# Chapter – Four Acoustical Properties and Creativity of Tablā, Part (II) PLAYING PROPERTIES OF TABLĀ

# INTRODUCTION

The evolution of arts has been on per with the evolution of mankind and civilization. Out of the sixty four art forms, music, painting and sculpture have been considered primordial. And music is considered to be the most influential amongst the above three main art forms. In other words, things which cannot be conveyed by paintings or sculptures are beautifully rendered by musical medium. Even where language fails, music can reach out. Music is the universal language – the language of love.

# PLAYING PROPERTIES OF TABLA

As it is early said the present Tablā has not been acquired its present form in a day. After a long period with several corrections by different corrector Tablā has got today's esteem position. And in-between the period Tablā enriched a great property of playing matters. For instance, we can count its own language – the alphabets of Tablā, different compositions, like – Peshkar, Peshkar

Chapter – Four | 316

Acoustical Properties and Creativity of Tabla, Part (II)

kaida, Kaida, Tukrda, Rela, Gat, Mukhra, Paran, Laggi, Ladi, Tāla, Theka, etc. We can also count its different rhythmic speed like – normal speed, middle speed, first speed etc. and different rhythmic patterns (laykaries), like – Adī laya, Biād laya, Kuād laya, etc.

To know the Tablā's playing properties properly some properties are being discussed below:

# ALPHABETS OF TABLĀ

Music is also an emotion which expresses our feelings by sound motion. According to Thakur Jaidev Singh music is as old as emotion<sup>1</sup>. To express this motion there are to create some sound or sounds and when this sounds attached with rhythm creates musical theme. By the same way when we express ourselves with the sound of Tablā then it creates such sound or sounds. That is the alphabets of Tablā, the unique properties of Tablā on which depends the language of Tablā.

<sup>&</sup>lt;sup>1</sup> 'Bhartiya Sangiter Itihas', by Thakur Jaidev Singh, Page – 4.

Chapter – Four 317

Acoustical Properties and Creativity of Tablā, Part (II)

In all Indian language the alphabets are called 'Varna'. Just as these alphabets are used as the syllables in Tablā playing they are called 'Varnas'. The nearest English word which can be used in place of 'Varna' is syllable' or 'mnemonics'. The ancient scholars through their knowledge have specifically named the different sounds that occur when struck to different areas of the slang of a percussion instrument to understand and explain them to the aspirants. These are called 'Pātvarna' or 'Pāthvarna'. Those are also known as 'Pātākswara' or 'Pāthākswara'. These Pātvarna or Pātākswara are presented in spoken words or with melodious tune or by a combination of both.

The sounds as pronounced by humans cannot be attained in the same mode on percussion, nor can the sounds emitted by the percussion be spoken by a man. Hence the sound of the percussion instruments were specifically named which are universally accepted and they are called 'Pathakswara'. Every percussion instrument is full of different alphabets. Chapter – Four 318 Acoustical Properties and Creativity of Tablā, Part (II)

We find references from different scores which throw ample light on the existence of percussion instruments even in the era before Christ. But no evidence or reference is available regarding the modes of playing or Pāthākswara or their naming. 'Natyashastra' is known to be the first treatise on dramaturgy. Though it is a treatise on dramaturgy, yet it gives ample detail on music. We find analysis of music on each of the 36 chapters of Natya Shastra, but chapters 28 to 33 are especially devoted to music, musical instruments and percussion instruments respectively. Bharat muni has given a huge explanation of alphabets for percussion instrument by which the same instruments were played for presenting the drama more beautiful. . .

# **ORIGIN OF ALPHABETS**

Since time immemorial, percussion instruments are used as accompany in the composite art of music (vocal, instruments and dance). In ancient music we find references of usage of such percussion Chapter – Four 319 Acoustical Properties and Creativity of Tabla, Part (II)

instruments at some places. Even in mythological stories there are references of such instruments. The names of instruments which we encounter in ancient texts are 'Aghati, Adamber, Vaanaspati, Bheri, Dardur, dhol, Nagāra and Mridang. Mridang and Pakhāwaj are still used in the field of Indian music. And, in North Indian music, dhol, dholok are used hugely.

In modern times Tablā has occupied a very prominent place on the percussion instrument. Various opinions prevailed in regard to the origin of Tablā. Some scholars opine that the ancient instrument Dardur has been modified to the present Tablā. Whereas some have on opinion that, Pakhāwaj has been broken into two parts for evolving Tablā. Whatever the wags and means might have been for origin of Tablā, but one thing is clear that the Alphabets of Tablā must have evolved after the origin of Tablā.

A drum being the most ancient form of musical instruments of the world and bhūmidūndūbhi and

Chapter – Four 320 Acoustical Properties and Creativity of Tablă, Part (II)

dūndūbhi was perhaps the most ancient form of drums in India. But some are of the opinion that, damru or dhakka is the first percussion instrument<sup>1</sup>. Even some scholars also believe that the science of language was also born from this damru.

Damru, a two-headed small drum which is made out of leather skin on its both heads, decorate in the hands of Nataraja. Some Hindu religious are also believed that this instrument is the one which maintains rhythm in the whole of eternity. Further, it is interesting to know that the sound emanated from this cosmic drum is the source for the science of language<sup>2</sup>.

By this way all the language starts from this damru. Nandikeshwara Kartika has written about the above aspect and referred, 'at the end of this celestial dance, Nataraja whirled his damaru in such

<sup>&</sup>lt;sup>1</sup> 'MRIDANGAM – An Indian Classical Percussion Drum, by Shreejayanthi Gopal, Page – 2.

<sup>&</sup>lt;sup>2</sup> 'MRIDANGAM – An Indian Classical Percussion Drum, by Shreejayanthi Gopal, Page – 1-2.

Chapter – Four 321

Acoustical Properties and Creativity of Tablā, Part (II)

a way that, it beats nine and five times and the science of language was born<sup>1</sup>.'

In this respect Nandikeshwar Kartica, one of earlier writer has written that<sup>2</sup>:

## नॄत्तावसाने नटराजराजो ननाद ढक्कां नवपंचवारम् । उद्धर्तुकामः सनकादि सिद्धान् एतत् विमर्श शिवस्युत्रजालम् । ।

The meaning is, after dancing, Nataraja twirled his Dakka in such a way that it beat nine and five times and the science of language was born. And the above process is known as Siva-Sutra.

However, the origin of syllables of Tablā is based on the syllables of Pakhāwaj, and it is due to the mode of playing these syllables on Tablā, and then there is differences in their sounds are pronunciation. Pakhāwaj is an instrument of open syllables as against Tablā. Now a days, the style of playing Pakhāwaj is being used in playing Tablā also. For such specialized style, the style playing various

Page – 2.

 <sup>&</sup>lt;sup>1</sup> 'MRIDANGAM – An Indian Classical Percussion Drum, by Shreejayanthi Gopal, Page – 2.
 <sup>2</sup> 'MRIDANGAM – An Indian Classical Percussion Drum, by Shreejayanthi Gopal,

Chapter – Four 322 Acoustical Properties and Creativity of Tablā, Part (II)

syllables has to be modified as for as 'Dhumakita' is played as Dinakita.

At Tablā-Vijnan, by Kamruzzaman Moni, it is also mentioned, how these syllables changed and they have evolved to their present state, which is as follows<sup>1</sup>:

> Tākkā Dhīkkā Thūngā Nangā ↓ Tāk Dhīk Thūng Nāng ↓ Tāt Dhīt Thūn Nā

#### NUMBER OF ALPHABETS

While playing the sounds emitted by the left and the right parts of a Tablā or by synchronizing both by playing both simultaneously are called alphabets or syllables of Tablā. Scholars differ on the manner of such syllables. Some say that, there are only seven alphabets, some are for ten alphabets and even some are opine to fourteen alphabets.

<sup>&</sup>lt;sup>1</sup> 'Tablā-Vijnan', by Kamruzzaman Moni, Page – 3.

Lt. Prof. S. K. Saxena guruji also prefers seven alphabets for Tabla instrument. Even Guruji prefers seven alphabets, but, also ascribed a total of fourteen alphabets, seven from the dahina and seven from bayan. In this respect Guruii said, 'they (the alphabet) have always been an object of controversy......anyway, two main views on the matter may here be referred to. According to one view, there are as many as ten basic alphabets of tabla rhythm. According to the other view, they number only seven, like the seven basic notes of music. In my humble but considered opinion, the second view is preferable, in respect of each of the two drums that make a tabla set; and I say so on the basis of the hard evidence of the actual practice of rhythm. I ascribe the following seven alphabets ता, तिं, ज, च, ट, ड, त्र = (tā, tin, na, ra, ta, da, tra) to the danya ( or the right hand drum); and the following seven to the bayan (or the left one): घ, घे, घी, क, के, की, कत (gha, ghey, ghee, ka, ke, kee, kat)<sup>1</sup>.

<sup>&</sup>lt;sup>1</sup> The Art of Tablā Rhythm - Essentials, Tradition and creativity, by Sudhir Kumar Saxena, Page – 14.

Acoustical Properties and Creativity of Tabla, Part (II)

According to Bhagvatsharan Sharma, the numbers of main alphabets of Tablā are ten and these are: Dha, Ga, Da, Ta, Ra, Ka, Ta, Na, Gha, and Ra (외 ज र त २ क ट ज घ इ है). The tāla from Pakhāwaj playing style, some times Ma (ज), and Tha (හ) bols are also played<sup>1</sup>.

Mr. Sharma again added that, if we give our attention then the alphabets of Tablā are found seven only, which are: Dha, Ga, Da, Ta, Ra, Ka and Ta (গ্ৰহাৰ ক ব ফ গ্লৌৰ ত). Others are created from these alphabets. For example, Na is the alternate of Ta and by the same way Da is the alternate of Ta and Gha is the alternate of Ga<sup>2</sup>. And generally it is seen that, the above bols are also produced by the same way which will be discussed a little later.

The number of syllables of Tablā and Pakhāwaj differ from scholar to scholar. In the book 'Tablā Vijnan' of Kamrujjaman Moni it is mentioned that

<sup>&</sup>lt;sup>1</sup> 'Taal-Prakash', by Bhagvatsharan Sharma, Page – 29.

<sup>&</sup>lt;sup>2</sup> 'Taal-Prakash', by Bhagvatsharan Sharma, Page – 29.

in ancient times there were five hundred and eighty six (586) syllables, which with the passage of time have been limited to ten<sup>1</sup> (10).

In connection to numbers of alphabet Shree Vasant has written that<sup>2</sup>,

धा धिन तिट तिन ना क धी, ता कि कत्त पिचार। तखले के दभ पर्ण हैं, इनको लेड भुधार।।

The meaning is, there are ten alphabets for Tablā, Dhā, Dhīn, Tīta, Tīn, Nā, Ka, Dhī, Tā, Kī and Katta and practice these alphabets.

However, even there are different opinions about the numbers of alphabet, but majority of them believe that there are ten syllables, which are:

1. Taa or Naa (ता या ना)

2. Ti or Tin (ति या तिं)

3. Tu or Tun (तु या तुन्)

<sup>&</sup>lt;sup>1</sup> 'Tablā-Vijnan', by Kamruzzaman Moni, Page – 3.

<sup>&</sup>lt;sup>2</sup> Sangit Visarad' by Vasant, Page – 361.

Chapter – Four 326 Acoustical Properties and Creativity of Tablā, Part (II)

- 4. Din or Thun (ढ़िं या थुन)
- 5. Te or Ti (ते या ति)
- 6. Reor Te (국 괴 군)
- 7. Ka, Ke, Ki or Kat (क, के, कि, या कत्)
- 8. Ge or Ghe (गे या घे)

9. Dha (धा), and

10. Dhin (fti).

# **TWO TYPES OF ALPHABETS**

As we know that the knowledge of alphabets is necessary to learn educational knowledge as well as it is also necessary to know the alphabets of Tablā to play it. In accordance of playing manner the alphabets of tablā are divided mainly in two divisions:

A. Simple alphabets, and

**B.** Joint alphabets or Combined alphabets.

#### SIMPLE ALPHABETS:

Alphabets which are played by only one hand may call simple alphabets. For instance,

Chapter – Four 327 Acoustical Properties and Creativity of Tablā, Part (II)

Taa or Naa (ता या जा), Ti or Tin (ति या तिं), Tu or Tun (तु या तुज़), Din or Thun ढ़िं या थुज), Te or Ti (ते या ति), Re or Te (त्रे या टे), Ka, Ke, Ki or Kat ( क, के, कि, या कत्), Ge or Ghe (गे या घे), are the simple alphabets.

#### **JOINT ALPHABETS:**

Alphabets which are played by using both of hands at the same moment or strike simultaneously may call Joint alphabets. For instance, Dha (धा), Dhin (धिं) are the joint alphabets.

Simple alphabets again have been divided by two divisions:

#### A<sub>1</sub>. RIGHT HAND'S SIMPLE ALPHABETS:

Generally alphabets played by right hand or dominant hand are counted as right hand alphabets. These are the right hand's simple alphabets, Taa or Naa (ता या ना), Ti or Tin (ति या तिं), Tu or Tun (तु या तुन्र), Din or Thun ढिं या धुन), Te of Ti (ते या ति), Re or Te (文 या टे).

#### A<sub>2</sub>. LEFT HAND'S SIMPLE ALPHABETS:

Generally alphabets played by left hand or nondominant hand are counted as left hand's simple alphabets. Ka, Ke, Ki or Kat ( क, के, कि, या कत्) and Ge or Ghe (गे या घे), are the left hand's simple alphabets.

# **ALPHABET'S PLAYING MANNER**

It is a reality that, there is no alphabet or alphabets either of dahina Tablā or bayan Tablā which is produced from a fixed place. Here is an important point may be noted that, one alphabet which is produced from a place of a pūdi, the same alphabet can be produced in different ways, at different points of the pūdis. And, even, the same alphabet also can be produced by different fingers also. It is totally a psychological fact and measurement of ear and for this reason the alphabet one played from a place of a Tablā is differed from another even it is played on same place and same manner. So, the placement of fingering is also differed from person to person. However, even, it is varied from person to person, there are some indications is being explained to produce alphabets in general way. These are being discussed below:

# TAA OR NAA (ता या ना):

To achieve this note the ring finger and the little

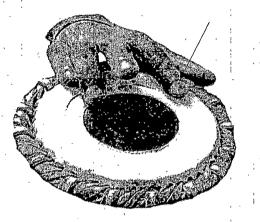


Fig. 4.1, Taa, played on dayan Tabl<sup>A</sup> by index finger.

finger and the little finger should be kept in a crescent shape on the Tablā near the edge of the shyāhi and the ring finger's edge should touch the edge of

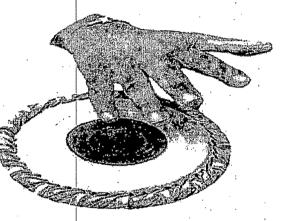
the shyāhi and the middle finger should be kept in such a way that it should not come in contact with the Tablā and the index finger should be struck on the chanti and should be taken off immediately so as to allow the sound to resonate, this is how Taa syllable is played.

In the language of Tablā syllables Taa and Naa are both the same but according to different styles of Chapter – Four 330 Acoustical Properties and Creativity of Tablā, Part (II)

playing they both can be seen in different forms by playing it on the different areas of the Tablā by different fingers. E.g. when the kinar of the Tablā is struck by the index finger the syllable achieved is called both Taa and Naa.

During the process of tuning the Tabla when the

little finger is struck on the place between shahi and kinar the sound that is produced due to the resonance of both the areas i.e. Taa.



the resonance of Fig. 4.2, Taa, played on dayan Tablā by ring finger. both the areas i.e. shyāhi and kinar is also called Taa.

Some scholars are of the view that Taa and Naa are same but some opine the opposite. Some say that they are played from the same area but their mode of playing is different. The only difference here is that, while playing Taa when the index finger is struck in such a way that it emits a little close

Acoustical Properties and Creativity of Tabla, Part (II)

sound it is called Naa in which while playing Taa the finger is not immediately taken off from the Tablā. According to Girish Chandra Shrivastava Taa and Naa are both played on almost the same place but while playing Taa the index finger is slightly towards the Lav and the sound is allowed to resonate. Unlike Taa, Naa is played only on the chaati<sup>1</sup>.

According to shri Pūshkar-raj sir both Taa and Naa are the same and they are played in almost the same manner but there is a different in their pronunciation. The only difference is that the stroke for Taa is stronger than Naa and the sound produced while playing Naa is thus melodious<sup>2</sup>.

However majority of the scholars are of the opinion that Taa and Naa are the same syllables but they are differentiated in order to achieve the comfort while speaking. Also according to the linguistic capacities of the people of different areas there can

<sup>1</sup> Taal-Parichay, Part – 1, by Girish Chandra Shrivastav, Page – 21.
 <sup>2</sup> Shree Pūshkar-rai sir on personal interview.

be a further difference in their pronunciations. The highest used alphabet of Tablā is taa.

# **TI OR TIN** (ति या तिं):

The ring finger and the little finger are to be placed

the Tablā in on crescent shape in such a way that the front portion of the ring finger touches the edge of the shyāhi. The middle finger should be kept

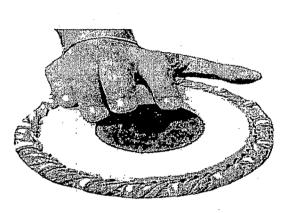


Fig. 4.3, Tin, played on dayan Tablā.

in such a way that it should not come in contact with the Tablā. The index finger is to be struck on the maidan i.e. between the shyāhi and the kinar. The sound thus produced is 'tin'.

#### <u>TU OR TUN</u> (तु या तुन्):

Generally 'uu' is not used in Tablā but art is not limited to any one country or one area. Any form of art naturally reflects in it the customs and the mannerisms of that area and so the language of the Chapter – Four 333 Acoustical Properties and Creativity of Tablā, Part (II)

art form is also affected by the area of its growth

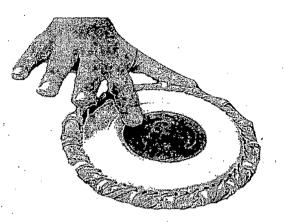


Fig. 4.4, Tun, played on dayan Tablā.

and development. And thus according to the linguistic capacities of the people of different areas 'tun' and 'thun' both are

used. Whereas in reality there is no such syllable but even if it is considered there is nothing wrong in it because some words and syllables of Tablā are also used in dance, pakhāwaj and Tablā as also in nagādā. All these are assimilated and with a view to use it as an accompaniment e.g. while playing Tablā as an accompaniment with dance 'tat tat thun thun tigdha dig dig thai' are to be played in spite of the fact that these syllables are barred in Tablā. Thus while using Tablā as an instrument of accompaniment the syllables which are played in this way can be called 'tun' or 'thun' or 'dhumkit' or even Tit Tit Thun Thun NaDha Tirakita Dha. It is totally depends on imagination and mood of a performer when he played Tablā.

#### DIN OR THUN (ढ़िं या धुन):

As early said, generally 'uu' is not used in Tablā by the same way the open syllables are generally not played on the Tablā, however, there are some syllables of the open category which are played on the Tablā and Din is one of them. Many of the syllables played on the Tablā are taken from the Pakhāwaj and din is also taken from the mode of Pakhāwaj playing. According to shri Pūshkar-raj sir Din and Tin are the same as far as playing them is concerned but for the comfort of speech they are pronounced differently<sup>1</sup>. E.g. while speaking we speak 'din din tita tita' and not 'tin tin tita tita'. As it is not comfortable while rendering them through speech.

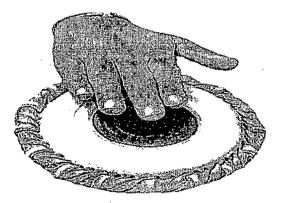


Fig. 4.5, Din, played on dayan Tablā.

The stroke Din is achieved when the front portion of the shyāhi with all the four fingers kept

<sup>&</sup>lt;sup>1</sup> Shree Püshkar-raj sir on personal interview.

straight together in such a manner that the base of the fingers is first struck on the gajra and then the fingers are struck on the shyāhi. In case of Thun the only difference is that only the index finger is struck on the frontal portion of the shahi. However in both the cases hand is to be lifted immediately to allow the sound to resonate.

<u>TI / TE</u>(ते या ति): When the front portion of the

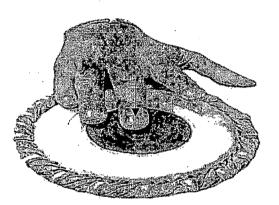


Fig. 4.6, Ti / Te, played on dayan Tablā by Delhi or Ajrada style.

middle finger of right hand is struck on the right Tablā in the center of the shyāhi in such a way that the sound is not allowed to resonate it is called

TI or TE. In playing so in the Ajrada and Delhi gharana the ring finger is lightly place on the shyāhi. Whereas in other gharanas the middle, ring and the little fingers are together struck on the middle portion of the shahi for achieving 'ti'. Generally, in Bengal region te used mostly but other places ti used mainly. Chapter – Four 336 Acoustical Properties and Creativity of Tablā, Part (II)

According to playing styles of different gharanas there is a difference in the playing of Ti syllable.

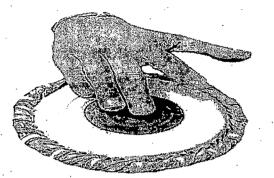


Fig. 4.7, Ti / Te, played on dayan Tablā by all gharanas except Delhi or Ajrada.

Sometimes in place of middle finger, the middle finger ring finger and the little finger are together used or at other times only middle and the

ring finger are struck on the shyāhi. While playing the group of syllables sometimes these are used to play 'ta' or 'te'. e.g. while playing '<u>ti</u>raki<u>ta</u>' '<u>ta</u>' is '<u>ti</u>'. Here '<u>ti</u>' and '<u>ta</u>' is the same alphabet.

While playing some syllables like 'tirki<u>t</u>' in place of '<u>t</u>' sometimes stoke is made either by middle finger or ring finger and some times by simultaneously using the ring, middle and the little finger. Just like in Delhi gharana while playing 'tirki<u>t</u>' '<u>t</u>' is played by the stroke of the middle finger. In Ajrada ring finger is applied while playing '<u>t</u>'. And in Farukhabad '<u>t</u>' is played by simultaneously striking the ring, middle and the little finger.

According to shri Pūshkar raj Shridhar, 'ti' and 't' are played on the middle of the shyāhi from the same place but the only difference is the pressure applied while playing.

# <u>RE OR TE (ਕੇ ਹਾ ਟੇ):</u>

On the center of the shyāhi of the right Tablā where

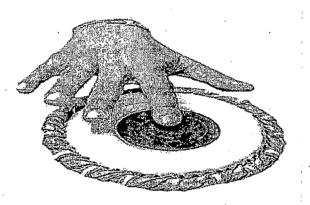


Fig. 4.8, Ra, played by all gharanas except Delhi or Ajrada style.

'ti' or 'te' are
played on the same
place (a little left
side) the index
finger is struck in
such a way that the
sound is not

allowed to resonate, it is called 're' or 'te'. Since the

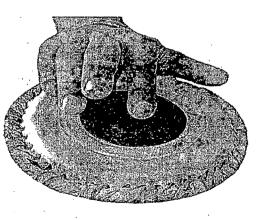


Fig. 4.9, Ra, Played on Tabla by Delhi or Ajrada Style.

sounds of 'ti' and 'te' are the same for comfort of playing 'te' can be played in place of 'ti'.

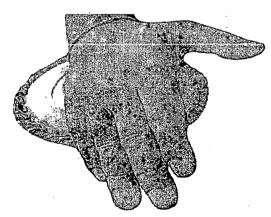
'Re' is not a syllable of

Tablā but for the linguistic comfort while rendering the padhant 're' is used but the syllable is 'te'.

#### **<u>'TI' OF THE 'DHIR DHIR' CATEGORY:</u>**

There is another category of the 'ti' syllable in which the whole palm is used while playing it. The right portion of the right palm is struck on the shyāhi to play this kind of 'ti'. While playing 'dhir dhir' this 'ti' is used. While playing this 'ti' simultaneously playing the 'gha' syllable from the left Tablā 'dhi' syllable is achieved.

In this respect Prof. Saxena gurujee said, 'another very important point to note is that there is not



even a single alphabet of the Tablā (the right one) or of the bāyanā (the left one) in the production of which two fingers are

Fig. 4.10, Ti played on dahina TablA by palm.

applied simultaneously, except on the very rare occasions when the player wishes to lend a little

Chapter – Four | 339 Acoustical Properties and Creativity of Tablā, Part (II)

extra inflection or weight to a particular bol. But a protest is possible here. Is it not a fact that while executing the bol धिन्न-धिन्न (dhir-dhir) all the fingers and the palm too are used collectively? But to this my ready answer is that the bol in question is specifically a compound alphabet of pakhāwaj playing. Today, of course, this alphabet is freely played on the Tablā by one and all. I personally believe that this particular alphabet was perhaps introduced mainly by maestros of Farrukhabad gharānā, the repertoire and playing idiom of which build heavily upon pakhāwaj mnemonics, specially fधन्न (dhir)<sup>1</sup>...'

#### **'RA' OF THE 'DHIR DHIR' CATEGORY:**

When the left portion of the right palm is struck on the shahi of the right hand Tablā this kind of 'ra' is achieved.

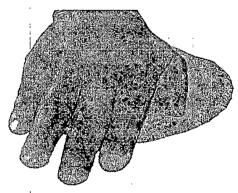


Fig.4.11, Ra played on dayan Tabla by palm.

<sup>&</sup>lt;sup>1</sup> The Art of Tablā Rhythm, Essentials, Tradition and Creativity, By Sudhir Kumar Saxena, Page no – 14, 15.

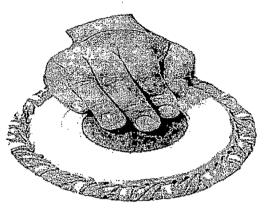
# <u>'TAK' OR 'TAT':</u>

Now we shall examine the mode of playing the syllable 'tak' which is also called 'tat'. This syllable is also played from different areas and in different styles according to the patterns of 'bol bandish' or the group of syllables which are to be played.e.g.in the form of 'tak' it is played on the kinar while playing in the group of 'din tak din din tak din' by striking the index finger on the kinar.

Whereas while playing '<u>tak din dina gina tak din</u> <u>dina gina</u>' stroke is to be made on the maidan by the index finger.

Now there is one more variety of 'tak' which is played by striking the middle finger on the shyāhi just as we play 'ti' on the Tablā but the only difference here is the pressure applied while striking the finger.

One more 'tak' is there which is played by keeping the middle and the ring fingers together and are struck on the shyāhi. This variety is used while playing the group of syllables like 'takitdhina dhagena dha dhagena dhatrak dhage dhinagina'.



There is one more 'tak' which played by all the gharanas by striking in the center of the shahi by all the four fingers keeping e player. This is used p of syllables in which the middle. e.g. '<u>dha</u> <u>k din dina gina</u>'.

# Fig. 4.12, Tak, played on dayan Tablā. four fingers keeping them stretched towards the player. This is used when while playing the group of syllables in which the syllable 'tak' comes in the middle. e.g. '<u>dha</u> <u>dhitak din dina gina tak din tak din dina gina</u>'.

#### <u>'DA':</u>

This is also called 'ta' or 'ra'. This is also pronounced

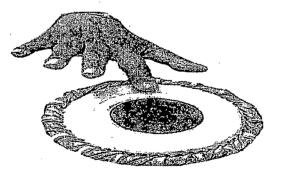


Fig. 4.13, Da, played on the edge of dayan Table by index finger.

rendering in the execution and in the padhant.

according to the group of syllables to be played according to its placement in the group of syllables to facilitate easy and in the padhant. Sometimes 'NA' is also called 'DA' e.g. '<u>dha</u> <u>ghidanaga din dina gina</u>' or '<u>dha ghin naka din dina</u> <u>gina</u>'. In both the groups either 'da' or 'na' both are the same and played in the same way. While playing 'tdan' the index finger's front portion is struck on the kinar.

#### <u>NA:</u>

It is played on the shahi by striking the ring finger in a very light way. Sometimes it is also played in the

form of the syllable



Fig. 4.14, Na, played on dahina Tablaby ring finger.

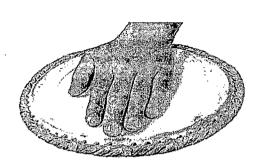
'da'. Generally, the playing manner of 'ta' (played by Ajrada style) and 'na' is same, but, the pressure is different. While na is played very lightly but, ta is played more loudly with more pressure then na. it is a very soft stroke on dahina Tablā.

Now we shall examine the syllables played by the left hand on the left Tabla or the dagga.

Chapter – Four 342 Acoustical Properties and Creativity of Tablā, Part (II)

# KA, KE, KI, OR KAT ( क, के, कि, या कत्):

These syllables can be achieved by striking the palm with all the fingers joined on the pūdi of the baya



Tablā or the daga. Some scholars believe that 'ka, ke, ki, kaa, or kat' are all the same syllables but for the linguistic capacity they

Fig. 4.15, Ka, played by whole palm. linguistic capacity they pronounced differently. But some scholars say that when the whole palm is struck with more pressure then 'kat' is played.

There are other ways of playing ka which are as follows:

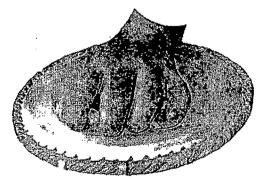


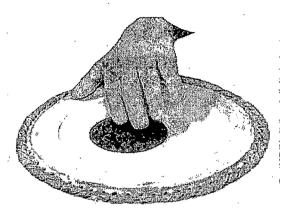
Fig. 4.16, Ka played by nails of left hand's fingers.

By placing the cushion of the left palm on the baya and by folding the fingers and striking the baya.
 In the bol bandishes

Chapter – Four | 344 Acoustical Properties and Creativity of Tabla, Part (II)

where ka is to be played repeatedly this type of practice is comfortable.

2. Sometimes to enhance the sound of 'ka' all the



four fingers (except old finger) of the left hand are struck on the shahi of the baya. To play thapi this type of ka is used. This type is

Fig. 4.17, Ka, played on shyahi.

also used while execution of parans, tukda etc. Some times, to start a laggi or ladi or at the point of changing any pattern on light music it is also used.

3. Sometimes the index finger of the left hand is folded and struck on the kinar of the baya to play 'ka'. Players use this type of method in execution of the peshkars mostly.

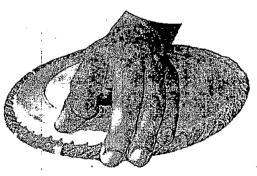
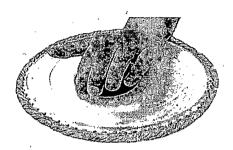


Fig. 4.18, Ka, played by index finger.

# **GA OR GHA:**

The cushion of the left palm is rested on the lower edge of the shahi of the baya and either the middle



or the index finger is struck on upper edge of the shahi on the lav or maidan by stretching it towards self. There is one more option

Fig. 4.19, Ga, by index finger. There is one more option for this in which instead of the index finger or the middle finger, the ring finger and the middle finger are kept together and stretched towards the player and struck on the upper edge of the shahi on the lav or maidan.

Some scholars

also believe

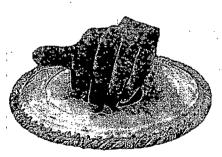


Fig. 4.20, Ga, played by middle and ring fingers.

elieve that the sound produced by the index finger is called 'ga' and the sound produced by striking the middle finger is called 'gha'. Or the sound produced by striking the middle and

Chapter - Four | 346

Acoustical Properties and Creativity of Tablā, Part (II)

the ring finger together is called 'gha' which does not seem to be correct.

However it can be precisely said that the sound of low frequency can be called 'ga' and that of high frequency can be called 'gha'. It is also said that 'ga' is played only by the ring finger. Both 'ga' and 'gha' are very important syllables in Tablā playing.

While executing these syllables sometimes a meend enabled sound is achieved by sliding the palm with pressure towards the front of the baya. This is called 'ga' with the gamak. This enhances the beauty of the sound and syllables.

#### DHĀ:

It is a combined or joint alphabet and while playing the syllables 'tā' or

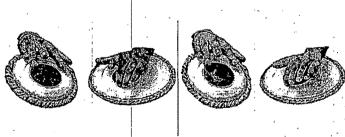


Fig. 4.21, Dhā, played on dayan and bayan simultaneously.

'nā' on the dayan Tablā and 'ga' or 'gha' on the

Chapter – Four 347 Acoustical Properties and Creativity of Tablā, Part (II)

baya Tablā simultaneously syllable 'dhā' is achieved.

#### DHIN:

It is also a combined alphabet. While playing 'ti' or

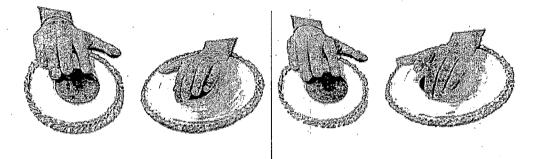


Fig. 4.22, Dhin, played on dayan and bayan simultaneously.

'tin' on the right hand Tablā and 'ga' or 'gha' on the left hand Tablā simultaneously the syllable 'dhin' is achieved.

# **OVSERVATION:**

Even here is discussed about a huge quantity of alphabets produced from dahina and bayan Tablā, but, if we make a deep look on this matter then we can see that, the main alphabets of Tablā are only seven. These are:

1. Tā or Nā (ता या ना)

2. Tī or Tīn (from chanti) (ति या तिं)

Chapter – Four 348 Acoustical Properties and Creativity of Tablā, Part (II)

3. Tūn or Thūn (तुन या धुन)

4. Dīn (दिं)

5. Ti / Ta / Te / Ra (ति या ट या ते या क)

6. Ka / Ke / Kī / Kat ( क, के, कि, या कत्)

7. Ga / Gha (河 펩 펍)

And other alphabets which are the alternet patterns of these above alphabets and can be created with the help of above alphabets.

## **ACOUSTICAL ANALYSIS OF ALPHABETS**

Tablā is a pair of two one faced instrument. Its making makes it easy to play with the stroke of fingers rather than with the stroke of entire palm. Due to Tablā's structure and modes of playing, the sound it produces is very sweet and soothing. SRA also find it on their experiment, while they have made scientific studies of the acoustic characters of sounds from different types of drums. These include:

(i) Tablā and Bayan, (ii) Pakhāwaj (iii) Mridanga,
(iv) Dholak (v) Dhol (vi) Naggara, (vii) Ghatam

Chapter – Four 349 Acoustical Properties and Creativity of Tablā, Part (II)

and (viii) Dhak. But, they find the sweetest sounds are produced by Tablā and Bayan<sup>1</sup>.

However, the each and every parts of a Tablā has an important part to produce this delightful sound. But, the shyāhi is the most distinctive part of the Tablā and has a greater impact upon the tone then any other part. We also get this point from Britannica Concise Encyclopedia Article, where writes, 'a disk of black tuning paste on the membrane of each drum affects pitch and gives it characteristic overtones<sup>2</sup>.'

The great physicist C. V. Raman also emphasis this point and writes, 'The inhomogeneous membrane so constructed has remarkable acoustic properties. The lowest tone and the first overtone of the drum arise from the vibrations without an inner nodal line and with a nodal diameter respectively. Both these tones are more or less in the ratio of a fundamental to its octave. The vibration with two

<sup>1</sup> An Overview of Indian Drum Sounds, Vol – XXIV, 1996, Published by Sangeet Research Academy, Page no. III – 1.1

<sup>2</sup> Britannica Concise Encyclopedia, Version: 2008.00.00.00000000.

Chapter – Four | 350 Acoustical Properties and Creativity of Tablā, Part (II) |

nodal diameters has the same pitch as the vibration with one nodal circle, and is indeed the quintet of the first overtone exactly. The pitches of both the next higher modes of vibration with three nodal diameters, and one nodal diameter and a nodal circle respectively are again identical and lie on octave higher than the first overtone. Similarly three higher modes of vibration combine to five the fifth harmonic overtone. These results have been achieved by the careful arrangement of the load when the drum head was made<sup>1</sup>.

## **PROCESS AND PREPARATION FOR ANALYSIS**

The following work is experimental, which has been done with the help of a respected Physics teacher<sup>2</sup>, Physics Dept. Faculty of Science, M. S. University of Baroda.

To complete this experiment, first of all, a total of about 350 strokes on different instruments

<sup>&</sup>lt;sup>1</sup> Musical Instruments And Their Tones, by C V Raman, From – HANDBUCH DER PHYSIK, Page no – 555.

<sup>&</sup>lt;sup>2</sup> Experiment has been done and lot of Physical terms understood with the help of respected N.V. Patel sir.

Chapter Acoustical Properties and Creativity of Tabla, Part (II)

OUT

like Tablā, Pakhāwaj and Dholak were recorded by different expert players in a digital studie Where different types of Tabla like, Tabla with complete shyāhi, Tablā with incomplete shyāhi and even without shyāhi were used. And secondly about 200 strokes of different pitches sound of Tabla and Pakhawaj were recorded; through software those were made and electronic Tabla instrument like Swar-Shala and And Rvaz-Master. even then, some of 'Kāidā', 'Tūkdā' 'Peshkār', 'Relā', 'Gat'. 'Mukhrās', 'Paran', 'Laggi', 'Thekās' for different Tālas, etc. were recorded, produced from software as well as by playing different players.

And finally after recording the above sounds, wave spectrum and amplitude were made through Spectrogram14<sup>1</sup> and hence analyzed with the help of a physics teacher, Physics Department, Faculty of Science, M. S. University of Baroda.

<sup>&</sup>lt;sup>1</sup> At first we have tried for wave spectrum and amplitude through oscilloscope, but failed to get pleasant graphics then tried by other programs and finally selected Spectrogram14 for its good analyzing quality and pleasant graphics manner.

## **PROCESS OF DATA VIEWING**

The 3D spectrum is shown the overtones and their decay. Each and every data are presenting here by showing 3D spectrum where time is on the *X* axis marked by vertical line on every seconds, frequency is on the *Y* axis marked by horizontal lines at 40 Hz, 50 Hz, 60 Hz, 70 Hz, 80 Hz, 90 Hz, 100 Hz, 200 Hz, 300 Hz, 400 Hz, 500 Hz, 600 Hz, 700 Hz, 800 Hz, 900 Hz, 1000 Hz, 2000 Hz, 3000 Hz, 5000 Hz, 6000 Hz, 1000 Hz, 8000 Hz, 9000 Hz, 10000 Hz, and 20000 Hz and their amplitude is indicated by the depth of blackening on '3D spectra' at bottom to top.

Sometimes alphabet and other compositions are also presented by showing frequency verses amplitude pictures, where frequency is on the *X* axis and amplitude is on the *Y* axis.

The analyized frequencies may be varied from  $\pm 10$  to  $\pm 20$  Hz in different overtones and time also may be varied from  $\pm 3$  to  $\pm 5$  milliseconds.

Chapter – Four 353 Acoustical Properties and Creativity of Tablā, Part (II)

## **ALPHABETS EXPERIMENT**

TAA OR NAA (ता या ना):

The strokes 'Taa' is made with the index finger of dominant hand on the right hand Tabla. The stroke

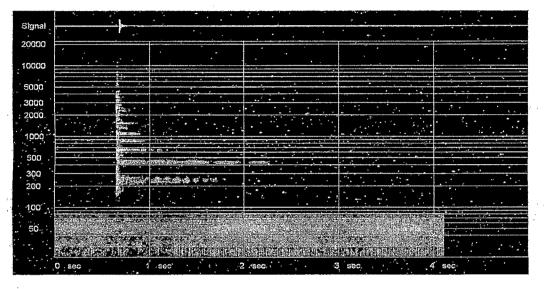
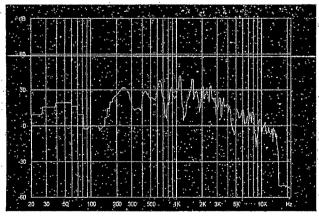


Fig. 4.23, Taa alphabet played on Tabla by index finger with complete shyahi.

excites first over tone at 244 Hz frequency strongly



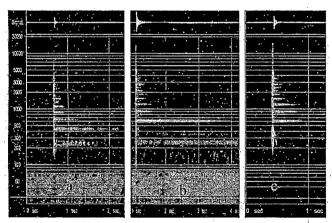
with 30dB spect of level and it lasts for 1157 milliseconds. The strongest second harmonics creates on 428 Hz

Fig. 4.24, Power spectra of Taa alphabet played by index finger on right hand Tabl4.

frequency by 27dB. It lasts for 1616 milliseconds. The 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> harmonics emanate on 644 Hz, Chapter – Four 354 Acoustical Properties and Creativity of Tablā, Part (II)

874Hz, and 1098Hz frequencies by 35, 30, and 40 dB intensities respectively. The 6<sup>th</sup> harmonic is very weak at 1314 Hz and last only for 117 milliseconds. The 7<sup>th</sup> is again strong at 1511 Hz by 37 dB but 8<sup>th</sup> is again weak at 1753 Hz by 27 dB intensities. The 9<sup>th</sup>, 10th, and 11<sup>th</sup> harmonics emanates on 1988, 2268 and 2484 Hz frequencies by 31, 27 and 31 dB of intensities respectively.

It is also shown that harmonics are varied even the



same alphabets played by same or different experts. For instance, in fig.4.25,(a), where second harmonics

strongest

Fig. 4.25, The stroke Taa's different readings by different experts played on dayan Tabl4.

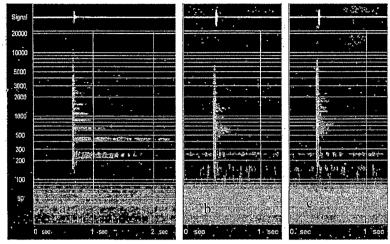
one at 428 Hz but fig4.25,(b) and fig. 4.25(c) shows that first harmonics at 606 Hz and 606 Hz correspondingly is stronger then others. Here a point is noted that, clear harmonics are analyzed from each 3D spectrum but, even then there are several harmonics are cited but not cleared.

is

the

Chapter – Four | 355 Acoustical Properties and Creativity of Tablã, Part (II) |

Shyāhi is a great factor for creating harmonics. The following pictures fig.4.26 shows that clearly.



Where in first picture, stroke is taken on a dayan Tablā with complete

Fig.4.26, Taa played on dayan Tabla with a). Complete shy hi, b). Incomplete shyahi, and c). Without shyahi.

shyāhi and

it produces several clear harmonics. But in second and third spectrums, strokes were taken on Tablā with incomplete shyāhi and without shyāhi emanate damped and one harmonic respectively.

The following figure shows four 3D spectrums for

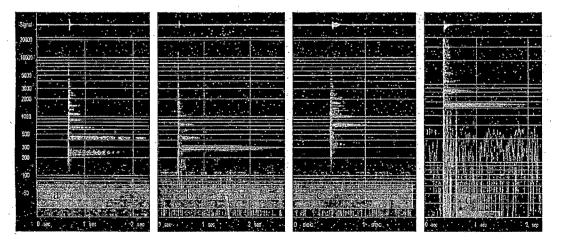


Fig. 4.27, Taa played on a complete a). Tabla, b). Pakhāwaj, c). Dholak and d). Electronic Tabla.

Taa stroke were taken by different instruments covered with complete shyāhi. Taa stroke is taken on Tablā, Pakhāwaj, Dholak and by electronic Tablā. Each and every spectrum, harmonics are showing clearly but different positions. In first spectrum the stroke excites first overtone at 244 Hz, in second spectrum at 292 Hz, in third spectrum at 717 Hz and in fourth spectrum at 545 Hz.

TI OR TIN (ति या तिं)

The alphabet Ti or Tin is a sweet stroke emanates

by striking inbetween on the edge of a dayan pūdi and shyāhi with index finger while ring finger is touched on shyāhi softly. In

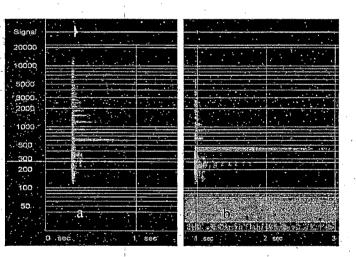


Fig.4.28, The stroke Tin's two different readings played on dayan Tabla with complete shyahi.

fig.4.28, (a), the stroke excites strongest first over tone at 606 Hz frequency with 21dB spect level and it lasts for 711 milliseconds. The little weak second harmonics creates on 428 Hz frequency by 27dB

Chapter – Four 356 Acoustical Properties and Creativity of Tablā, Part (II)

Chapter – Four 357 Acoustical Properties and Creativity of Tabla, Part (II)

and lasts for 213 milliseconds. The 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> harmonics emanate at 1185 Hz, 1511 Hz, and 1814 Hz frequencies by 24, 35, and 17 dB intensities respectively. The 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> harmonics are very weak at 2113 Hz, 2423 Hz, and 2737 Hz by 25db, 24dB and 25dB respectively.

On the other hand in fig.4.28 (b) the same stroke played by different expert on different Tablā emanates only four overtones. The stroke excites strongest first over tone at 427 Hz frequency with 21dB spect level and it lasts for 1702 milliseconds, where the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> overtones are weaker then first one and emanate at 644, 874, and 1098

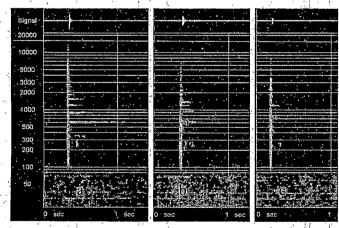


Fig. 4.29, The stroke Tin played on dayan Tabla with a). Complete shyahi, b). Incomplete shyahi, and c). Without shyahi. Hz by 26dB, 16dB and 21dB respectively.

When we go for different type of shyāhi uses like complete shyāhi, shyāhi then the

incomplete shyāhi and without shyāhi then the

readings of this same stroke is changed also. In fig.4.29 (a), (b) and (c) is shown that clearly where in first object tin is taken on Tablā with complete shyāhi and creates six overtones. In second object tin is played on Tablā with incomplete shyāhi created only three overtones and in third object tin is damped, played on without shyāhi Tablā.

We also get several different readings for same stroke (Tin) when it is played by different experts on different instruments. For instance, in fig.4.30 (b) tin is played on right side of pakhāwaj by dominant hand's index finger and emanates a strong and long first overtone at 292Hz by 24dB.

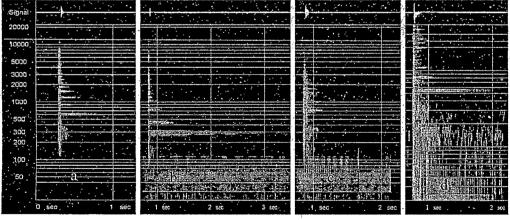


Fig. 4.30, The stroke Tin played with complete shyahi on a). Tabla, b). Pakhawaj, c). Dholak and d). By electronic Tabla. The total of six overtones are counted by this stroke, where in fig. 4.30(c) only one clear overtone

Chapter – Four 359 Acoustical Properties and Creativity of Tablā, Part (II)

is founded at 717 Hz by 41dB. The tin stroke played by electronic Tablā machine creates a total of six overtones at 545 Hz, 816 Hz, 1088 Hz, 1386 Hz, 1981 Hz and 2301 Hz by 32dB, 33dB, 25dB, 24dB, 34dB, 32dB respectively.

#### TU OR TUN (तु या तुन्)

Tun is an open and strong stroke for right hand

Tablā, which is also played by different ways. In fig.4.31, it shows that, the first strongest fundamental is

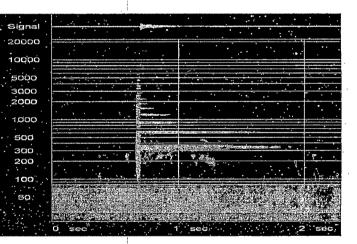


Fig. 4.31, The stroke Tun played on dayan TablA.

created on 340Hz frequencies by 42dB. And it lasts for 1153 milliseconds. The second harmonic is also strong but weaker then first one at 606Hz by 24dB and lasts for 986 milliseconds. The other harmonics emanate at 887 Hz, 1203 Hz, 1511 Hz, 1814 Hz, and 2145 Hz by 28dB, 15dB, 12dB, 13dB, 18dB respectively. Some times Tin and Tun also mixed up by players. Chapter – Four | 360 Acoustical Properties and Creativity of Tablā, Part (II)

complete

on different Tablās like

incomplete shyāhi without and shyāhi then we can see that, the stroke is able to clear create overtones on а Tablā pūdi with

shvāhi,

Fig. 4.32, The stroke Tun played on Tabla with a). Complete shy hi, b). Incomplete shyahi, and c). Without shyahi.

complete shyāhi {fig.4.32, (a)}. The same stroke also creates three overtones at 591Hz, 928Hz and 1338 Hz by 52dB, 38dB and 34dB respectively on Tablā with incomplete shyāhi {fig.4.32 (b)}, but on Tablā with without shyāhi {fig.4.32 (c)} it is created only one harmonic

When we compare the same stroke Tun by playing

tone at 1185Hz.

In fig.4.33, it is shows that, tun played on complete shyāhi and sound

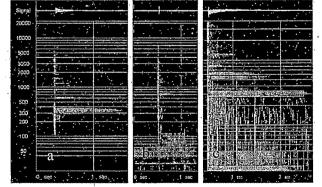


Fig. 4.33, The stroke Tun played with complete shyahi on a). Tabla, b). Dholak and c). By electronic Tabla.

for tun is produced from electronic Tabla machine

is enable to create clear overtones. In fig.4.33 (a) it shows six and in fig.4.33 (c) it shows four overtones. But in Dholak fig.4.33 (b) we get only one overtone at 717 Hz by 45dB.

DIN OR THUN (ढ़िं या थुन)

The stroke Din is capable to produce a rigid sound, came to Tabla from Phakawaj. It is played on chanti

Signal		<u>،</u>	· • •	•	
	· · · · ·		· · · ·	· · · · ·	
20000					
10000			s		
6000					
3000					
2000 💭				urouuromrutumum.	·····
1000			· · ·	· · ·	· ·
500			,		· · · · · · · · · · · · · · · · · · ·
300	· · · · ·	la Manazarda, dir am	2000 - 100	• • • •	
200		ļ		• •	
100	2				
50					، ، ، ، ، ، با باری ، ، اف
	0 sec	S . (1 )	sec	2	sec

Fig. 4.34, The stroke Din played on dayan Tabla with complete shyahi.

of a Tabla by striking with ring finger, middle finger, ring finger and little finger simultaneously. The fig.4.34 above is indicating six clear harmonic overtones

and the first one is at 335 Hz frequency. It has got 30dB intensities and lasted for 655 milliseconds. The second harmonics is the strongest one at 606 Hz by 28dB intensities and last for 963 milliseconds. The other harmonics at on the 887 Hz, 1185 Hz, 1489 Hz, 1787 Hz by 31dB, 20dB, 15dB, and 14dB respectively. Chapter – Four 362 Acoustical Properties and Creativity of Tablā, Part (II)

The following fig.4.35 contains three different

 Signal
 Image: Constraint of the section of the sec

Fig. 4.35, The stroke din played on different Tabla like a). Complete shyahi, b). Incomplete shyahi and c). Without shyahi. readings for Tablā stroke and on first one fig.4.35 (a) is showing five overtones with three prominent fundamentals.

stroke

is

The

taken on a Tablā with complete shyāhi. On the second one fig.4.35 (b) which emanates three different harmonics are very weak and stroke is taken on a Tablā with incomplete shyāhi. And on third object showing above fig.4.35 (c) stroke is taken on a Tablā without shyāhi also emanates harmonics but only two which is very weak at 717 Hz and 1185 Hz.

When we compare the same stroke produces from other instruments like Pakhāwaj, Dholak and electronic Tablā then we can see that, 3D

Chapter – Four | 363 Acoustical Properties and Creativity of Tablā, Part (II)

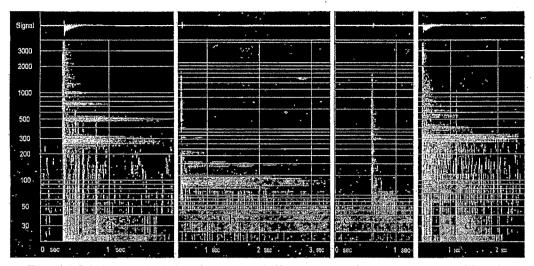


Fig. 4.36, The stroke Din played on different complete instruments like a). Tabla, b). Pakhawaj, c). Dholak and d). by electronic Tabla machene.

spectrums for Tablā, Pakhāwaj and electronic Tablā show several prominent harmonics but in Dholak, where shyāhi is set on inner side of its pūdi emanates only one very weak fundamental.

## TAK (तक)

The stroke Tak is a strong one played on right hand Tablā. It can be produced by several ways from different places of Tablā. Sometimes it is played instead of kat. For instance, players of Ajrada gharana are used to play tak instead of kat when played Ektaal<sup>1</sup>. The following figure where

<sup>&</sup>lt;sup>1</sup> There are two types of Ektaal is built by twelve matras; one is divided by six division and each division contains two-two matras which is mainly used in North Indian classical music and other one is divided by four divisions and each division contains three-three matras, is mainly used in Tagore songs.

indicating the Tak stroke played by different ways and different places with different finger or fingers.

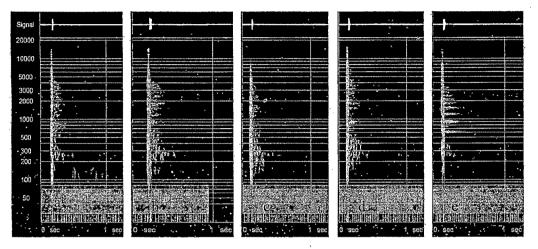


Fig. 4.37, Tak played on Dayan Tabla by a).Index, middle, ring and small fingers, b). Middle and ring fingers, c). Middle finger, d). From maidan, and e). Index finger from Chanti.

The first four objects where tak is played with a).Index, middle, ring and small fingers, b). Middle and ring fingers c). Middle finger and d). From maidan, emanate damped sound immediately. But in fifth object e). where tak is played on chanti by index finger is able to create seven harmonics.

Here it is a point to be noted that the process of producing fifth tak is like a pattern of 'taa' also, but, it was played on chanti of a pūdi. So, there may be a great relation with the sound produced from chanti and harmonics. Chapter – Four 365 Acoustical Properties and Creativity of Tabla, Part (II)

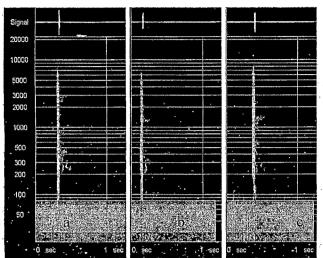


Fig. 4.38, Tak played on right hand Tabla with a). Complete shy hi b). Incomplete shyahi, and c). Without shyahi.

simultaneously with Index, middle, ring and small fingers but on different types of Tablā like complete shvāhi, incomplete shyāhi and without

shyāhi. Here it is also shown that tak in each and every spectrum indicating damped sound only.

In fig.4.39 (indicating below) where tak is played on

different musical instrument like, Tablā, Pakhāwaj and Dholak by different players. The readings of this figure are also indicating damped sound o

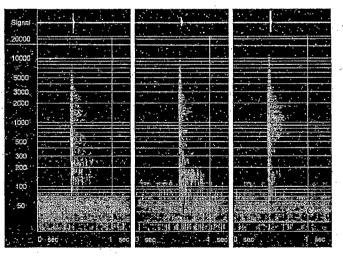


Fig. 4.39, Tak played on a). Tabla b). Pakhawaj, and c). Dholak.

damped sound only. By this above reading it is

## In the figure 4.38 where tak is played by striking

found that tak played from every place on pūdi except chanti, is created damp sound only.

**TE OR TI** (ते या ति)

The following figure 4.40 where Te or Ti is played

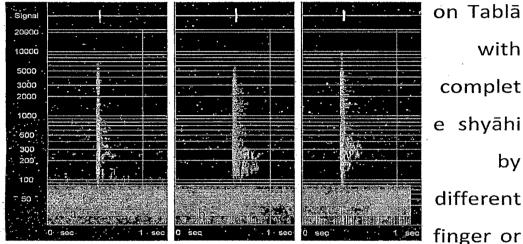
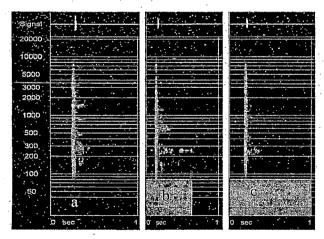


Fig. 4.40, Ti played on dahina Tabla by a). Middle, ring and small fingers, b). Middle finger, and c). Ring finger.

nger or fingers

like a). Middle, ring and small fingers b). Middle



finger and c). Ring finger by different players striking the blackening patch and also damping it thereafter.

Fig. 4.41, a). Ti played on a dayan Tabl(a). With complete shy hi, b). With Incomplete shyahi and c). With without shyahi. Here it is again founded in figure no. 4.41 that the stroke Ti excites dampening sound again. Where the stroke played on a Tablā a). With complete shyāhi, b). With Incomplete shyāhi and c). With without shyāhi. After creating the sound it decays very fast.

 Signal
 1

 20000
 10000

 5000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1

 3000
 1
 </t

On the other hand when ti is played on different

Fig. 4.42, Ti played a). On a dayan Tabla, b). On the right side of Pakhawaj c). On a dholak's right side and d). by Electronic Tabla. instruments like a). On a dayan Tablā, b). On the right side of Pakhāwaj and c). On a dholak's right side the result is obtained same damped sound or no harmonics. And even, when this stroke is created by Electronic Tablā emanates damped sound.

# RE OR TE (ਕੇ ਹਾ ਟੇ)

The following figure no 4.43, where Re is played by different way. The first part of this figure where re

Chapter – Four 368 Acoustical Properties and Creativity of Tablā, Part (II)

is played by finger and in second part of this figure where re is played by striking on the Tablā by the

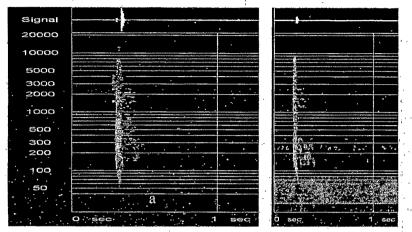


Fig. 4.43, Re played on dayan Tabla a). With finger and b). By palm.

right hand's palm. But both spectrums are indicating damped sound clearly.

In figure 4.44 where Re is played on a dayan Tablā

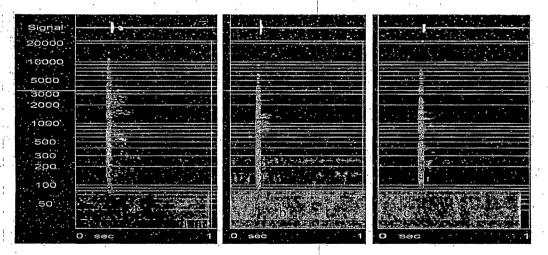


Fig. 4.44, a). Re played on a dayan Tabla, a). With complete shyahi, b). With Incomplete shyahi and c). With without shyahi.

with a). Complete shyāhi, b). Incomplete shyāhi and c). Without shyāhi.

Tablā, b). On the right side of a Pakhāwaj, c). On a dholak's right side and d). by Elecronic Tablā. But each and every stroke is excited

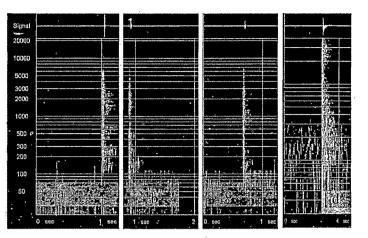
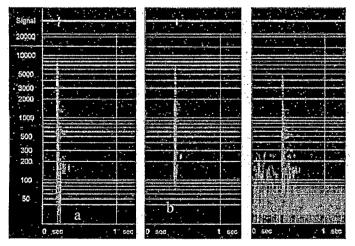


Fig. 4.45, Ra played a). On a dayan Tabla, b). On the right side of Pakhawaj, c). On a dholak's right side and d). By Elecronic Tabla.

stroke is excited dampening sound, showing by their 3D spectrums clearly.

KA, KE, KI OR KAT ( क, के, कि, या कत्)

In figure no. 4.46, where the stroke Ka played on a



bayan Tablā by different ways. In first object ka is played with full palm, in second object it is played by nails and in

Fig. 4.46, Ka played on Bayan with a). Full palm, b). Nails and c). On the shyahi

third object where ka is played by striking on the

And in fig.4.45, where Re is played a). On a dayan

Chapter – Four | 370 Acoustical Properties and Creativity of Tablā, Part (II) |

shyāhi with left hand's fingers. On the other hand in figure no. 4.47, the same stroke Ka is played on a

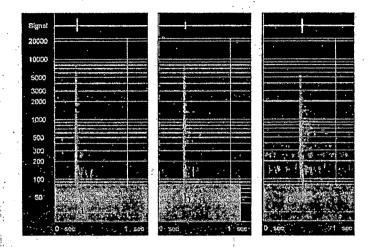


Fig. 4.47, Ka played on a Bayan with a). complete shy hi, b). Incomplete shyahi and c). Without shyahi.

bayan Tablā with complete shyāhi, incomplete shyāhi and without shyāhi. And finally in figure no. 4.48, the reading is taken by playing the same ka by different instruments like a). On a bayan Tablā, b).

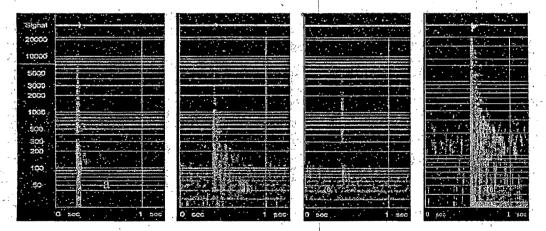
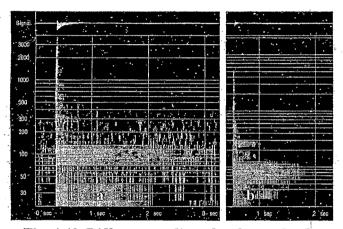


Fig. 4.48, Ka played a). On a bayan Tabla, b). On the left side of Pakhawaj,
c). On a dholak's left side, and d). By electronic Tabla.
On the left side of a Pakhāwaj, c). On a dholak's left side, and d). by Electronic Tablā. A total of nine

readings are given here for illustration. In experiment several other readings also have been taken but each and every reading shows dampening spectrum by this stroke.

## GE OR GHE (गे या घे)

For the stroke of Ge or Ghe the Tabla played by left



hand or nondominant hand is known as base drum. In figure 4.49, two different readings have been taken

Fig. 4.49, Different readings for the stroke Ga played on bayan Tabla.

but both are excited damped sound. The stroke Ghe generates strong vibration but very weak overtones at about 100 Hz. It is also found in experiment conducted by Sangeet Research Academy<sup>1</sup>.

The following figure no. 4.50, where Ga played on different instruments like Tablā, Pakhāwaj and

<sup>&</sup>lt;sup>1</sup> Acoustica, Vol 75 (1991), Research notes 207.

Chapter – Four 372 Acoustical Properties and Creativity of Tablā, Part (II)

Dholak. As we kknow on the left pūdi of a pakhāwaj where temporary shyāhi is used made by wheat

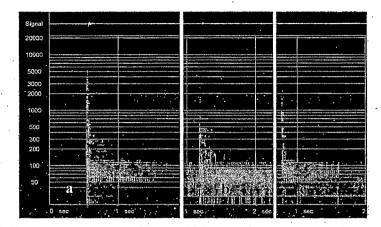


Fig. 4.50, Ga played on a). Bayan Tabla b). Pakhawaj, and c). Dholak. glue. The spectrums of Tablā, Pakhāwaj and Dholak are indicating very weak.

# Na (ज)

The stroke Na played on dayan Tablā by touching

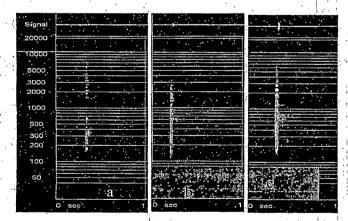


Fig. 4.51, a).Na played on a dayan Tabla with, a). Complete shyahi, b). Incomplete shyahi, and c). Without shyahi. ring finger softly. In fig.4.51, three different readings are taken for na stroke on Tablā with complete, incomplete and without shyāhi

where every spectrums show damped sound.

# DHA (धा), and DHIN (धिं).

The following figure where two different strokes

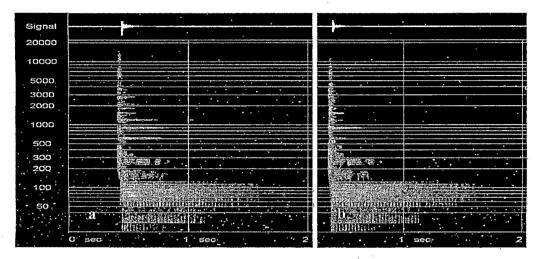


Fig. 4.52, The stroke a). Dha, and b). dhin, played on dayan and bayan Tabla simultaneously.

are indicating, first one is for the Dha stroke and second one for Dhin stroke played on dayan and bayan by striking simultaneously. Both spectrums are indicating clearly for their base stroke and sharp stroke by different harmonics. It is very difficult to mark overtone's creating point for their weak harmonics created by base drum but sharp harmonics created by right hand Tablā is easy to measure.

By this way it is found that though different strokes played on Tablā simultaneously but their individual quality is preserved.

Chapter – Four | 374 Acoustical Properties and Creativity of Tabla, Part (II)

For quick looking a chart of 3D spectrums for different Tablā strokes is given below which is made after playing those strokes on a complete shyāhi Tablā by a specialized Tablā expert.

.

Alphabets	1 <sup>st</sup>	2nd	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>
Name	Overtone	Overtone	Overtone	Overtone	Overtone	Overtone
Таа	244 Hz	428 Hz	644 Hz	874 Hz	1098 Hz	1314 Hz
	30dB	27dB	35dB	30 dB	40 dB	18 dB
	1157ms	1616 ms	544 ms	297 ms	265 ms	117 ms
			, 1			
		7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>	11 <sup>th</sup>
		Overtone	Overtone	Overtone	Overtone	Overtone
		1511 Hz	1753 Hz	1988 Hz	2268 Hz	2484 Hz
		37 dB	27 dB	31 dB	27 dB	31 dB
		185 ms	56 ms	174 ms	100 ms	106 ms
Tin	427 Hz	644 Hz	874 Hz	1098 Hz		
	25 dB	26 dB	16 dB	21 dB		
	1702 ms	123 ms	202 ms	78 ms		۰.
			· · ·			
Tun	239 Hz	427 Hz	644 Hz	860 Hz	1098Hz	
	38 dB	9 dB	25 dB	21 dB	23 dB	
	1696 ms	996 ms	481 ms	347 ms	212 ms	
Din	239 Hz	427 Hz	644 Hz	860 Hz	1098 Hz	
	31 dB	20 dB	18 dB	15 dB	21 dB	
	879 ms	1131 ms	252 ms	151 ms	107 ms	
Ti on	D	Α	M	Р	E.	D
shyāhi						
Ti	D	А	М	Р	E	D
Dhiradhira				soonale and		
category						
Ra	D	Α	М	Р	E	D

Chapter – Four 375 Acoustical Properties and Creativity of Tablā, Part (II)

Ra	D.	А	М	Р	E	D
Dhiradhira	~					
category		~~				
Tak by	• <b>D</b>	A	M	Р	E	D
Middle			-			
finger						
Tak by all	D	Α	M	P	E	D
fingers						
Tak by	D	А	M :	P ·	E	D
index						
finger					-	
Da	427 Hz					•
	30 dB					
	716 ms					
Na	D	A	M	Р	E	D
Ka played	. D	A	M	P	E	D
by nail						
Ka played	D	A	M	Р	E	D
by full						
palm			:			
Ka played on shyāhi	D	. A	M	Р	E	D
Ga / Gha	177 Hz	292 Hz				
Ga / Glia	177 HZ	5 dB				
	1					
	173 ms	358 ms				
Dha	239 Hz	427 Hz	644 Hz	874 Hz	1098 Hz	1338 Hz
	34 dB	30 dB	38 dB	32 dB	42 dB	29 dB
	996 ms	1416 ms	632 ms	447 ms	251 ms	173 ms
	550 113	1410 1113	0.52 m3		ZJIIIJ	
						1535Hz
						42 dB
						179 ms
Dhin	296 Hz	427 Hz	644 Hz	879 Hz	1098 Hz	
	30 dB	30 dB	29 dB	25 dB	34 dB	
	728 ms	1725 ms	185 ms	202 ms	190ms	

Chapter – Four 376 Acoustical Properties and Creativity of Tablā, Part (II)

### **OBSERBATION:**

The sound emanates from Tabla and Bayan is such melodious, sweet and soothing that it is able to create eleven overtones also. It is found several times about eight or nine or ten overtones from different readings for different alphabets also. Here it may be noted that, the overtones which were looked clearly counted for readings since there were another overtones were looked but not From the above experiment it is also cleared. found that, alphabets which are resonate openly like taa, tin, etc. is able to create harmonics but, which are played on shyāhi and resonate closely able to create damped sound only. It is also found that, Tablā, where shyāhi is stored little or incompletely reduced producing harmonics and where alphabets are produced from a Tabla except shyāhi, lost the quality to produced overtones approximately. On joint stroke like 'Dha' or 'Dhin' where two different strokes are played on dayan and bayan simultaneously but their individual quality is preserved on 3D Spectrum and can be read discretely.

### **PESHKAR:**

The word 'Peshkar' is derived from a Farsi word 'Pesh', which means 'to present', 'to attend' etc. Peshkar's also have paltas just like quaidas and there are huge similarities between quaida and peshkar. Since, there are huge similarities between quaida and peshkar but peshkar is not so strict like quaida. A player can expand easily a peshkar without maintain the rules like quaida and generally, it is played as an opening composition in a solo Tablā drumming.

Peshkar which is also known as 'peshkara' is a pattern of exposing the player him-self how confident hi is by presenting controlled variations with different layas. It is a complicated but pretty composition able to animate listener's mind. Generally, peshkar is played at a slow pace as it is very easy to perform different patterns by same laya.

However, it is only the Delhi and Ajrāda gharanas, not the poorab (or eastern) ones, that take pains to

Chapter – Four	378
Acoustical Properties and Creativity of Tabla, Part (II)	

bring out the full aesthetic potential of a peshkar<sup>1</sup>. There are different varieties of peshkar and at the time of playing a peshkar is to be gone after immediately by a particular type of quaida named peshkar-quaida. It is also just like a quaida but the main difference is as it is made up by the typical peshkar's bols. According to Dr. Ajay Ashtaputra, peshkar-quaida is a speaciality of Ajrada gharana only and by playing this such composition in a solo recital a player is introduced from this gharana also<sup>2</sup>.

A peshkar of Ajrada gharana is illustrated bellow with its spectrum:

DhīnKraDhīnTā-DhāDhīnTāDhāTītDhāTītDhāDhāDhīnTā×TītGhīDāNaDhāDhīnTāDhāTītDhāKraDhāTītDhāDhāTīnTā2-TāTīnTāTāTītTāTītTāTāTīnTā0TītGhīDāNaDhāDhīnTāDhāTītDhāKraDhāTītDhāDhāDhīnTā3-TāTīnTāDhāKraDhāTītDhāDhāDhīnTā

And spectrum for this above peshkar -

<sup>&</sup>lt;sup>1</sup> The Art of Tabl Rhythm – Essentials, Tradition and Creativity, by Sudhir Kumar Saxena, Page – 45.

<sup>&</sup>lt;sup>2</sup> Dr. Ajay Ashtaputra on private interview, 2<sup>nd</sup> April, 2007.

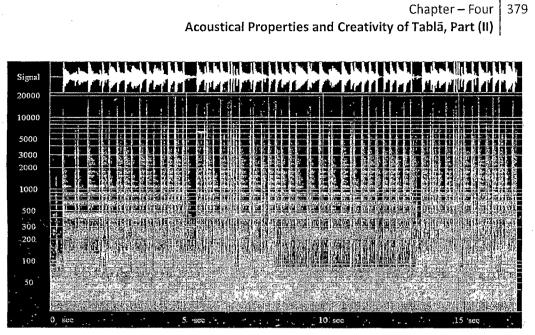


Fig. 4.53, 3D Spectrum for Ajrada Peshkar played on Tabl in Teentāla.

### **QUAIDA:**

The word Quaida derived from Arabian word 'Quaid'<sup>1</sup>, literally means technique or rule or system. The beginner of Tablā learners starts their learning by Quaida. It is believed that by practicing Quaida properly hands of a Tablā player are moved with right way or systematically.

Quaida is a beautiful composition for Tablā instrument and its structure comprises two segments mainly. The first line or segment starts from sama<sup>2</sup> or first beat of tāla and ends before

<sup>&</sup>lt;sup>1</sup> Taal-Parichay, Part – III, by Girishchandra Shrivastava, Page no -30.

<sup>&</sup>lt;sup>2</sup> The first beat of a tāla is called Sama.

Chapter – Four 380

Acoustical Properties and Creativity of Tablā, Part (II)

khāli, while the second segment starts from a khāli and ends before sama. And it continues by a recyclic way again and again.

Quaida is named by its prominent bol which takes place frequently and played prominently. For instance, Quaida for tita, Quaida for tirakita, dhiradhira, etc. The permutations of Quaida differ from gharana to gharana. Some are of the opinion that, the first segment of a Quaida must be ended by tinna, tinakina or dhinagina types of bol while second segment by dhinna, dinagina types of bol. For example, the following quaida which is taught almost every gharanas at the beginning uttered by Delhi gharana by the following way,

	<u>Dha</u>	Dha	<u>Ti</u>	<u>Ta</u>	I	<u>Dha</u>	<u>Dha</u>	Tin	<u>Na</u>	ı
•	×					.2				
· · ·	<u>Ta</u>	Ta	<u>Ti</u>	<u>Ta</u>		<u>Dha</u>	<u>Dha</u>	<u>Dhin</u>	<u>Na</u>	
÷	0					3	- -	¢		
	•							- -		
But	in fa	ırrukh	aba	d g	ha	rana	the s	same	quaida	is
utte	red b	y follo	win	ig wa	ay,			•		
							1			

Chapter – Four 381

Acoustical Properties and Creativity of Tabla, Part (II)

<u>Dha</u>	<u>Dha</u>	Ti	<u>Ta</u>	<u>  Dha Dha Tun</u>	Na
×	•		,	2	
<u>Ta</u> 0	<u>Ta</u>	<u>Ti</u>	<u>Ta</u>	<u>Dha</u> <u>Dha</u> <u>Tun</u> <u>N</u> 3	<u>la</u>

Quaida is also played in solo Tablā playing immensely. It has some different nature and specialty. They are like<sup>1</sup>:

- Quaida is played only on Tablā not on other instruments.
- Quaida is composed only on that Tāla which is used for solo performance and its composition must show the tāla appearance and metre.
- It is divided by two parts first one is Bhari and second one is Khali.
- Quaida is made by that bols that it is expanded for paltas.
- After playing a quaida its paltas are played. At first quaida is played in simple speed then it's double speed and finally if possible its redouble speed also and then quaida is to be followed immediately to play paltas.

<sup>1</sup> Taal-Parichay, Part – III, by Girishchandra Shrivastava, Page no – 30, 31.

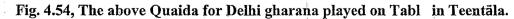
- It ends always its highest speed or by tihai made by its own bols.
- Very often palta of a quaida is also played as rela and row also.

A quaida is famous by delhi gharana and can be played by different ways also is given below with spectrum.

<u>DhāTī</u> ×	DhāGe	<u>NaDhā</u>	<u>TīRaKīTa</u>
<u>DhāTī</u> 2	<u>DhāGe</u>	<u>TīNa</u>	<u>Kīnā</u>
Z <u>TāTī</u>	<u>TāKe</u>	<u>NāTā</u>	<u>TīRaKīTa</u>
0 <u>DhāTī</u>	<u>DhāGe</u>	<u>DhīNa</u>	GīNā
3	•	2	е Х

And spectrum for this above Quaida -

Signal					1			ł			<b>∔</b> —	÷		<u> </u> -				•	+	 er Damis	۲	•	ſ
20000 Í0000	ų - r - z	· . /* \$	31 1			۰ <sup>د</sup> .			÷.	· .		•	•	;.		· .	· . ·	1			1.	•	
5000		1.10		-/ . -/ .			-												<u>14.</u>				
3000					0.3.4	20 00 (N	411-24		 7:											ļ	AL DE AL		HI NO.
1000					Caller -		1.11 1.11 1.11 1.11									-							(Addate of
-500				ан (N-т				1955	in Cale	in a start						ж. 1	ан ( м - (					225	
300 200				前代 行前		明白				ight 174		资 ,					1999 P	刘					11
100																11							
50	A inter-												にはの							i i i Sh i i		1	



Chapter – Four | 383 Acoustical Properties and Creativity of Tablã, Part (II) |

Each and every stroke played on Tablā for presenting the above quaida are shown differently with their distinctive harmonics quality.

In short we can say that, when such type of some bols played by showing division of tāla and can be expanded for different patterns (paltas) may be called quaida.

#### TUKDA

The literally meaning of 'Tukda' is a part or a piece of a whole thing. In Tablā repertoire tukda is very important matter to play. It can be played in both as an accompaniment matter and also in solo playing. By its special meaning we can say that, such composition which is not as long as paran and as rigid as paran and also can not be expanded like quaida or peshkar may be called as tukda.

It is almost composed for one cycle to four cycles. Tukda may be with tihai or without tihai but Chapter – Four 384 Acoustical Properties and Creativity of Tablā, Part (II)

generally, it is mostly composed with tihai. As we know paran is a repertoire of pakhāwaj which is very long composition. By splitting the said paran most of the tukdas are created.

For example a tukda composed in ektāla is given below:

<u>Kat-TiTa</u>	<u>TīTaGeGe</u>	I	<u>Dīn-NāGe</u>	<u>TītaKaTā</u>
×			0	
<u>GaDīGaNa</u>	<u>Tak-Dīn</u>		<u>NāGeTīTa</u>	<u>KaTā-Ne</u>
3			0	
<u>Dhā-Tīta</u>	<u>KaTā-Ne</u>	[	<u>Dhā-Tīta</u>	<u>KaTā-Ne</u>
5			6	•

And spectrum for this above Tukda -

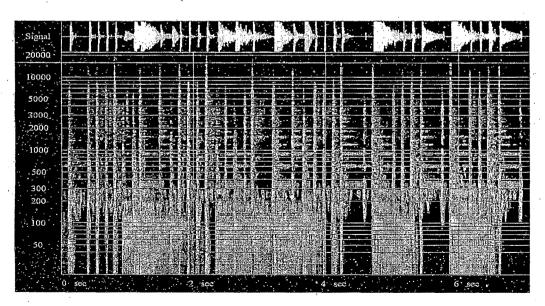


Fig. 4.55, 3D Spectrum for above Tukda played on Tabl in Ektäla.

Chapter – Four 385

Acoustical Properties and Creativity of Tabla, Part (II)

According to Girishchandra Shreevastava, if we say tukda for such soft composition which is bigger than mukhda and smaller than paran will not be inappropriate<sup>1</sup>. To maintain the rigidity like paran tukda is normally composed with the bols those are played mainly on the chanti of a Tablã.

#### RELA

It is a natural language which laterally means 'a torrent' or 'a rush'. It is mainly the material of pakhāwaj and has come to Tablā from that pakhāwaj. Structurally, there are no difference between rela and quaida. But their playing manner is different. Rela is always played at high speed so it is also very tough to play for them who have no dexterity to use of fingers. In this respect Prof. Saxena gurujee said, it calls for perfect mastery in the use of fingers, and agility of both hands; otherwise, the requisite smoothness of the flow of bols may tend to look arrested at places, even before the completion of the pattern. A measure of

<sup>1</sup> Taal-Parichay, Part – III, by Girishchandra Shrivastava, Page no – 53.

Chapter – Four 386 Acoustical Properties and Creativity of Tablã, Part (II)

improvisation is also possible here<sup>1</sup>. On the other hand, quaida is not played as much speed as rela normally.

In rela playing a bunch of bols which played at high speed, forms a continuous rush by swiftly expressed strokes. Rela can be expanded by paltas like quaida. There are two types of rela in use.

#### 1. Swatantra Rela, and

#### 2. Quaida Rela

Swatantra rela, which is also known as independent rela and is made up independently. Most of the rela made for pakhāwaj comes to this category. For example,

<u>DhāTīra</u>	<u>KīTaTaka</u>	TīRaKīTa	<u>DhāTīRa</u>
×			
<u>KīTaTaka</u>	<u>TīRaKīTa</u>	TāTīRa	<u>KīTaTaka</u>
2		1	
<u>TāTīRa</u>	<u>KīTaTaka</u>	<u>TīRaKīTa</u>	<u>TāTīRa</u>
0		4	
<u>KīTaTaka</u>	<u>TīRaKīTa</u>	<u>DhāTīra</u>	<u>KīTaTaka</u>
3			

<sup>1</sup> The Art of Tabl Rhythm – Essentials, Tradition and Creativity, by Sudhir Kumar Saxena, Page – 48.

Some relas those are made from selected paltas of any quaida and can be played high speed also is called quaida rela. As it is made from a palta of quaida so, it is named as quaida rela.

For example,

۰.		· ·	and the second se
<u>DhāTīra</u>	<u>KīTaTaka</u>	<u>DhāTīra</u>	<u>KīTaTaka</u>
× · ·			
DhāTīra	<u>GhīDaNāGa</u>	<u>TīnNā</u>	<u>KīDaNāGa</u>
2			
<u>TāTīRa</u>	<u>KīTaTaka</u>	<u>TāTīRa</u>	<u>KiTaTaka</u>
0	· · ·	•	
<u>DhāTīra</u>	<u>GhīDaNāGa</u>	<u>DhīnNā</u>	<u>GhīDaNāGa</u>
3			

And a spectrum for this above Swatantra rela -

· ·		4					1	i		.
Signal	-	++++++	∰inter   +	****	limari ka k	16 (i)	1	1		
20000 10000	2	<b>1</b>		1	<u>.</u>	<u>ا</u>		 #		2
5000	2.28288.2.1		4							
3000 2000										
1000 500	Alternation of the second		innen i si					e - Greginary Fr Collaboration 		
300. 200							間的			
100							$\underline{\underline{\mathbf{u}}}_{\underline{\underline{\mathbf{u}}}}$			
50										
	0″ scc	S.P.S.	1	scc		12 - 1 2	scc		а З	see

Fig. 4.56, 3D Spectrum for a swatantra rela illustrated above in Teentāla.

Acoustical Properties and Creativity of Tablā, Part (II)

Chapter – Four | 388

GAT

The word gat is an abbreviation of gati which means movement<sup>1</sup>. Gat is a special type of such beautiful composition made up with soft bols and different from quaida, tukra, rela, paran, etc. it is always made up with pure Tablā bols and almost without tihai. Some are played gats by utilizing khali and bhari also.

Gats are played in solo Tablā playing frequently. There are different types of gats in use, like simple gat, Chakradhār-gat, Dopalli-gat, Tripalli-gat, Choupalli-gat, Pānchpalli-gat, Farmāeshi-gat, Faradgat, etc. In chakradhar-gat is made up with an identical bunch of bols repeat for three times. The meaning of palli is a pattern which completes one cycle of the basic composition with a different speed. About palli Gurujee said, 'the suffix palli here means one cycle of the basic composition<sup>2</sup>.' So, in gats of palli different speeds are uses as

<sup>&</sup>lt;sup>1</sup> The Art of Tabl Rhythm – Essentials, Tradition and Creativity, by Sudhir Kumar Saxena, Page – 49. <sup>2</sup> The Art of Tabl Rhythm – Essentials, Tradition and Creativity, by Sudhir Kumar Saxena, Page – 50.

much as referred. For example, in dopalli-gat two different speeds, in tripalli-gat three different speeds is used.

It is also seen to play very often 'do moonh ki gat' at the time of solo Tablā drumming. Generally, it means a different pattern where the composition starts and ends with the same bol or group of bols. According to guruji, in all probability, the thought of composing such gats arose from observation of a 'she-snake' which does not have a tail at all, but has two similar mouths at both ends. As we know, this type of snake is called 'dumui'<sup>1</sup>.

There is one rare and beautiful specialty of gat named farad-gat. Some are of the belief that a farad-gat is made of once is not possible to make another by same pattern. It is very complicated pattern in both construction and implementation. For instance, a farad-gat is given below with spectrum:

<sup>1</sup> The Art of Tabl Rhythm – Essentials, Tradition and Creativity, by Sudhir Kumar Saxena, Page – 50.

Chapter – Four 390 Acoustical Properties and Creativity of Tablā, Part (II)

<u>TīTaGhīDā</u>	<u>-NaDhā</u>	<u>GhīDaNag</u>	<u>DhīNakTā</u>
×			
<u>KīTaDīNa</u> 2	<u>GīDaNaGa</u>	<u>DhīTaDhāGe</u>	<u>TiTaDhāGe</u>
2 DhaDanNa	GadDi	KatDīNa	DhāGeNaDhā
0	GauDi	KatDina	Dhadenabha
GeNāDhāG	e DīGaNaGa	a TīRaKīTaTak	Tā -DhīRaDhīRaKīTa
3	· •		

And spectrum for this above farad gat -

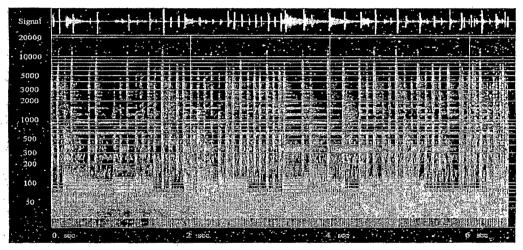


Fig. 4.57, The spectrum for above Farad Gat, composed in Teentāla.

## **MUKHRA / MOHRA**

Mukhda and Mohra both are very beautiful compositions and about equal in range. The word 'mukhda' came from the word 'mukh' (mouth). According to Girishchandra Shreevastava, mukhda is bigger than mohra and made from rigid bols, can be said a little tukda also<sup>1</sup>.

<sup>&</sup>lt;sup>1</sup> Taal-Parichay, Part – II, by Girishchandra Shrivastava, Page no – 41.

Chapter – Four 391 Acoustical Properties and Creativity of Tablā, Part (II)

Generally, mukhda ends with a tihai while mohra is commonly played before starting the actual theka. Both can be rised up from any matra of a theka but end at sama or first beat of Tāla. Though both are used in solo Tablā recital but their actual use is in accompaniment mainly. For example a mukhda and a mohra is given below:

Mukhda – In teentāla the following mukhda have to play from khali or 9<sup>th</sup> matra:

<u>Nātī</u>	<u>NāKīda</u>	<u>NākTāk</u>	<u>TīRaKīTa</u>
0			, 1 , 1 , 1 , 1 , 1 , 1 , 1 , 1 , 1 , 1
<u>Dhā-</u>	<u>DhāTī</u>	<u>Dhā-</u>	<u>DhāTī</u>
3	r .		

Mohra – In teentāla the following mukhda have to play from 13<sup>th</sup> matra:

<u>Nātī NāKīda NākTāk TīRaKīTa</u>

## PARAN

The word 'Paran' is mainly related to pakhāwaj instrument. But it is also played on Tablā frequently. It may also say that, a large size of such Chapter – Four 392 Acoustical Properties and Creativity of Tablā, Part (II)

special composition which is like tukda played mainly on pakhāwaj by openly and rigidly is called paran. Paran has a number of variations, like – Gajparan, Ekhasthi-paran, Kamali-paran, Farmaishiparan, etc.

For example a paran is given below which is composed in Chartāla:

<u>DhāDhā</u>	<u>GaDīGaNa</u>	<u>DhāDhīn</u>	<u>TīTaKaTā</u>
×		0	
<u>GaDīGaNa</u>	<u>DhāNa</u>	<u>DhīnTā</u>	DhāDīn
3		0	
<u>TāDhā</u>	TaTiTa	<u>KaTaGaDī</u>	<u>GaNaDhā</u>
5		6	
<u>DhīnTā</u>	<u>DhīnTā</u>	<u>DhāGaDī</u>	<u>GaNaTiTa</u>
×		0	
<u>KaTaGaDī</u>	<u>GaNaDhā</u>	<u>DhāTīTa</u>	<u>KaTaGaDī</u>
3		Ο	•
<u>GaNaDhā</u>	<u>DhāTīTa</u>	<u>KaTaGaDī</u>	<u>GaNaDhā</u>
5		6	

## LAGGI / LADI

Laggi and Ladi are the smallest compositions in the realm of Tablā repertoire. By how players are used peshkar, quaida, rela, gat, etc. in teentāla, ektāla or other tālas by the same way laggi and ladi are used

Chapter – Four 393

Acoustical Properties and Creativity of Tabla, Part (II)

in agile nature of tālas like 'kaherva', 'dadra' etc. It is also very tough to play for them who have no dexterity and agility to use of fingers. Except playing manner, structurally, there are a few differences between laggi and quaida. It can be also expanded like quaida but need not to maintain the rules strictly alike quaida, as these are used mainly in accompanying with the lighter forms of music, like, 'thumris', 'gazals' 'bhajans', etc.

By how quaida rela is made by a part of a quaida or any selected palta of a quaida by the same way ladi is made from a part of laggi or a bant of a laggi is played in high speed. According to Girishchandra Shreevastava, the word ladi came from Hindi language 'lad' which literally means a chain made by pearls or flowers<sup>1</sup>. Quality wise they have no place in solo playing but now a days these are frequently used at the time of solo playing.

In this respect Prof. Saxena gurujee said, laggi has been devised on the analogy of a long bamboo

<sup>1</sup> Taal-Parichay, Part – III, by Girishchandra Shreevastava, Page – 87.

which is thick at the root and thin at the end. Its playing indeed begins with a big bang, and gradually tapers in resonance as it moves towards its end<sup>1</sup>. For example a laggi and a ladi are given below composed in Keherva tāla:

Laggi:

Dhā Tīn Nā Dā | Tā Tīn Nā Dā × 0

Ladi:

Dhā Tīn Dhā Tīn | Nā Nā Tīn Nā × 0

And spectrum for this above laggi, ladi:

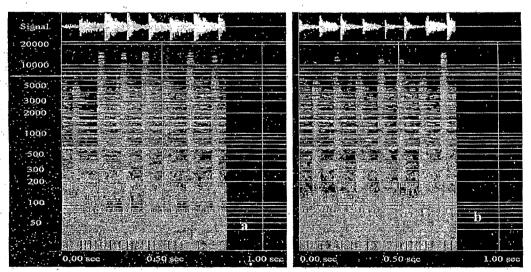


Fig.4.58, a). 3D spectrum for above Laggi, and b). 3D spectrum for above Ladi.

<sup>&</sup>lt;sup>1</sup> The Art of Tabl Rhythm – Essentials, Tradition and Creativity, by Sudhir Kumar Saxena, Page – 53.

Chapter – Four 395

Acoustical Properties and Creativity of Tablā, Part (II)

#### TĀLA

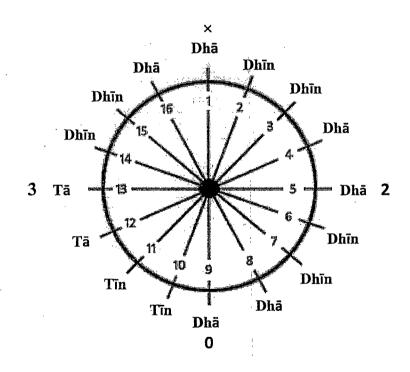
The word tala is made from the root form of 'tal' which means 'something established'. There are ten pillars<sup>1</sup> in Tāla and time is one of them. Once a time, to measure time in music Ghana instrument were used and it was said that 'Talon Ghana Iti Procktom<sup>2</sup>, but in modern period specially in North Indian music, Tablā has created a such position where no one can think any music without Tabla. It may consider to accompany any singing or music except Tānpūra instrumental and Hārmonium but Tablā. For its highly demanding score the permutation of 'Talon Ghana Iti Procktom' is changed and can be said also that 'Tablā Talonti Procktom'.

# THEKA

Every tala has been allocated with a basic set of bols which is called theka from which every tala is recognized. The theka is the sole to every tala and

<sup>1</sup>'काताम्नार्भकिरागिनि ग्रहजातिकलालासाः। रातिप्रस्तारक टौटा तालाप्राणा दश स्मृताः । [51] | Sangeet-Makrand, by Narad Muni, Nrittyadhdaya, verse no – 51. <sup>2</sup> 'ताळो द्याना इति प्रोक', Nätya Sästra, by Bharat, 31<sup>st</sup> Chapter, Tälavidhānadhyāy. the concept of theka is unique to North Indian music which does not exist in the western music and even in southern or Carnatic music also. After starting a theka it continues in a circular pattern, and stops only when the particular piece comes to an end.

For example, the most common sixteen beats theka of teentāla of North Indian system is given below:



The above teentāla is starts from first matra (beat) which is indicated at the top by '×' symbol and also by '1' number and completes its one cycle on

Chapter – Four 397

Acoustical Properties and Creativity of Tabla, Part (II)

sixteenth matra (indicated by 16 numbers). Each and every theka of any tāla is rotted by this same way.

And spectrum for this above theka:

al		ilitta an	þ	(in sec.		<b>Bitter</b>						9 <del>0</del>		Dires-	<u>}</u>	
00 ·		· · ·			1 <u>1</u>	·			•		1 - ' 1	- *: - *:				
00						· · · · ·										
00	- -						1	5	evre Sere					: : : :		
00										tern Senter						34 a
1.147		2747 - 49 - 1978) 3	1441 16451				1. 1 (h-1)		98 17 = 1 26	947.9°. 941.3°.	inge sen i Tild beri				1 (1)	()
10.						a la		ΣP			1. 1. j.					
0																
								1.					é se	<b>F</b>		

Fig. 4.59, 3D spectrum for Teentāla, played on Tabl .

## **OBSERVATION:**

From the above 3D spectrums showed for analysis of different compositions like – Peshkar, Peshkar kaida, Kaida, Tukrda, Rela, Gat, Mukhra, Paran, Laggi, Ladi, Tāla, Theka, etc. it is found that, strokes are made so quickly to play the above compositions that, even their individual overtones create distantly but amalgamate with each other so roughly is tough to make readings from them.

# **CREATIVITY OF TABLĀ**

The periodic movement or rhythmic flow is present in painting, sculpture and music and even the expression of feelings. Some scholars have placed the three art forms on an equal ground while the majority of them insist adamant that music has it all and even more to it. All art forms give force, inspiration, inner peace and encouragement. But music has an added feature that it affects not only the human beings, but also the whole environment including animals and birds. It is well known that music becomes more effective when accompanied by rhythm and rhythmic bits are provided by Tabla. thus, has become indispensable Tablā, an instrument accompaniment of traditional classical Indian music.

Percussion instruments have been using to serve up several purposes from the very ancient time. As we already know, instruments like Dūndūbhi, Nāgādā were used for public announcement and for royal march past from a long time in all countries. These

Chapter – Four | 399

Acoustical Properties and Creativity of Tablā, Part (II)

instruments were also used as an aid to communication or to drive away wild animals, and were played by striking with the tales of the animals, have found available references in so many texts.

In this respect A. k. Sen writes, "From ancient times the use of percussion instruments has not been for the purposes of music alone. In all countries the use of these instruments, for public announcement and for royal processions is worthy of mention. In various regions of India Adivasi (tribal) the percussion instruments (hide covered) ones are played to suggest or to forebade various events. There was a code language of these forebodings by which the king's or Chief's messages were conveyed to the people, who were far away. The people who were far away acted on these symbols. At various times of the morning and evening, the drums were played. This was called 'Naubata' and this enabled the people to understand the time. An angular shaped hide covered percussion instrument called Bheri was given in some villages to the watchman and it was played by them, when there

was danger and the people were alerted<sup>1</sup>.

From the very ancient time there was a tradition to accompany music by the rhythmic instrument. At the early period rhythm was maintained and music was accompanied by Ghana vadya mainly. We get several references from the early treatise Natya Shastra, written by Bharat muni<sup>2</sup>.

Percussion instruments are also one of the oldest mankind. developed musical instruments by · Instruments used to accompany the all types of music like- Gayan, Vadan, and Nritya are mentioned in every periods of musical text. The solo performance of an instrument was called 'nirgit vādan' which is also known as 'shūska vādan' or 'gosthi'<sup>3</sup>. The ancient shūska vadan which is as known as today's 'solo' performance or 'ekal 'Mansollas' written by Raja vadan'. According to Someswara the first and prominent work of an instrument is solo performance, secondly to accompany

-Sangeetratnakara by Sarangdeva, Chapter – 6, Vadyadhya.

<sup>&</sup>lt;sup>1</sup> Indian Concept of Rhythm, by A. K. Sen, Page no - 40, 41.

<sup>&</sup>lt;sup>2</sup> 'ताळो टान इति प्रोक्त', Nātya Sāstra, 31<sup>st</sup> Chapter, Tālavidhānadhyāy.

<sup>&</sup>lt;sup>3</sup> शुष्क गीताानुगं नृत्तागमन्याद् द्वयानुगम् । १९६ | ।

Chapter Court 40 Acoustical Properties and Creativity of Tabla Part (II)

with music; thirdly, to accompany with dance; and fourthly, to accompany with dance and singing. By this way the four kind of work was done by an instrument to pleasure a king. In this respect Raja Someswara has written,

# एधग्टाहां भटोदेकं द्वितीरा गीतरांभतम । नृत्तानुगं तृतीरां चा तुरीरां गीता नृत्रागम् । । एटां चातुर्टिधं टााहां टिानोदार्थ महीपतिः । सभ्यौः सह समासीनः श्रुण चात्सुसमाहितः<sup>1</sup> । ।

In any art there are definite fundamental materials with which the artist works. Rhythm, melody, harmony and tone colour are the elementary thing of Tablā. Tablā preserved all above qualities in it.

The periodic movement or rhythmic flow is present in Painting, Sculpture and Music and even in the expression of feelings. Some scholars have placed the three art forms on an equal ground while the majority of them insist adamant that music has it all and even more to it. All art forms added feature

<sup>&</sup>lt;sup>1</sup> Mansollas, written by Raja Someswara.

Chapter – Four 402 Acoustical Properties and Creativity of Tablā, Part (II)

that it affects not only the human beings, but also the whole environment including animals and birds. It is well known that music becomes more effective when accompanied by rhythm and rhythmic bits are provided by Tablā. Tablā, thus, become an indispensable instrument accompaniment of traditional classical Indian music.

Tablā is a very popular instrument and its versatility is such that it accompanies vocalists, dancers and instrumentalists plus Tablā is an instrument which stands out by itself as it can also be performed as a solo instrument.

The various drum instruments also used to accompany music. Vocal, Instrumental and Dance are the three part of music. Charming people are enamored by the feeling of vocal and dance music. But with a proper accompaniment of that vocal or dance music can be reached more appealing. Bharat Muni also realized this fact and has advised to play instrument to illustrate Navrasa (Nine Rasa).

#### Bharat has said<sup>1</sup>:

शॄगारहास्यायोगे वाहां योज्यां तथाडिडते मार्गे । वीराद्भुतरीद्राणां वितरतमार्गेण वाहां स्यात् । । ५२ । । करुणरसेत्वीहँ वाहां योज्यांचाळिप्तकरणमार्गेण । वीभत्सभयानकयोस्तथेव नित्यं ही गोमुख्या । ।५३ । ।

The meaning is,

'The Vadyas should be played in the Addita Marga when Srngara and Hasya Rasas are depicted. When Vira, Ravdra and Adbhuta are depicted they should be played in the Vitasta Marga. The Pathetic (Karuna) sentiment is depicted with the playing of the instruments in the Alipta Marga and the Bibhatsa and Bhayanaka Rasas are depicted by playing them in the Gomukha Marga. Instruments should be played after careful observation of the dance be fitting the Rasas, Bhavas, the Sattva of the characters their gestures, mode of walking and the location of the scene<sup>2</sup>.'

There are a number of instruments which are used for accompaniment with music like , Pakhāwaj,

<sup>&</sup>lt;sup>1</sup> Natya Shastra, by Bharat Muni, Chapter – 33, Verse no. – 52, 53.

<sup>&</sup>lt;sup>2</sup> The Natya Shastra of Bharat Muni, Translated By A Board of Scholars, Page – 490

Mridangam, Dumroo, daff, dhol, Dholak Tasha, Khanjari, Matka, Nagada / Nakkara, Kathtal / Khadtal, Ghant, Manjira, Chimta, Mukhchang / Morchang, etc. but none can be equal to Tablā. Tablā has a unique place among all accompaniment-instruments by its affecting sweet sound qualities, which is not possible to express or cannot be uttered only by words.

The popularity of Tabla has risen due to the fact embellished that, it its original bols and expanded them to great length. In addition to this, Tablā is played with fingers and hence the dexterity of the latter makes playing in higher speeds with panache and beauty. Tablā is so convenient to play as distinguished from other accompaniment instrument, that. as an accompaniment-instrument, it can be used with almost every type of music-forms. Whereas other accompaniment instruments totally fail to fulfill these demands. For example, it is agreed upon today that, Tablā can very well accompany the instruments like 'Sitar', 'Sarod', 'Violin', etc.

Chapter – Four | 405

Acoustical Properties and Creativity of Tabla, Part (II)

where as other percussion instruments like Pakhāwaj or Mridangam are not suitable to accompany the above instruments because of their rigidity and seriousness. Now-a-days the players have started using Tablā with Drupad and Dhamar also.

We find that ancient forms of singing like, Jati gayan, Prabandha gayan, Drupad and Dhamar were using Pakhāwaj for an accompaniment instrument (though it is considered rigid and serious). But in mere recent time many more styles of singing, like Khyals', Thumri', Dadra', Tarana', 'Tappa', 'Ghazals', Bhajans (even light –classical music and semi-classical music as staunch purists would call it) have evolved and Tablā is found to be a friendlier instrument to accompany even these styles.

Tablā can express the will and the passions of human beings, feelings and emotions being its burden in a variety and precision not possible to words. At the time of accompaniment Tablā is mainly used to maintain the time cycle in music, and thus thought to be the first cycle in order of succession. These rhythmical effects in music strongly appeal to the mind.

Tablā can also accompany with an ease purely instrumental music such as music played on sarod, sitar, sarangi violin, veena and even experimental instruments like saxophone, piano, guitar, brass etc. In addition to the accompaniment of vocal music, Tablā manages to create a magical blend with dances, the effects of which are simply divine. And the dancers play a divine dance with this divine effect.

# **POPULARITY OF TABLĀ**

Tablā has got an exceptional place among all percussion instruments by its touching sweet sound qualities, which cannot be uttered only by words. It is possible by the number of reasons. Some reasons are being mentioned below:

Chapter – Four | 407

Acoustical Properties and Creativity of Tablä, Part (II)

As we know, Tablā is mainly an accompaniment instrument like other percussion instruments. There are a number of instruments which are used for accompaniment with music like , Pakhāwaj, Mridangam, Dumroo, daff, dhol, Dholak Tasha, Khanjari, Matka, Nagada/Nakkara, Kathtal/Khadtal, Ghant, Manjira, Chimta, Mukhchang/ Morchang, etc. but none can be equal to Tablā for accompanying present days music.

Tablā is such exceedingly flexible instrument that it accompanies vocal music, instrumental music as well as dance music and Tablā is an instrument which stands out by itself as it can also be performed as a solo instrument. Tablā is as popular for accompaniment instrument as solo instrument also.

In medieval period singing styles like Dhrupad, Dhamar, Prabandha Gayan, etc. were in more prevalent, where pakhāwaj or mridang was more suitable to accompany that. But, day by day the prevalence of those singing styles is being reduced. Chapter – Four | 408 Acoustical Properties and Creativity of Tablā, Part (II) |

And, with the change of people's choice, new styles like, Khyal, Thumri', Dadra', Tarana', 'Tappa', 'Ghazals', Bhajans, etc are emerged and placed instead of Dhrupad, Dhamar styles, where Tablā gets itself, more suitable to accompany with these new styles.

Tablā is made in such a way that, it has two parts which are in standing pose and its heights is in measure that it more suitable to play then other instruments.

As Tablā is set by standing pose with its suitable heights, then it makes very simple to play different types of laykariyas and other presentations on it. Tablā is an instrument where both parts can be played by fingers. As, it is a fingers played instrument. That is why a player can play Tablā with ease even in high speed. This is unavailable in Pakhāwaj or Mridang.

Tablā can be played by open style (Khula baz, like pakhāwaj style) as well as close style (Band-

Chapter – Four 409 Acoustical Properties and Creativity of Tablā, Part (II)

Baz style, where low resonance is produced) also, which makes a sweet environment on its playing.

It is very hard on pakhāwaj to produce some sound like Gamak. The permanent black-patch is set on its right hand side, so, there is no problem to play this instrument with fingers or a palm. But, in its left hand side, where temporary wheat-patch (patch made by wheat glue) is set, so it gets hard to produce gamak from there. On the other hand, the permanent black-patch is set on both parts dayan and bayan Tablā centrally and eccentrically respectively so, all types of bols and gamak on bayan can be made here with ease.

At the present time, large quantities of Tablā texts are available here which makes a Tablā player more comfortable to learn it than other instruments.

These days it is very easy to get a Tablā player every where, and for this reason, a learner of Tablā instrument can easily get a teacher to learn it where in other instruments it is very difficult to get

.

a teacher.

It is very easy to make a Tablā in different Swaras (tuning pitch) with the demand of opposite player at the time of accompaniment. Also, as it is a small piece of instrument, a player can easily store two or three pieces of Tablā made by different swaras, which makes a player more comfortable at the time of accompaniment than other instruments.

By the availability of different pitches of Tablā, a new trend has been started these days named 'Tablā-tarang', where Tablā is played as like as 'Jaltarang'. So, there may not be long distance where Tablā will be played as a main instrument with different ragas.