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## India's original contribution to Global systems of

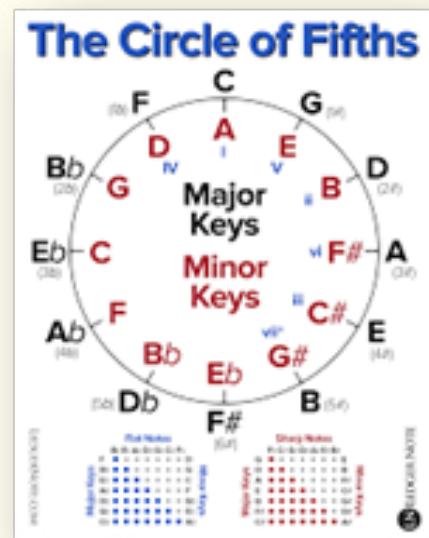
- Music, melody and harmony



Modern research based on exploration of syntax and semantics of music have come a long way. With the aid of computer programming, the celebrated 'Circle of FIFTH' has been well understood, and state-of-the-art machine learning approaches have brought back the emotive history of ancient music to contemporary urges.

It is evident that long back, a system of Indian music, as featured by the diurnal, emotive and seasonal cycles and their impacts on human emotions evolved. These are called the system of Ragas, which fostered communication between the inner psychic world of humanity and world around. The structural system was essentially a melody based on a duality of tonal Sa (DA) and the interplay of the seven notes or 22 microtones around it.

Indian music had a formative impact on the earliest form of Greek Music. At some point of time in history, perhaps 2000 BCE or even earlier, Greek civilization was still largely Asian, constituting of settlements in the coasts of Anatolia (Turkey). A substantial portion of the system of Indian Ragas bore a 1-1 correspondence with 6-7 Greek modes, which was still an extended system of melody. Traces of the original foundations of Indian ragas were evident in Asiatic Anatolian Greece, still closer to the roots found in the *Sama Veda*, the *Vedangas*, and the *Chandogya Upanishad*:



### 1. Ionian Mode: (W-W-H-W-W-W-H)

w w h w w w h

C---D---E---F---G---A---B---C (All natural notes are found in Ionian mode...Raga BILAWAL)

### 2. Dorian: (W-H-W-W-W-H-W)

Western: C-D-D#-F-G-A-A#-C Similar to Raga KAFI

Raga Kafi: S-R-g-M-P-Dh-ni-SA

### 3. Phrygian: (H-W-W-W-H-W-W)

Western: C-C#-D#-F-G-G#-A#-C Similar to Raga BHAIRAVI

Raga Bhairavi: S-r-g-M-P-dh-ni-SA

### 4. Lydian (W-W-W-H-W-W-H)

Western: C-D-E-F#-G-A-B-C Similar to Raga YAMAN

Raga Yaman: S R G m P DH NI SA

### 5. Mixo-lydian (W-W-H-W-W-H-W)

Western : C -D-E-F - G -A-A#-C

Rag khamaj : S - R-G-M-P-Dh-ni-SA Pretty similar to Raga KHAMAJ

### 6. Aeolian (W-H-W-W-H-W-W)

Western : C-D-D#-F-G-G#-A#-C....Similar to Raga ASAWARI

Asawari : S-R-g-M-P-dh-ni-SA (as G DH NI swaras are komal (flat))

### 7. Locrian (H-W-W-H-W-W-W)

Western: C-C#-D#-F-F#-G#-A#-C Resembles Raga TODI

Todi : S-r-g-M-m-P-dh-ni-SA

Almost all the accidentals are used in Locrian and Raga Todi too.

## The historical background

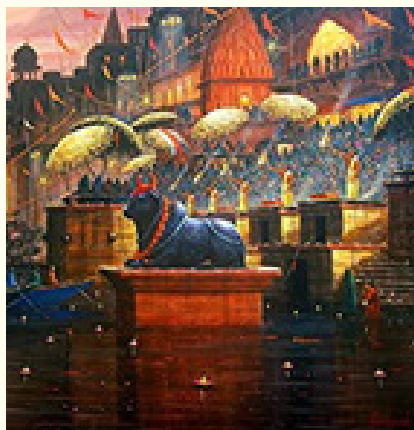
With Pythagoras and others, the purity of melody took a departure and the system of harmonics and modes were further developed. In Periclean Greece, now concentrated in the Aegean islands, a different form of notations based on harmonics was about to emerge. This was the genesis of what we call Western Music. But the tonal fundamentals, the progression, the system of emotive features which was still evident in the Dionysian-Orphic compositions was largely oriental or Indian and Persian.

In early writings of both Plato and Aristotle (approx. 350 BCE) there are large sections that describe the effect of different musical modes on mood and on character formation. For example an excerpt from Aristotle's "Politics", the following words are evident:

*"The musical modes differ essentially from one another, and those who hear them are differently affected by each. Some of them make men sad and grave, like the so called Mixolydian; others enfeeble the mind, like the relaxed modes; another, again, produces a moderate or settled temper, which appears to be the peculiar effect of the Dorian; and the Phrygian inspires enthusiasm."*

Modes much like thaats play an important part in western form of music as a framework for compositions. A lot of famous compositions are based on different modes. For instance the famous song *Another brick in the wall* by Pink Floyd is based on Dorian mode, and the Phrygian mode is used and adopted a lot in Flamenco music.

At the root of the ancient transfer of musical mode from the Asian Greeks to Eastern European or Roma (gypsy) music, the Hittites, who mostly spoke an Indo-European dialect with an Indian Vedic pantheon (2000 BCE) played a key role. The later Athenian Greek Modes in the Mediterranean are derivatives. From Milesians (City of Miletus in 1700 BCE) to the Pythagoreans of Periclean Greece (500 BCE), the repository of musical syntax was transferred over a period of a 1000 years prior to Alexander the Great.



## Essentials structures of Indian music

The system of Indian music has three essentials:

1. **Play of Geometry (Jya-matra)** – where the shapes of arcs, bows and funicular lines (called Form-active structures today) constitute the fundamentals of a Cable or an Arch behind the making of instruments.
2. **Application of Al-zebra** – Music is based on the gradual manifestation of the progression of a complex solution from an original and unified solution seed (vija) thought. Every raga has one such. The invocation of Raga thereby constitutes the branches of sounds and rhythms like the growth of a tree. Given a fixed structure of melodic progression, the singer and the player has infinite opportunity of improvisation of that seed in many forms of tree. It is a unique feature of Indian music system that got lost after the fall of Periclean Greece. After 100s of years, it has been partly revived through Rhythms and blues, and fusion music experiments. Pythagoras had once expanded on this original system, which he called MODE (a measure used both in statistics using numbers and as a governing feature in Musical progression by notation)
3. **The play of Pro-portions (purta)** – the arrival at a threshold of fulfillment of an emotive experience of a raga composition is the whole goal of Indian music. It must end with happiness, and ideally, with a state of sanity, serenity or bliss of some form (*rasas*) imparting a therapeutic churning or surge of the composer's and the listener's minds. Today, the ideas are back in Western music in the form of third-order Cybernetics, where an fixed orchestra is also an ensemble of improvisation in alliance with the mind sea of a pool of audience. Thus a musical rendition becomes a PORT, where a ship carrying interested listeners dock and alight, and then the experience advances. An auditorium today is from an ancient Greek apsidal form of amphitheater. It was called an ODEON in the shape of a half circle with the center at the lowest point as the stage and the seats leading to a raised 'Balkon' (a balcony) carved out of greek mountains. Thus architectural philosophy played a divine role too, as 'balcony' was reserved for the gods of Greece. . Thus 'portions' of music that is played are also 'portions' of emotive or

neural experience of the listener. The result is rapture or gnosis, where music is an ontological aid to composers or listener's 'Being and becoming'. Here, the constituent feature of Indian music is proportional between the donor and the acceptor, increasing bit by bit as the capacity of the listener-player duality increases, and finally, merges with each other.

## देवि! सुरेश्वरि! भगवति! गंगे!

त्रिभुवनतारिणि तरलतरंगे।

शंकरमौलिविहारिणि विमले मम मतिरास्तां तव पदकमले ॥ 1 ॥

भागीरथिसुखदायिनि मातस्तव जलमहिमा निगमे ख्यातः ।

नाहं जाने तव महिमानं पाहि कृपामयि मामज्ञानम् ॥ 2 ॥

हरिपदपाद्यतरंगिणी गंगे हिमविधुमुक्ताधवलतरंगे।

दूरीकुरु मम दुष्कृतिभारं कुरु कृपया भवसागरपारम् ॥ 3 ॥

## Play of Geometry:

### Shapes, frequencies and play of waves (rarefaction and compression)

The idea of the bow-shaped (*Dhanu or Dhanwa*) instruments led to a structured idea of the oldest instrument of Indian music, the bowed instrument of Shiva, called '*Pinaka*'. Shiva, an image of highest Sagehood or spiritual enlightenment, is expected to exude out of his fulfillment or the gifts of Samadhi, in the form of musical bliss. The whole story happens in 3 steps:

1. He then becomes a divine musician called '*Pinakpani*' !
2. The waves of bliss touches Lord Vishnu, who becomes ecstatic. His body exudes the divine waterscapes, which is '*Alakananda*'. '*Alakananda*' finally descends as Ganga or Bhagirathi, which is just not the name of a river, but an exodus of divine ripples from the innermost to the outermost worlds.
3. Finally, a great sage, the '*Brahmnaspati*' of the Vedas collects that ripple in a pitcher (*Brahma kamandulu*) for sustainable development of the highest culture of humanity.

## From India to Greece

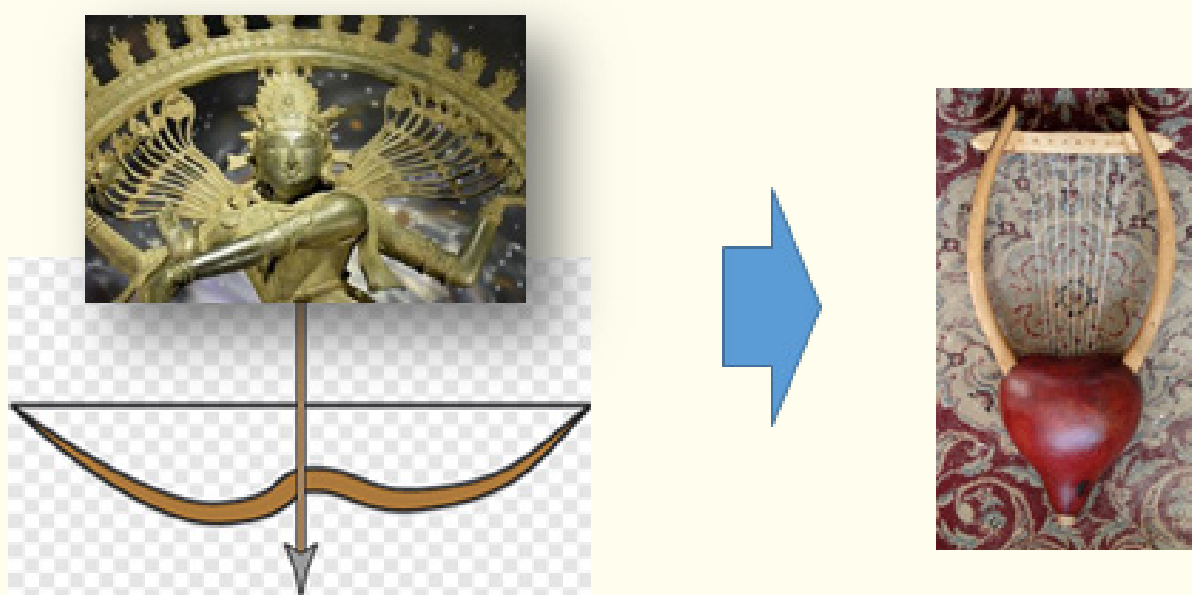
The essence of Indian Music is directly related to the etymological root of '*Phoenika*' or Phonics, which formed the basis of Phonetics. Somehow, they were the cultural attributes of the ancient Phoenicians, who derives their acquaintance from this word. They are the mariners of the past who had spread the ancient knowledge from India to Western Asia through the Persian Gulf to the Levant, a few thousand years prior to Christianity.

When the Phoenicians landed in Levant (Phoenician colonies of Lebanon and Israel) in the celebrated Fertile Crescent, there was a new beginning. They or a race close to them called the Hittites (2000 BCE), mixed with them. The Hittites are evident archaeologically and mentioned in the Book of Genesis, The Old Testament. The Hittites baptized the earliest patriarchs, Abiram or Abraham, and his two wives, Sarah and Hajar. As a result, an entire system of Anatolian-Levant music was developed in the West from the earliest hymns of Hittite music and then followed with

contributions by further great minds like Pythagoras and Protagoras, it became the foundation of Periclean Greek Music.

The etymological root of the ‘bow-shaped’ (*Pinaka* or Finke/ Curved Fince) is called ‘the funicular’, an arched line-form evident in bow instruments, from Indian Pinaka to Greek Lyre. Later, it became the celebrated Lyre of Orphic theology, and finally, an instrument of Helios or Apollo, the Sun god at Delphi (Omphalos). Incidentally, Delphi became the seat of Muses, near Mount Helicon/ Parnassus, from where important words like – the Muses, Music, Museum, Amusement have emerged as a pool of foundation words of later western Culture.

## The Spiritual Background; roots in the Śatarudriya found in the Yajurveda



*Pinak*: The Bow of Lord Shiva, Divine Bow of Lord Shiva (Sukla and Krishna Yajur Veda). In Vedic sutra and in later Puranic myth, the bow was gifted to King Janaka by Sage Parashurama for being a great disciple.

It is mentioned in Shri Rudram, 4.5.10, a Vedic mantra or chant in homage to Rudra (an epithet of Shiva) taken from the Krishna Yajurveda’s Taittiriya Samhita. It is from the earliest homage hymns to Rudra is the Śatarudriya found in the Yajurveda (4.5.1-11).

It is evident that the ***invention of the bow-instruments*** was centrally significant:

*“It made their contribution to the science of mathematics the largest of any race, ancient or modern, and to their knowledge of chemistry, of metallic compounds in medicine, their scale of musical notes, **their invention of the bow-instruments** — (all) of great service in the building of modern European civilisation. It led them to invent the science of building up the child-mind through shining fables, of which every child in every civilised country learns in a nursery or a school and carries an impress through life.”*

Swami Vivekananda  
Historical Evolution of India