Journal of Advances and Scholarly Researches in Allied Education
Vol. XV, Issue No. 6, August-2018, ISSN 2230-7540

Hindustani Music and Science in Thirteenth Century BC: A Study of Pt. Sharangdev's 'Sangeet Ratnakar'

Dr. Tejinder Gulati[1] Amandeep Singh Makkar[2]*

[1] Assistant Professor, Department of Music, Guru Nanak Dev University, Amritsar

[2] Assistant Professor, Department of Music, Mata Gujri Khalsa College, Kartarpur

Abstract – Studies in the scientific aspect of Music are very less and which are available have studied Music through modern scientific inspection through the science of sound. The study through the science of sound which mainly developed in the west causes the non-inclusion of oriental studies especially those in the native languages. The modern studies in Hindustani Classical Music lack the orientation towards Musical Treaties which contains large data on Music. The treaties and Granthas on Hindustani Classical Music which were written in time explain the details of their contemporary music to a minute level in the form of Sanskrit shlokas. The neglecting of these treaties can lead to their disappearance and further the inclination of musical studies towards modern scientific approach. The study is comprised of the analysis of Grantha 'Sangeet Ratnakar' to find out the shlokas quoting the scientific aspect of music and the properties of sound (pitch, intensity and timbre). Through this study it is found that, Sangeet Ratnakar describes the music of its time through the properties of sound. Although the terminology is different but the concepts used are scientific.

Keywords: Sangeet Ratnakar, Science of Music, Hindustani Classical Music, Sharangdev, Sarangdev

----------X----------

INTRODUCTION

Modern Studies of Music has crossed its disciplinary Boundaries and opened new of study in the field of music. The contemporary research works deals with the areas like the physics of music, the mathematics of music, the psychology of music, the psychology of music, the impact of music on human mind and body, the science of music etc. The present research paper is the study of the music-science interaction through the study of *Sangeet Ratnakar* written by *Pt. Sharangdev*' in 13th Century A.D.

Hindustani music carries a long history and the information about the music of any particular point in time can be drawn out from the treatises written from time to time. Such treaties may not or may not be explaining music; such as Vedas, these are basically religious but also carry information about the music prevalent 3000 years ago. Some historical books such as daily records of kings also carry music information. Such as *'Ain-e-Akbari'*, the record book of daily events in the kingdom of King Akbar around 500 years ago. A number of treatises are also written by various music scholars and musicologists from time to time, describing and explaining the music of their time. One such *Grantha*/Treatise is written by Pt. *Sharangdev*.

Pt. *Sharangdev* was born around 1210 A.D. He was the court singer of king of *Devgiri* who was of *Yadav* ancestry. Musicologists of Hindustani Music and Carnatic Music both acknowledge the authenticity of the *Grantha* by Pt. *Sharangdev*.[1]

The Treatise *Sangeet Ratnakar* has the definition of Music in the start that vocal, instrumental and dance are all known as music. Music is of two types, viz. *Margi* and *Desi*. The treatise is divided into seven chapters viz. *Swargatadhayay, Raga Vivekadhayay, Prabandhadhayay, Prakeernadhayay, Taladhayay, Vadhyadhayay amd Nritnadhayay.*

Modern studies have revealed that human mind is affected by listening, Learning and performing music. "When one is involved in playing music, a lot of things are going on in the brain. The perceptual systems involved are sight for reading a score, sounds for hearing, touch and so forth. The decoding and symbolic interpretation of a score engages related systems. One includes planning both fine and gross movements which require a great deal of coordination. The execution of movements of thousands of muscle fibers and muscle groups creates feedback from what has happened. And learning and memory are involved in every single step, not to mention the involvement of

emotional systems. Making music is an excellent exercise."[2]

A study on the effect of Music on GSR (Galvanic skin response) of Children was studied which shows positive result that music affects the emotions of the listener. '…experiment was conducted to determine the effects of music upon GSR of children. An excerpt of a musical selection judged by college students to be exciting and one judged to be calming were played in counterbalanced order to a group of kindergarten, third grade, and sixth grade children while continuous measures of GSR were being taken"[3]

It was found that the students showed the effect of music and the responsiveness of children towards the effects of music was more than that of college students

Another research conducted on 200 subjects, 100 Music Majors and 100 Music non-majors of which, 50 male and 50 female in each group. The subjects were blind folded and were told to perform pencil maze and it was told to them that their performance was not correct and they have to repeat the task again, until they felt anxious. The responses were measured through GSR and found that in the presence of music there was significant change in the anxiety level of subjects. The research concluded that Music may have coordinated between the emotional and rational stress of the subjects.[4]

Music and Human Mind

Human mind is affected by music was known to the musicians of 13th century is confirmed from the study of '*Sangeet Ratnakar'.* Pt. *Sharangdev* quotes some references of the impact of music on human mind referring to a child who is unaware of the taste of music, also stops crying on listening music.[5]

Effect of music can also be confirmed from the anecdote that dates back 500 years approx. during the reign of King Akbar in India. A famous competition of Tansen and Baiju Bawra is recorded in history which proves the effect of music on arrivals. Once there was a competition between Tansen and Barju Bawra. When Tansen sang, many deers came near and started listening to his music. Tansen put a garland in the neck of one of those deers. When he finished his singing, all deers went back. When Baiju Bawra sang, the same deer wearing garland came back. He removed the Garland from deer's neck and presented to Tansen, proving the controlling effect Music's on Animals. This anecdote of the competition indicates the knowledge of the effects of music to the musicians of that time.

The emotional content of different notes was also a part of music knowledge of thirteenth century. Pt. *Sharangdev*, speaking about the emotional aspect of music says that specific notes induce specific emotions in the listener. The Notes 'Sa' and 'Re' induces *Veer*, *Adbhuta* and *Raudra Rasa*; 'Dha' induces *Vishitsa* and *Bhayanaka Rasa*; 'Ga' and 'Ni' induces *Karuna Rasa*, and the was 'Ma' and 'Pa' induces *Hasya* and *Shingara Rasas*.[6]

The induction of emotions in the listener in not only through notes but through rendering of '*Jatis*' which have these notes as '*Ansh*'[7] i.e. through the *jatis* in which these notes occupy major time span, must have been used induce emotion rather than only notes.

How the thirteenth century musicians calculated the emotional content of these notes is still to be uncovered but it is confirmed that they were keen towards the conceptual study of music.

Music and Human Body

For the emergence of sound from human body Pt. *Sharangdev* Considers both physical and the meta-physical causes for the production of sound. According to him the metaphysical cause decides what to speak and the physical cause decides the physical properties of sound produced. The process of sound production starts with "*Aatma*' (The individual Self) which when wishes to speak activates the '*man*' (Consciousness). The '*man*' activates the inner heat which inspires the air present inside the body to move upwards through navel, heart, throat, '*mudha*' (The upper inside of mouth where tongue can touch) and mouth to produce the available sound which carries the massage which the '*Aatma*' (the individual self) wishes to convey.[8]

The categorization of three types of musical sound and the knowledge of Pitch Difference

The musical sound or the 'Naad' according to this shloka is of thrre types, the lower tone or '*Mandra Naad*;' the middle tone or the '*Madhya Naad*' and the upper tone or the '*Taar Naad.*' This classification of sounds is on the basis of the path of sound if it belongs to the lower, middle or upper octave i.e. the classification based on the physical property 'Pitch' of sound.

Also the notes of a raga are divided into the categories of '*vadi*', '*Samvadi*', '*Anuvadi*' and '*vivadi*' notes. The above categorization is based on the 'time span' each note occupies during the presentation of a raga. The *vadi* is the most prominent note because it occupies maximum time span, the second important *samvadi* occupies second largest time span. The other notes of raga are considered as *anuvadi*. The *vivadi* note is not used in the raga as such but to amplify the beauty and aesthetic expression. This note is used just a few times in whole performance.[9]

The 'Vadi' & '*Sam*vadi' notes are at a pitch difference of 13 or 9 microtones, i.e. there is a prominent note in both the halves of the octave. "The entire raga is so oriented that all the movements [of notes] tend to gravitate towards this note, called the *vadi*. *Vadi* means that which sounds. In other words it is that which dominates"[10]

Physical Properties of Sound and *Giti Gayan*

The five types of *Gitis* told by the scholars are all formed by varying the properties of the sound used in them. Some scholars, such as *Matang Muni* defined seven types of *Gitis* and some such as Pt. *Sarangdev* defined *Gitis* of five types viz. Shuddha, Bhinna, Gaudi, Vesra and Sadharni.[11]

According to Pt. *Sharangdev* apart from the melodiousness the different properties of *Gitis* are:

1) Unidirectional Movements of Notes: Movement of notes is unidirectional, i.e. are moving in a single direction. The pitch is either constantly increasing or decreasing. This type of song is termed as *Shuddha Giti.*[12]

2) Curvical Movement of Notes: The *Vakra* movement of the pitch and subtle gamakas are the properties of this *Giti*, i.e. Order of pitch of small part of sequence is opposite to the movement of the whole. For example, the movement from middle *Sa* to higher *Sa* is *vakra* if it is of the type '*Sa Re Ga Pa Ma Ga Pa Ma Dha Ni'.* The movement Ga Re, Ma Ga, Pa Ma is the downward movement of pitch but the result of whole frame is upward movement of pitch. This Type of song is termed as *Bhinna Giti* in Musical Treatise '*Sangeet Ratnakar*'[13]

3) Notes in form of *Gamakas* in all three octaves: This *Giti* is formed if dense *Gamaka* is sung in all the three octeves. The lower octave notes are sung softly. This chin is touched to chest (where heart is located) and 'HO…' is spoken while singing notes. This type of song is known as *Gaudi Giti.*[14]

4) Fast use of notes: When notes are sung in high speed according to four *varnas*, it is called as *vaig-swara Giti* or *Vesra Giti*.[15]

5) *Sadharni Giti*: This is formed when the properties of all the above four *Gitis* are mixed together.[16]

The *Giti Gayan* system was popular during the medieval period of Hindustani classical music and is mentioned in *granthas*, which describe different *Gitis* in terms of the nature and properties of sound used in a particular *Giti*. According to the definition of *Shuddha Giti* is the pitch movement is linear; *Bhinna Giti*, the pitch movement cervical and is nonlinear; *Gaudi Giti*, the pitch movement is in the form of *Gamakas*; and *Vesra Giti*, pitches are sung at high speed one after another and the sequencing of pitches is according to the four *varnas*.

We can also say that the *Giti Gayan* system, or different *Gitis* were differentiated and defined by taking into consideration the properties of sound very precisely especially pitch and intensity of sound.

CONCLUSION

From the above discussion it is clear that Hindustani Classical Music and Science were very close in Thirteenth Century BC. Effect of Music on Mind and Body, Three Types of Musical Sound and Giti Gayan according to *'Sangeet Ratnakar'* are discussed in this research report and found that the musicologists of that time were having scientific thinking and also study music interdisciplinary in relation to mind, body and physics of sound. More detailed study of the treatise will also reveal the mathematical nature of music. We can also state that scientific understanding of music and implementation of music scientifically was part of musical thought of Thirteenth Century.

REFERENCES

1. Sangeet Ratnavali, Pt. Ashok Kumar Yaman (2008). Abhishek Publications, Chandigarh, 2008, Pg. 730

2. Dr. Norman M. Winbergen : Prof of Neuro biology and Behaviour University of California, Irvine Music research in behaviour and brain. Past, Present and Future. Pg 50

3. George, H. Zimny and Edward, W. Weidenfeller (1962). Effects of Music upon GSR of Children, Child Development, Vol 33, No. 4, Dec 1962, Pg. 896

4. O. Peretti and Kathy Swenson (1974). Effects of Music on Anxiety as Determined by Physiological Skin Responses, Journal of Research in Music Education, Sage Publications , Vol. 22, No. 4, 1974, Pg. 281

5. गीतेन प्रीयते देवः सर्वज्ञः पार्वतीपतिः

गोपीपतिरनत्तौपि वंशध्वनिवशं गतः।।26।।

अज्ञातविषयास्वादो बालः पर्यडिककागतः।

रूदन्गीतामृतं पीत्वा हर्षोत्कर्ष।।28।।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.), Radha Publications, Vol. 1, 2000, Pg 15

6. रसविनियोगः

स्त्री वीरेऽद्भुते रौद्रे धो बीभत्से भयानके।।59।।

कार्यौ गनी तु करूणे हास्यश्रृङ्गारयोर्मपौ।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2000). Radha Publications, Vol. 1, Pg. 90

7. Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2000). Radha Publications, Vol. 1, Pg. 91

8. नादोत्पत्तिक्रमः

आत्मा विवक्षमाणौयं मनः प्रेरयते मनः।

देहस्थं वहिमाहन्ति स प्रेरयति मारूतम्।।3।।

ब्रहाग्रन्थिस्थितः सौथ क्रमादूर्ध्वपथे चरन्।

नाभ्झिहन्कण्डमूर्धासयेष्वाविर्भावयन्ति धविनम्।।4।।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.), Radha Publications, Vol. 1, 2000, Pg 57

9. स्वराणां चातुर्विध्यम्

चतुर्विधाः स्वरा वादी संवादी च विवाद्यपि।।47।।

अनुवादी च, वादी तु प्रयोगे बहुलः स्वरः।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2000). Radha Publications, Vol. 1, Pg 83

10. Indian Music, B.C. Deva (1990). Pub. Director-General, Indian Council for Cultural Relations, New Delhi, Second Edition, 1990, Pg. 42

11. गीतयः पन्च शुद्धा च भित्रा गौडी च वेसरा।।2।।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2008). Radha Publications, Vol. 2, Pg. 4

12. साधारणीति शुद्धा स्यादवक्रर्ललितैः स्वरैः।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2008). Radha Publications, Vol. 2, Pg. 4

13. भित्रा वक्रैः स्वरैः सूक्ष्मैर्मधुरैर्गमकैर्युता।।3।।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2008). Radha Publications, Vol. 2, Pg. 4

14. गाढैस्त्रिस्थानगमकैरोत्रिहाटीललितैः स्वरैः।

अखण्डितस्थितिः स्थानत्रये गौडी मता सताम्।।4।।

ओहाटी कम्पितैर्मन्द्रैर्मृदुद्रुततरैः स्वरैः।

हकारौकारयोगेण हन्यस्ते चिबुके भवेत।।5।।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2008). Radha Publications, Vol. 2, Pg. 4

15. वेगवद्भिः स्वरैर्वर्णचतुष्केऽप्यतिरक्तितः।

वेगस्वरा रागगीकतिवेसरा चोच्यते बुधैः।।6।।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2008). Radha Publications, Vol. 2, Pg. 4

16. चतुर्गीतिगतं लक्ष्म श्रिता साधरणी मता।

शुद्धसदिगीतियोगेन रागाः शुद्धादयो मता।।7।।

Sharangdevkrit Sangeet Ratnakar, Subhadra Chaudhari (ed.) (2008). Radha Publications, Vol. 2, Pg. 4

Corresponding Author

Amandeep Singh Makkar*

Assistant Professor, Department of Music, Mata Gujri Khalsa College, Kartarpur

E-Mail – aman.khalsa01@gmail.com