intuition, enhance creativity, increase energy level in the body and increase performance at the workplace (Dwivedi and Singh, 2016).

The syllable Om is first mentioned in the Upanishads, the mystical texts associated with the Vedanta philosophy. The Rigveda (1.164.39) mantra says as follows:

ऋचो अक्षरं परमे व्योमन्यस्मिन् देवा अधि विश्वे
निषेदुः ।

यस्तन्न वेद् किमुचा करिष्यति य इत्तद्विदुस्त
इमे समासते ॥



Figure 3: OM

The Vedas rest in the imperishable syllable in the Supreme ether (of the heart).

Those who do not know that, what can they do with the Veda? Those who know that are gathered here.

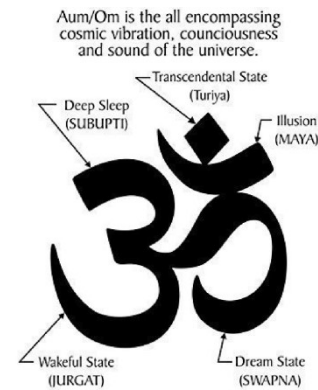


Figure 4: OM and its Symbolic Meaning

According to Mandukya Upanishad AUM is described as the whole world. The significance of AUM is built on a structure of "fourfold", derived from A + U + M + "silence". The main content of "Mandukya" describes in detail various state of human consciousness and awareness (Dwivedi, Singh, 2016).

The *Pranava* (AUM) is a combination of four parts:

- A (Akara)
- U (Ukara)
- M (Makara)
- Bindu and Nada

These parts are symbolic of – Creation, Preservation, Dissolution and Deliverance, which form the eternal life-death rhythm that goes on in an endless cycle. Thus, Pranava is the sound manifestation of GOD (Waniet al., 2020).

The Analysis of Chanting OM:

Time-Frequency analysis is an assemblage of strategies for observing frequencies varies in time. Gurjar and Ladhake (2008) show the effect of chanting OM for

longer period of time using wavelet transformation on speech signal analysis in figure below:

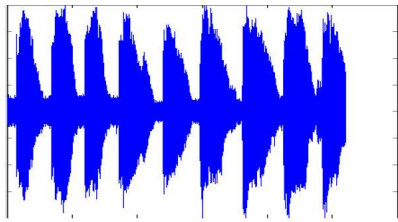


Figure 5:OM and its Symbolic Meaning

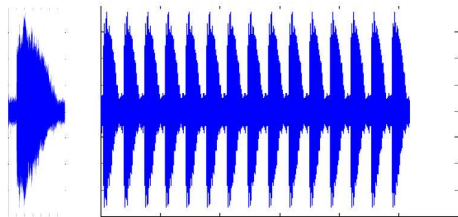


Figure 6:Chanting OMAfter some days

Silence from which OM emerges:

Eventually, this leads to a deep stillness and silence, which paradoxically, is experienced as the silence from which the sound of OM itself emerged. In the sections below, the silence is described as being the fourth state, beyond the three sounds of A, U, and M, which are contained in OM Mantra. However, in this practice, as you internally repeat the sound of OM, imagine that underlying vibration of the universe, as if it were coming from all places, and through all things (Gangadharet *al.*, 2018).

The table 1 below shows that chanting of OM can reduce the complexity of EEG signal. A 30 min OM mantra contemplation practice change theta EEG designs altogether more than benchmark EEG brainwave designs.

The discoveries in the current review are connected with guileless mediators (7).

Table1:The EEG analysis of chanting AUM

Om chanting type	Subjects	Type of meditators	Method / Signal Processing	Experimental Design	Findings
Hame, 2014 Loud Om mantra chanting	10	Naive	Time domain Analysis (Higuchi Fractal Dimension (HFD))	Rest → Om Chanting → Rest	Om chanting reduces the complexity of EEG signal.

Sri Yantra

In common use, *mandala* has become a generic term for any diagram, chart or geometric pattern that represents the cosmos metaphysically or symbolically; a microcosm of the universe. *Mandalais* also a map of the space surrounding us at the time of our birth. <https://twiggietruth.wordpress.com/2015/05/21/sacred-geometry-mandala/amp/>

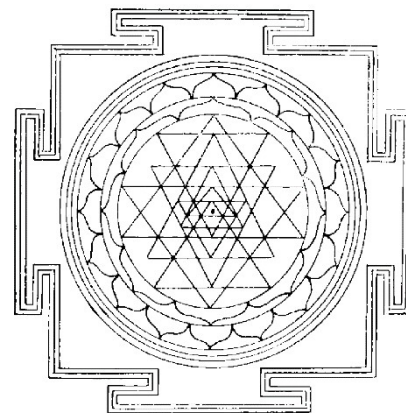


Figure7: The Sri Yantra (Kulaichev, 1984)

There are various geometric diagrams prevalent with respect to the exact activity it needs to be employed for and the deity it connects with.

There are three types of *Yantras*:

1. Mandala – flat 2D patterns

2. Meru – 3D pyramidal, Temple Shikhara, or Mount Meru shape
3. Sankhya Yantra – numerical pattern

कौलार्णव तंत्र

kaulArNava tantra

यंलम् मंलमयम् प्रोक्तम् देवता मंलरूपिणी
yantram mantramayam prOktam dEvatA mantrarUpiNI

शरीरमिव जीवस्य दीपस्य स्नेहवत् प्रिये
sharIram iva jIvasya dIpasya snEhavat priyE

सर्वेषामपि देवानाम् तथा यंलम् प्रतिष्ठितम्
sarvEshAm api dEvAnAm tathA yantram pratiShThitam

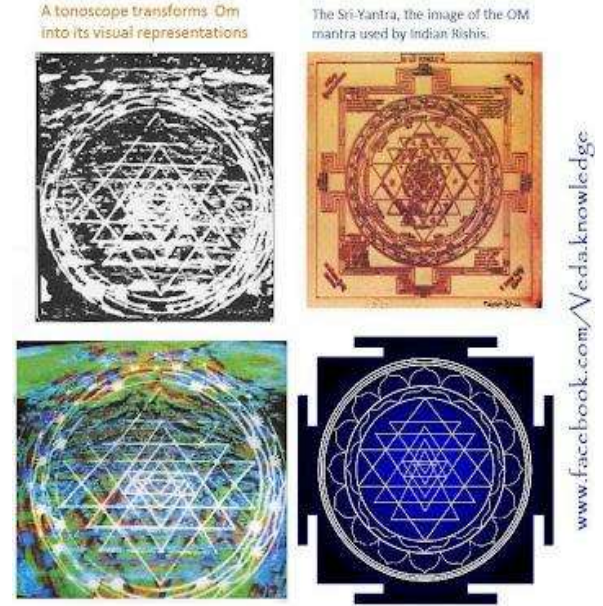
Figure 8: Kaularnava Tantra Shloka

This means, yantra (form) is a presentation of mantra (sound). The deity is an embodiment of the mantra. The yantra is of the deity as the body is of the being; and as oil is to lamp. This makes profound sense as all forms in the existence are varying complexities of reverberation.

Tantra (technique) = Mantra (sound) + Yantra (form)

Figure9: Tonoscope Image Compared with Sri Yantra Diagram

<http://vedasbeyondscience.blogspot.com/2013/08/tonoscope-createsold-hindu-diagram-of-om.html#.YeBsUP5By3A>



Science is learning today!! Indian Rishis learned thousands of years ago.



Figure10: Sri Yantra Diagram showing multiple overlaps of triangles and emanating circles. <https://www.instagram.com/p/CATW4VCDY9F/>

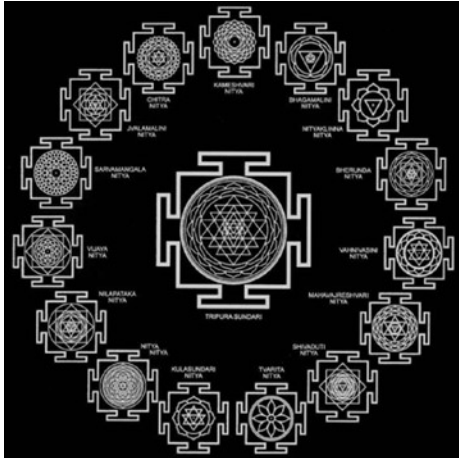


Figure 11: The Fifteen Nityas <https://twiggietruth.wordpress.com/2015/05/21/sacred-geometry-mandala/amp/>

The *Sri Yantra* belongs to the class of objects which are used for meditation for various schools of thought (Kulaichev, 1984). There are two ways of contemplation on the *Sri Yantra* – inward and outward. That is from the ‘bindu’ to the ‘bhupura’ and vice-versa. The sequence towards the outside is the evolutionary process and the reverse process is the destructive process. The analysis of the overlapping triangles and their corresponding circles is the play of patterns that give rise to intricate 3D forms when applied in various areas.

These generic diagrams are said to be generative of temple plans and in turn give rise to their 3D forms.

Temple Architecture

In the Hindu temple, the potentially divine becomes visibly manifest and therefore approachable by man (Michell, 1977, 1988). Hindu art is dedicated to rendering the world of the gods visible; its sacred images voice the messages of the gods (Michell, 1977, 1988). Temple architecture and its corresponding

generative geometry clearly indicate fractal concepts and its intuitive application. The plan form, symbolism, the indentations, the propagation of layers, and various energy overlaps clearly depict its correlation with sonic geometry of healing frequencies. It has been proven by Dutta (2021) in the doctoral thesis that the concept of fractals was definitely known in the Indian subcontinent in the ancient world as its application in the Hindu Temples can be correlated physically as well as metaphysically depicting the Hindu Temple concept and supporting it. Since these indentations can be explained beautifully through the application of the fractal concept – which only evolved in 1980s in the west, it can therefore be said that the west merely named this typology of geometry and depicted it with the help of computer graphics, but the concept applied in communicating higher order meanings through the temple structures.

There is a value and meaning in the highest of human creations as opposed to their raw information content (Salingaros, 2006, 2008). The temple structure portrays meanings on the sub-conscious and conscious sides of our mind. The basic desire of humans drives them to construct according to a similar algorithm, which makes them feel at ease with their environment naturally. Each pattern is presented as a process of resolving a recurring architectural problem: the relationship between a certain context, the forces that recur in this context, and a spatial configuration that permits these forces to resolve themselves (Alexander, 1979). Temple architecture needs analysis not only at the physical level but also metaphysical level, wherein the concept and its impact on humans may be understood. The physical manifestation of temple is merely a

path towards understanding of this concept.

The concept of proliferation and multiplication, with self-similarity, is equally explainable through the concept of fractals.

Agama Shastras

Agamas are a set of ancient texts and are the guardians of tradition. They broadly deal with jnana(knowledge), Yoga (meditation), Kriya (rituals) and Charya (ways of worship). The third segment Kriya(rituals) articulate with precision the principles and practices of deity worship – the mantras, mandalas, mudras etc.; the mental disciplines required for the worship; the rules for constructing temples and sculpting the images. They also specify the conduct of other worship services, rites, rituals and festivals. The fourth one, Charya, deals with priestly conduct and other related aspects(Kalyani *et al.*, 2011).

The Texts hold the view that Japa, Homa, Dhyana and Archa are the four methods of approaching the divine; and of these, the Archa (worship) is the most comprehensive method. This is the faith on which the Agama shastra is based. The Agama shastra is basically concerned with the attitudes, procedure and rituals of deity worship in the temples. But it gets related to icons and temple structures rather circuitously(Kalyani *et al.*, 2011).

The role of the Hindu artist is to give visible form to the values of his society, rather than to communicate a personal interpretation of these values (Michell, 1977, 1988). Paramount is the identification of the divinity with the fabric of the temple, or from another point of view, the identification of the form of the universe (Michell, 1977, 1988). The relationship that develops between forms and

their meanings within the Hindu temple is essential to its function as a link between the gods and man (Michell, 1977, 1988). The temple is a representation of the macrocosm (the universe) as well as the microcosm (the inner space). In this regard, some important points are:

Subject coordination, is taken care of by the string of spiritual theory, which continues at all levels. Though, metaphorically speaking, the basic/ smallest scale is only in some cases congruent to the extreme/ largest scale; these scales are almost always congruent geometrically (Dutta, 2021).

There are certain rhythmic 'gaps' which may either be called gaps or jumps from one scale to the next. At certain locations these jumps are not visible, and they have a smooth transition (Dutta, 2021).

Depth and subject importance are directly related. The more important a panel subject, its placement will be on the most protruding section of the facade. Similarly, the lesser topics are located in the recesses and shaded parts of the facade. Vice-versa is also true; wherever bulk shadows are seen, such areas are covered with subjects of minimal importance or patterns, maintaining the geometrical complexity.

The temple covers a lot of subjects from daily life to spiritual gains, yet they are all bound in a manner which forms a smooth narrative with subtle transition to becoming one with the divine. In this case, subject coordination occurs as a continuation of narrative. It is not essentially the repetition of the subject, but the progress in elevation of thoughts that has been emphasized (Dutta, 2021).

There is dramatic effect of light and shade, as seen, due to the tide imageries that the facade is loaded with. Light and shaded also contributes significantly towards accentuating the panel boundaries and band outlines, also balancing the structural weight (Dutta, 2021).

The degree of change in organization and scheme; like previous indicator; also vary from subtle to drastic owing to major changes in geometry and form. The plates of the plinth, reducing in size in a step-wise manner, the cuboid for the midriff of the temple, and the pyramid for the shikhara are the drastic geometrical changes wherein the scheme of decorations and patterns change with major differences.

The degree of change in shape varies from subtle to drastic, as per requirement for denoting the various shapes and symbols or stories wherever applicable. Subtle changes mark variations and changes in subject with theme continued; and drastic/ major changes in shape denote variations in theme, new stories, new line of thought etc.



Figure 12: Image showing a cornice niche detail – giving a beautiful play of light and shade through intricate symbolism (by authors).

Contrast intensity is an aspect which modifies itself through the day and creates additional play/dynamics in the experience of

the temple. This is facilitated with the changing light conditions (sky conditions) during the day as the exterior of the temple is subject to the natural sunlight intensity. Also, the direction of natural light modifies the visual impact, along with the changing imageries.



Figure 13: Images showing the exterior of the Kandariya Mahadev temple highlighting the effect of the jagged external geometry created by plan form (by authors).



Figure 14: Images showing the beautiful light and shade effect created by the jagged external geometry created by plan form (by authors).

Sonic Geometry in Temple Architecture

There is an essence and metaphorical meaning in the most basic as well as highest of human creations, as opposed to their basic and easily decipherable information transmission. The temple structure seems to portray meanings for the sub-conscious as well as the conscious parts of our mind so as to wholly impact the system. The basic sub-conscious and unconscious desire of humans drive them to construct according to a similar algorithm that is followed by nature, which makes them feel at ease with their natural environment (Dutta, 2021). Each pattern is considered to be

a process of resolving a recurring architectural issue: the relationship between – a certain context, the forces that act in this context and a spatial arrangement and configuration that permits these forces to resolve themselves.

This special relationship formed between the structure and the human mind, substantiates the experience through symbolism and a continuance of the metaphors in the visitors' minds. The physical manifestation of the temple is merely facilitation towards understanding of this concept in a visually satisfying way (Dutta, 2021). These have been assessed with an example.

Figure 15: Plan of Kandariya Mahadev Temple (by authors).

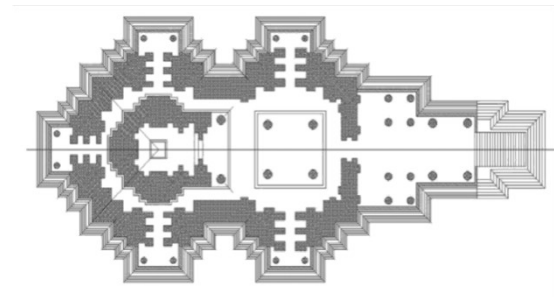


Figure 16: Image showing base of Kandariya Mahadev temple where the emanating plan form is visible (by authors).

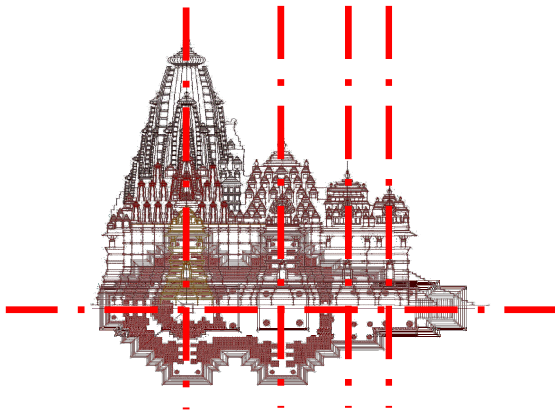


Figure 17: Superimposed plan and side elevation of Kandariya Mahadev Temple showing the functional and energy centers and the 'Bindu' of the *Sri Yantra*(by authors).

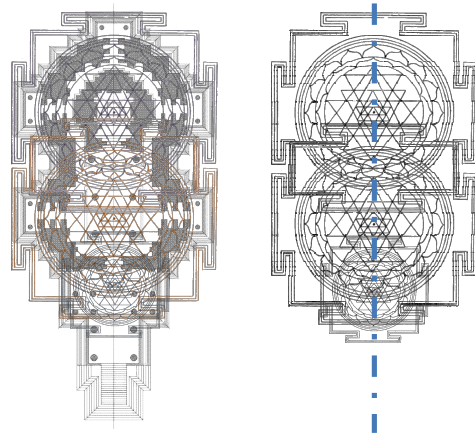


Figure 19: Diagrams showing the linear arrangement of *Sri Yantras* depicting the temple plans; and superimposed drawings to reiterate the energy centers (by authors).



Figure 18: Profile skyline showing the importance of jagged base plan rising up to converge – forming the Meru (by authors).

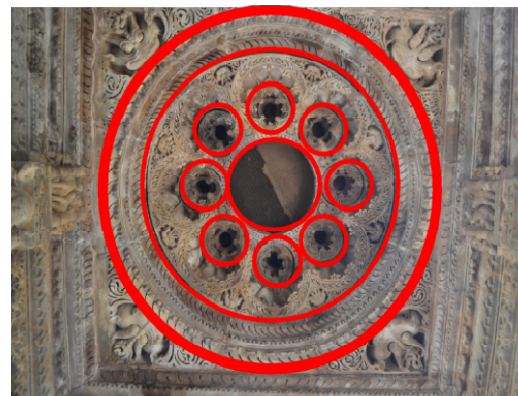


Figure 20: The ceiling of the *Antarala* (transition space between the *Mandapa* and the *Garbhagriha* – showing the emanating universe – reinforcing the concept of the *Sri Yantra* (by authors).

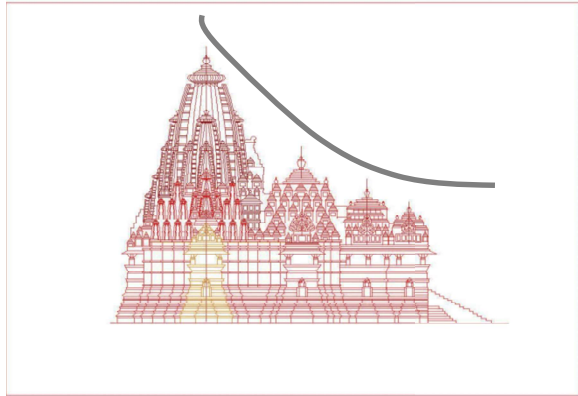


Figure 21: Side elevation of Kandariya Mahadev Temple to showing exponential rise in vibrational states of visitors and its symbolic significance (by authors).



Figure 22: Temple bell and its shape importance.

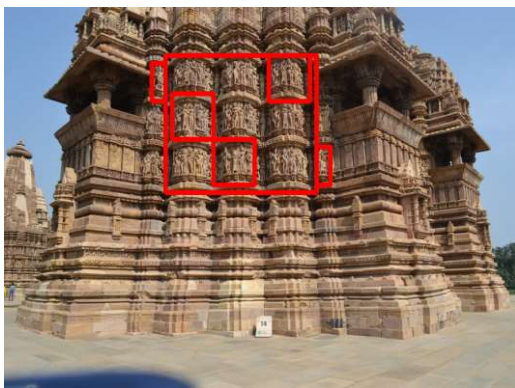


Figure23: Image showing the vertical subdivisions corresponding to the horizontally emanating plan form generative of the Sri Yantra (by authors).

The eye line reaching to the topmost point of the shikhara, passing through the smaller peaks, forms an exponential curve as shown in blue line. This directly coincides with the rising energy centers – formed by the orderly lineup of the *Merus*. The garbhagriha is the highest vibrational point which may be called ‘ecstatic’ state. The entry, walking towards the deity, and reaching close to the deity, is the gradual process through which one needs to travel to reach the state of ‘near ecstasy’.

Ancient Vedic scriptures had divided the bell into four parts. The curved body is representing the limitless Divine or Ananta. The tongue making the noise represents the Divine Mother, Saraswati.

A handle represents life or Prana, and the figurine represents the seeker. This is how a seeker is connected with the Divine through Prana. As the Divine Mother creates the sound of the self-knowledge, it purifies the Prana, and the seeker reaches to the limitless Divine. The temple bell enhances the positivity within us activating the left and right brain activities, creating a perfect balance in between the calculative and creative mind, connecting a seeker with himself. The vibrations created by the bell resonance last for a minimum of seven seconds after striking the tongue. It is known that these auspicious vibrations help to cleanse the seven chakras of the body, along with expelling the dark and negative thoughts from the subconscious.



Figure 24:Image and Drawing showing the interior space being in perfect coordination with the exterior complexity and concept (by authors).



Figure 25:Image and Drawing showing the interior space being in perfect coordination with the exterior complexity and concept (by authors).

Inference

The above discussion and diagrams show that looking at the temple plans through

the lens of the *Sri Yantra* diagrams gives a clear indication that the temple plans are generative of *Sri Yantra* diagrams. The logic and rationale is being the fact that the temples are the physical manifestation of the cosmos and representative of it. In its representation, the primordial sound that is ‘OM’ has been used to generate patterns and these patterns have in turn given shape to the fully evolved plan and 3D forms of temples of the Indian sub-continent. Sound being the basic generative force has the maximum impact on the consciousness. There are many important and extremely powerful *mantras* which give intricate patterns in a chain reaction of impact of sound. But most important and powerful is the ‘OM’ that is the starting point of any research on sonic geometry in temples.

The fractal concept has found weight here and helps to understand the connection and the rhythm of details found on both the patterns – the *Sri Yantra* and the temple plan. Temple architecture and its corresponding generative geometry clearly indicate fractal concepts and its intuitive application. The plan form, symbolism, the indentations, the propagation of layers, and various energy overlaps depict its correlation with sonic geometry of healing frequencies. This is definitely the rationale behind usage of the sound geometries and its 3D evaluative forms in the generation of Hindu Temple forms.

The overlapping part of the two *Sri Yantras* forms the *antarala*, that is, the transition space between the *mandapa* or *mahamandapa* and the *garbhagriha*. It seems only logical the 2D plan and the 3D form is generated out of an intricate chain of *Sri Yantras* overlapped to produce the respective energy centers. This gives the temples its

iconic form for mimetic identity and vibration frequency for touching the soul of the visitor. This dual impact – visual and metaphysical – is the result of that primal sound which is the source of creation itself.

The Mandukya Upanishad (MU) verse 12 states:

अमात्रश्चतुर्थोऽव्यवहार्यःप्रपञ्चोपशमःशिवोऽद्वैतए
वमोङ्कारआत्मैवसंविशत्यात्मनाऽऽत्मानंयएवंवेद॥

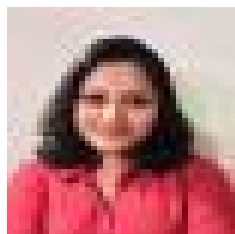
That which has no parts (soundless), incomprehensible (with the aid of the senses), the cessation of all phenomena, all bliss and non-dual *Aum*, is the fourth and verily the same as the *Ātman*. He who knows this merges his self in the Self. This reiterates the healing capacity of temples and justifies the feeling generated in a temple space through its architecture. It is the method of communicating with the universe as humans are stepping inside the sound geometry. These sounds are seen to have immense impacts on humans and being within the form produced by it has a more pronounced and all-round effect, contributing to generative forces. It may be concluded that these geometries and its generative forms are the reason for the visual, aural and chakra impacts on the human body and mind.

References

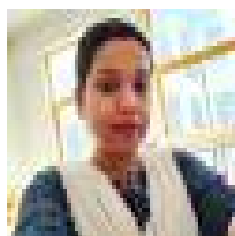
1. Bolton, N.J., Nicol, D. and Macleod, G. (2011). The geometry of the Śrī-yantra. *Religion*, 7(1): 66-85.
2. Dudeja, D.J. (2017). Scientific Analysis of Mantra-Based Meditation and Its Beneficial Effects: An Overview. *International Journal of Advanced Scientific Technologies in Engineering and Management Sciences* 3(6): 21-26.
3. Dutta, T. (2021). Interpreting symbolism in medieval Hindu temple architecture through fractal geometry .Nagpur : PhD Report.
4. Dutta, T. and Adane, V.S. (2018). Shapes, Patterns and Meanings in Indian Temple Architecture. *American Journal of Civil Engineering and Architecture*, 6(5): 206-215.
5. Dwivedi, M.K., and Singh, S.K. (2016). Scientific analysis of aum mantra in knowing self. https://www.researchgate.net/publication/312153393_SCIENTIFIC_ANALYSIS_OF_AUM_MANTRA_IN_KNOWING_SELF/F#:~:text=It%20brings%20clarity%20in%20mind,more%20energy%2C%20strength%20and%20focus.
6. Gangadhar, P., Chougala, B., and Laxmeshwar, B. (2018). How to chant Om mantra and its benefits. *International Journal of Physiology, Nutrition and Physical Education*, 3(2): 863-867.
7. Gurjar, A.A. and Ladhake, S.A. (2008). Time-Frequency Analysis of Chanting Sanskrit Divine Sound “OM” Mantra. *International Journal of Computer Science and Network Security*, 8(8): 170-175.
8. Harne, B.P. Tahseen, A.A., Hiwale, A.S. and Dhekekar, R.S. (2019). Survey on Om Meditation: Its Effects on the Human Body and Om Meditation as a Tool for Stress Management. *Psychology Thought*, 2019, 12(1): 1–11.
9. Harne, B.P. and Hiwale, A.S. (2018). EEG Spectral Analysis on OM Mantra Meditation: A Pilot Study. *Applied*

- Psychophysiology and Biofeedback*, 43(2): 123–129.
10. Kulaichev, A.P. (1984). Sri Yantra and its Mathematical Properties. *Indian Journal of history of Science*, 19(3): 279-292.
 11. Kalyani, B.G., Venkatasubramanian, G., Arasappa, R., Rao, N.P., Kalmady, S.V., Behere, R.V., Rao, H., Vasudev, M.K. Gangadhar, B.N. (2011). Neurohemodynamic correlates of ‘Om’ chanting: A pilot functional magnetic resonance imaging study. *International Journal of Yoga*, 4(1): 3-6.
 12. Michell, G. (1977, 1988). *The Hindu Temple: An Introduction to its Meaning and Forms*. Chicago, London: University of Chicago Press.
 13. Misra, S. and Shastri, I. (2014). Ruminations of Music on Buddhism and Hinduism. *Sport and Art*, 2(3): 33-40.
 14. Sivananda, S.S. (2010). *Japa Yoga: A comprehensive treatise on Mantra-Sastra* (14th edition). Tehri Garhwal, Uttarakhand, India: The Divine Life Society Publication. Retrieved from https://archive.org/stream/JapaYoga_A_Comprehensive_Treatise_On_Mantra_Sastra_By_SwamiSivananda/
 15. Wani, L.K., Upasani, D.E. and Deshpande, D. (2020). Review of scientific analysis of sacred sound OM (AUM). *Journal of Emerging Technologies and Innovative Research*, 7(11): 541-546.
 16. Wu, Z., Harne, R.L. and Wang, K.W. (2014). Energy harvester synthesis via coupled linear-bistable system with multistable dynamics. *Journal of Applied Mechanics*, 81(6): 061005 - 061013.

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