

*Music of the Whole World*

- presentation # 1: October 26, 2005

# **Indian-Western Fusions**

- study materials

by Moshe Denburg

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# Music of the Whole World - Indian-Western Fusions

## Indian Notation

### General Considerations

In general, Indian music is an aural tradition, thus notation does not play as big a role in it as it does in the Western musical system. The intricacies of the music, with all its ornaments and nuances, have been handed down aurally from teacher to disciple for centuries. Actually, notating some of these nuances would be extremely tedious at best, and the desired effect would be undoubtedly lost - there is simply too much ornamental detail to allow for an authentic rendition from written materials. Also, the improvisational element, learned by internalizing structures of melody and rhythm over many years, is of necessity taught aurally. Structured improvisation is after all an aural art.

This said, there are systems of notation in India which, while not meant to replace the aural tradition, can be utilised to preserve and transmit basic musical ideas. Notation can also be used as a mnemonic device, to remind the music practitioner of certain melodies and rhythms that might otherwise be forgotten without the presence of the teacher. As well, written materials can easily be used as a teaching tool - written exercises are very useful and do not interrupt the aural flow of musical ideas.

Interestingly, Indian notation is very useful as a musical shorthand, and in this regard western notation is not as efficient. This may become clear from the discussion below.

In writing for Indian instruments there are 3 ways to go: 1. we may use Western notation together with certain markings to indicate the specific techniques; 2. we may use Indian notation throughout; 3. we may use both Western and Indian notation in combination.

### History

Many systems of notation have been proposed by different scholars and musicologists over the years. The idea of notation in India goes back to pre-historic times, though the modern usage stems from the end of the nineteenth century. One of the most important, if not the most important, innovator in the field of Indian music notation is a scholar by the name of Vishnu Narayan Bhatkhande. In North India today, it is his system which has become the standard. Systems of Indian notation vary somewhat between North Indian (Hindustani) and South Indian (Carnatic) music. These systems are not static but evolving, though all have certain commonalities.

### The Basics

We are proposing here certain elements that will be quite complete in themselves, and are in wide use in India. We shall take some elements from North Indian (Hindustani) and others from South Indian (Carnatic) music. However, all these elements will be easily understood by musicians of both traditions. Where it is considered to be helpful, we shall point out the variations between the 2 systems.

### Note Names - Sargam

To begin with, Indian musical language is conceived as a 'movable do' system. For the sake of elaboration we will take the tonic of the system as equivalent to the note 'C'.

The gamut is represented by the following syllables:

<b>Sa</b>	<b>ri</b>	<b>Ri</b>	<b>ga</b>	<b>Ga</b>	<b>ma</b>	<b>Ma</b>	<b>Pa</b>	<b>da</b>	<b>Da</b>	<b>ni</b>	<b>Ni</b>
C	C#	D	D#	E	F	F#	G	G#	A	A#	B
	Db		Eb			Gb		Ab		Bb	

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These syllables, collectively referred to as **Sargam** can be further reduced to letters as follows:

<b>S</b>	<b>r</b>	<b>R</b>	<b>g</b>	<b>G</b>	<b>m</b>	<b>M</b>	<b>P</b>	<b>d</b>	<b>D</b>	<b>n</b>	<b>N</b>
C	C#	D	D#	E	F	F#	G	G#	A	A#	B
	Db		Eb			Gb		Ab		Bb	

Thus, in this system, a gamut of 12 notes is assumed. The tonic is always Sa, the dominant is always Pa, and the other 5 degrees of the scale have both lowered and raised versions, represented by lower and upper case letters respectively.

Though Western equal temperament is **not** assumed, the 12 note gamut is the proper representation of Indian melodic music.

Lower octave notes are indicated by placing a dot  $\cdot$  below the letter; higher octave notes are indicated by placing a dot  $\cdot$  above the letter; 2nd lower octave utilizes double dots  $\cdot\cdot$  below; and 2nd higher octave by double dots  $\cdot\cdot$  above. And so on.

A six octave range would be represented thus:

S	S	S	S	S $\cdot$	S $\cdot\cdot$	S $\cdot\cdot\cdot$
$\cdot\cdot\cdot$	$\cdot\cdot$	$\cdot$				

### Durational Elements

#### Melodic Notation

1. Note letters on their own take on the value of the denominator of the time signature.

4/4 | S R G m | P D N S $\cdot$  ||

Here each letter is of 1/4 note duration.

2. In order to create notes of longer duration, a "durational extender" (aka. **virama**) is utilized. This takes the form of a dash, as follows.

4/4 | S - R - | G - m - | P - D - | N - S $\cdot$  - ||

Here each letter is of 1/2 note duration.

3. Other variations are as follows.

4/4 | S - R G | m P m P | D - N - | S $\cdot$  - - - ||

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4. To make note durations of less than denominator values, a "beat line" (aka. a **matra line**) is placed beneath all those notes that together make up one beat (or **matra**).

4/4 | S R G m P - | m P D N S - ||

Here, in each measure, four 1/8 notes are followed by a 1/2 note.

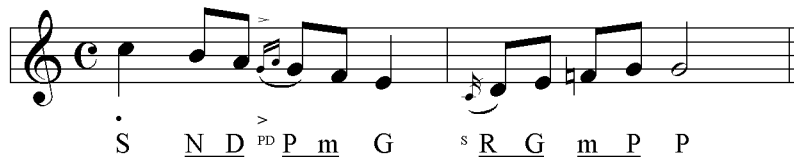
5. In this manner, highly complex rhythmic figures can be represented. Triplets for example would simply have 3 letters over a **matra line**, as follows.

4/4 | S R G S R G m P | P D N P D N S - ||

6. To notate ornaments, the ornamental notes are written in smaller superscript, as follows (see sample notations below).

3/4 | P <sup>DP</sup> <sup>DPD</sup>P | <sup>P</sup>M G <sup>M</sup>G R G ||    or    4/4 | S N D <sup>PD</sup>P m G | <sup>S</sup>R G m P P - ||

In the second example, the accent mark over the first note of the ornament <sup>PD</sup> indicates that the ornament is played on the beat rather than preceding it.



### Rythmic Notation

Rhythmic notation is written utilizing "sound words" (called '**bols**'), one-syllable words which are meant to enable the musician to speak the rhythms. The art of these sound words is not the topic of this discussion, but will be dealt with in a separate article. Here are the rules of rhythmic notation.

#### Symbol

#### Meaning

\_\_\_\_\_ A straight line beneath a **bol** or **bols** indicates the duration of 1 **matra** or beat. In a measure of 16/4 for instance, there will be 16 **matras**. In the phrase: **dha** **dhin dhin** - dha lasts for 1 matra, and each dhin for 1/2 a matra.

S or .

These indicate a rest, but not really in the western sense of silence, but rather in the sense of an extension in time of a sound. In India it is called a **virama**, and with its help phrases of almost any rhythmic complexity can be notated. Durationally it is treated as any other bol within a

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given matra. The **s** ought not be confused with the **S (sa)** of melodic notation; as long as it is clear the writing is for a rhythmic instrument, it is unlikely that such confusion will arise. The dot . can be used instead if the composer prefers.

For example, in the phrase: **ta ra s na** ta is 1/2 a matra, ra is 1/2 a matra plus an extension of 1/2 a matra, and na is 1/2 a matra. Another example will illustrate the indispensability of the virama: **ta ki ta ta ki ta ta s ki s ta s** . Here each matra is divided into 3 parts, and with the help of the virama we can divide the last 2 matras into 3 equal parts quite easily.

Utilizing dots as virama, the above will be rendered:

**ta ra .na ta ki ta ta ki ta ta .ki .ta .**

Commas are used to divide a matra into two or more equal parts. It helps where too many viramas would have to be written. **s , te re te re** is the same as **s s s s te re te re** but is more concise. In some cases, for added clarity, the comma and the virama may be used together, thus: **s s , te re , te re** or **ta s , ki ta** .

### Addition of Western Stems, Rests, and other markings

**Ex. 1** 1 matra = 1/8 note

ta . . dha . . ta ta . dha dha .

**Ex. 2** 1 matra = 1/4 note

ta ra s na ta ki ta ta ki ta ta s ki s ta s dha s

**Ex. 3** 1 matra = 1/4 note

s , te re te re dha s te re te re , dha s , te re te re dha s s s

To clarify the Indian notations western stems and rests may be placed above the bols or sargam to give added clarity to the durational values. Other markings, such as accents and dynamics may also be added. Markings for techniques specific to various instruments are also added, and to make sure that there will be no misunderstanding, the composer should provide explanatory notes for the performer.

If the performer is comfortable with reading western notational values, the matra lines may be omitted. Again, this should be decided in consultation between the composer and performer.

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• **Bansuri** (North Indian transverse bamboo flute)



[ picture of bansuri ]

**Description**

The Bansuri is a transverse bamboo flute with 6 finger holes plus one hole for blowing. It is closed at the end closest to the blowing hole. Its fingered holes are large enough to permit half (or partial) holing, thus facilitating the playing of all ragas (modes) on one bansuri. It is very agile and, due to the open holed/unkeyed nature of its construction, all manner of glissandi and microtonal ornaments are possible.

**Bansuris - Sizes and Pitches**

(from highest/shortest to lowest/longest)

* Tonic	Key	Piano Pitch	Approx.Length
F	C	C52	14"
E	B	B51	15"
E <sub>b</sub> (or D <sub>#</sub> )	B <sub>b</sub> (or A <sub>#</sub> )	A <sub>#</sub> 50	16"
D	A	A49	17"
D <sub>b</sub> (or C <sub>#</sub> )	G <sub>#</sub>	G <sub>#</sub> 48	18"
C	G	G47	19"
B	F <sub>#</sub>	F <sub>#</sub> 46	20"
B <sub>b</sub> (or A <sub>#</sub> )	F	F45	21"
A	E	E44	22"
A <sub>b</sub> (or G <sub>#</sub> )	D <sub>#</sub>	D <sub>#</sub> 43	23"
G	D	D42	24"
G <sub>b</sub> (or F <sub>#</sub> )	C <sub>#</sub>	C <sub>#</sub> 41	25"
F (bass)	C	C40 (middle c)	26"
E (bass)	B	B39	27"
E <sub>b</sub> (or D <sub>#</sub> ) bass	A <sub>#</sub>	A <sub>#</sub> 38	28"
D (bass)	A	A37	29"
C (bass)	G	G35	30" (very rare, and difficult to play)

\* The **tonic** of the bansuri is the note sounded when 3 finger holes are closed. All 6 holes closed (the pipe note) determines the **key**. The same flute may be referred to by either its tonic or key.

**Naming**

We will call a Bansuri by its **key** or **pipe note**, ie. the note rendered when all 6 holes are closed.

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### Range and Notation

The range of the bansuri is effectively 2 octaves and a major 3rd, though its full range is assumed to be 2 octaves and a fifth. Taking the **pipe note**  $c^1$  bansuri, we can assume that all pitches to  $e^3$  are playable.  $f^3$  and  $g^3$  are very difficult, and should be called for only in consultation with the performer. There may be some cross fingering techniques that may render some of the higher pitches, in the third octave, more playable, but in general cross-fingerings are not used in Bansuri playing.

In western notation one notates the bansuri at pitch and in the treble clef. Indian notation is possible, and is covered in the section on Indian notation.

The choice of bansuri can be left to the performer, but the composer may suggest the keys. Of course the range itself will in certain cases determine which bansuri the performer must play. The composer ought to ascertain which bansuris the performer owns before committing pen to paper.

### Basic Scales

The scale rendered by beginning on the pipe note, and without half holing, is the diatonic major scale. Traditionally, the *tonic* note of the bansuri is sounded when the 3 lowest holes (farthest from the mouth) are open. Another way of saying this is that the three upper holes (closest to the mouth) are closed. In India this note is called **Sa**, which is equivalent to **Do** in the western solfege system.

So we must differentiate between *key* (which is named in accordance with the actual pipe note), and *tonic* (a fourth above the pipe note). Calling the pipe note **Sa** may confuse an Indian musician. One ought to be very clear about this.

The  $c^1$  tonic (middle C tonic) flute is rare, since this flute's pipe note (all holes closed) would be  $g$  (below middle C) - this flute is extremely long and very difficult to play, as one would need enormous hand spans to cover all the finger holes. The  $c^2$  tonic flute is more common, since this flute would have a pipe note of  $g^1$ , a medium sized flute.

The **pipe note**  $c^1$  bansuri ( $f^1$  tonic) is very common.

### Scales, Modulations, Chromaticism, and Harmony

Modulation from one mode to another is possible, contingent only upon the skill of the performer. Thus, melodically speaking, one may assume the entire gamut is possible on the bansuri; however, since many of these notes will have to be produced by half holing it is unwise to assume the performer can produce precise pitches for harmonic purposes. Harmonic demands are not impossible, but unusual, especially in the context of Indian musical training. The given pitches of the bansuri, that is those rendered by completely covering and uncovering the finger holes, are more easily rendered in a discrete enough manner for harmonic purposes. Even these however require some care. The background of the performer and the tuning of the bansuri itself, are factors. Again, melodically one may assume the entire gamut is playable, but consultation with the performer is called for in cases of where much chromaticism and/or harmony is desired.

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### **Tuning**

Within the bansuri itself the scale may be tuned; but its overall pitch cannot be tuned, since by shaving a bit off its overall length the holes would be out of place. For two flutes to be in tune with each other one would have to get flutes that are close enough in pitch to allow for lipping to take care of the rest. Any hole can be made bigger or smaller to adjust the pitch of that particular note within the scale.

The tuning of a bansuri may differ slightly from that of western notation, certainly the bansuri is not constructed with equal temperament in mind. In most cases, tuning discrepancies can be overcome by embouchure placement and force of breath, but here again the individual bansuri may or may not be conducive to a given intercultural situation.

A **pipe note  $c^1$**  bansuri is well intoned up to  $e^3$ , but above this it is very difficult to control and intonation depends upon the instrument. A well tuned instrument is essential.

### **Dynamics**

#### Lower Octave

In lower octave the sound quality is breathy, and there is not as much volume as in the western (silver) flute, but it is possible to project well once the flute is warm.

#### Higher Register

Volume can be quiet up to around  $d^3$ ;  $e^3$  may not render a true *p* but rather a *mp* or *mf*.

$f^3$  and  $g^3$  are very difficult to produce quietly, let alone produce in tune.

### **Speed of Execution**

In diatonic progressions the bansuri is very quick, as agile as the western flute. If utilizing half holings the pace is just as fast, especially once the performer has grasped the mode or scale requested. However, jumps and intervals will slow down the pace.

### **Techniques**

#### ***I. Tongueing***

All kinds of tongueing are performable, single, double, triple and flutter. Fluttertongueing usually takes you straight to the second octave of the scale - it is very difficult to fluttertongue in the lower octave. The fluttertongue also brings out the 5th of the note being played.

#### ***II. Vibrati and Glissandi***

Vibrati are no problem, at various speeds. A slow delicate vibrato is possible either with a head shake or with the diaphragm. Finger rocking over a hole renders a vibrato which is very controllable.

Portamento (glissed) grace notes are no problem as well as glissandi between notes and even over larger intervals. The exception is movement across the pipe note, which is impossible to execute as a glissando, since the fingering changes abruptly when crossing the pipe note in a stepwise manner.

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### **III. Harmonics**

On the **pipe note c<sup>1</sup>** bansuri one can play up to the 7th harmonic on the pipe note itself. On pitches other than the pipe note (e.g. - the pitch produced with the lowest hole open) it may be difficult to obtain harmonics. On shorter bansuris the higher partials may be more difficult to produce than on longer bansuris.

### **IV. Accents**

All accents are performable: staccato, legato, tenuto and the combinations of these.

### **V. Special Techniques**

#### Janta Svaras

A janta svara is created by striking with the fingers at the edge of a hole while playing a note. The air keeps flowing, and a little 'bump' in the sound articulation is created. It is an effective way of playing a repeated note without tonguing or renewing the breath.

### **Related Instruments**

**Venu** - A transverse bamboo flute from South India, in most respects it is just like the North Indian Bansuri. However, it has 8 finger holes plus one hole for blowing, rather than the bansuri's 6 finger holes. It is generally smaller than the bansuri and may have a wider bore as well. Its fingered holes are large enough to permit half (or partial) holing, thus facilitating the playing of all ragas (modes) on one venu. It is very agile and, due to the open holed and unkeyed nature of its construction, all manner of glissandi and microtonal ornaments are possible.

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- Sitar



### Description

A North Indian long-necked plucked lute, the Sitar is fashioned from a seasoned gourd and teakwood. It has a track of twenty metal frets, with six or seven main playing strings above them and thirteen sympathetic resonating strings placed below. The instrument is generally tuned to the raga (mode) being played, and the main strings are plucked by a plectrum worn on the index finger of the right hand. Its uniqueness of tone is characterised by a long decay, due both to the resonance of the sympathetic strings and other structural features.

### Tuning & Stringing

The tuning of the sitar may begin with the assumption that the 2nd string is tuned to the tonic note. This tonic note is either **c (C28\*)**, **c# (C#29)** or **d (D30)**. The most common of these tunings is the C#, but all are usable, and can be called for. The sitarist needs to be informed ahead of time which tuning is called for, so that he may choose an appropriate instrument, or string his instrument as necessary. The 1st string is the main melody string, and is tuned to the 4th degree of the mode, or a fourth above the second string. Taking the tonic note on the second string as **c (C28)**, the 1st string will be tuned to **f (F33)**.

In all, the sitar has 7 playing strings and 11 sympathetic strings. Though there are several accepted tunings for the sitar, and sometimes certain playing strings may be eliminated altogether, for the purposes of this discussion we will accept the stringing and tuning cited by Ravi Shankar (My Music, My Life - ch) as standard. Once this tuning is envisaged, it will be easy to imagine other possible variations.

\* - the bracketed numbers accord with the Piano's 88 keys, numbered A1 thru C88.

**A note on Indian notation** - Indian notation utilizes a *movable do* system. There are slight variations between the North and South systems, but to be clear and consistent in this treatise, the gamut is represented thus:

S r R g G m M P d D n N

These stand for the solfege syllables:

Sa ri Ri ga Ga ma Ma Pa dha Dha ni Ni

corresponding to the pitches (in C tonic):

C C#/Db D D#/Eb E F F#/Gb G G#/Ab A A#/Bb B

This system is known as **Sargam**, which is short for Sa Ri Ga Ma. Please see the chapter on Indian notation for a more complete explanation.

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### Playing Strings

**Assume tonic note on 2nd string is c (C28) or Sa.**

#### Main Melody String - string # 1

**String # 1** is the main melody string, and for all intents and purposes the string upon which most of the melodic playing is done. It is tuned to **f (F33)** or **ma**.

#### Jora Strings (Secondary Strings) - Strings #2 thru #4

**String # 2** is usually utilized only as an occasional drone accompaniment to the main melody string. It is tuned to **c (C28)** or **Sa**. Sometimes it may be utilized for melodic playing of the notes below string # 1.

**String # 3** is tuned to **G (G23)** or **Pa**, a 4th below the second string.

**String # 4** is tuned to **C (C16)** or **Sa**, an octave below the second string.

Strings #2 thru #4, known as **jora**, are not normally used to play melodies - though playing on string #2 is common enough. This is due to two factors: 1. The closeness of the stringing makes it difficult to discretely finger and pluck these strings; 2. The tension of these strings is somewhat loose, and so it is difficult to control tone and tune; in fact, especially on strings #3 & #4, the fretted notes may be erratic. However, in the hands of a virtuoso these strings can be played melodically with good effect - in slow, rhythmically free opening sections, and with the use of *meend* ('pulling the strings sideways', see below), melodic playing is possible. The composer must consult with the sitarist about this.

#### Chikari Strings (Drone Strings)

**String # 5** is tuned to **g (G35)** or **Pa**, a fifth above the second string. It is sometimes known as **pancham**.

**String # 6** is tuned to **c<sup>1</sup> (C40)** or **Sa**, an octave above the second string.

**String # 7** is tuned to **c<sup>2</sup> (C52)** or **Sa**, two octaves above the second string.

These drone strings, known as **chikari**, are utilized in accompaniment, sometimes in rhythmic patterns and sometimes as punctuation to the melody.

#### Sympathetic Strings

There are 11 sympathetic strings, sometimes more. These give sympathetic resonance to the notes being played, and are one of the hallmarks of the sitar's sound (as well as that of many Indian instruments). The tuning of these strings can be varied, according with the notes of the mode being played. Here is Shankar's tuning as a starting point for the basic *western major* mode.

1	2	3	4	5	6	7	8	9	10	11
Sa	Ni	Sa	Ri	Ga	Ga	ma	Pa	Dha	Ni	Sa
c <sup>1</sup>	b	c <sup>1</sup>	d <sup>1</sup>	e <sup>1</sup>	e <sup>1</sup>	f <sup>1</sup>	g <sup>1</sup>	a <sup>1</sup>	b <sup>1</sup>	c <sup>2</sup>
<b>C40</b>	<b>B39</b>	<b>C40</b>	<b>D42</b>	<b>E44</b>	<b>E44</b>	<b>F45</b>	<b>G47</b>	<b>A49</b>	<b>B51</b>	<b>C52</b>

Sympathetic strings are not utilized for melodic playing, but sometimes may be plucked, harp like, preceding or following a phrase. Since these strings are usually tuned to the mode, they give an impression of the entire mode in one stroke.

### Scordaturas, Fret Choices, and Range

#### Scordatura

As alluded to above, the Sitar can be tuned in C, C#, and D. Add to this D# as well. Of course, in the higher tunings the strings will be quite taut, in the lower, somewhat loose. The Sitarist can accomodate for

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different tunings by utilizing different gauge strings. Many sitarists have more than one instrument in order to accommodate the various tunings without restringing.

Fret Choices

The fretting of the sitar allows for somewhat less than the entire gamut of 12 notes to the octave. Choices have to be made, before performance, between certain notes, as described below. Those fret positions where the choices have to be made are indicated by boxes.

Taking the open first string as **f(F33)** or **ma**, the frets will render the following notes, with choices to be made as indicated:

Fret position:	0 (nut)	1	2	3	4	5	6	7
Western note:	<b>f</b>	<b>f<sup>#</sup>/g<sup>b</sup></b>	<b>g</b>	<b>g<sup>#</sup>/a<sup>b</sup></b>	<b>a</b>	<b>a<sup>#</sup>/b<sup>b</sup></b>	<b>b</b>	<b>c<sup>1</sup></b>
Indian Sargam:	ma	Ma	Pa	dha	Dha	ni	Ni	Sa

Fret position:	8	
Western note:	<b>c<sup>#1</sup>/d<sup>b1</sup></b>	<b>d<sup>1</sup></b>
Indian Sargam:	ri	<u><b>or</b></u> Ri

Fret position:	9	10	11	12	13
Western note:	<b>d<sup>#1</sup>/e<sup>b1</sup></b>	<b>e<sup>1</sup></b>	<b>f<sup>1</sup></b>	<b>f<sup>#1</sup>/g<sup>b1</sup></b>	<b>g<sup>1</sup></b>
Indian Sargam:	ga	Ga	ma	Ma	Pa

Fret Position:	14	
Western note:	<b>g<sup>#1</sup>/a<sup>b</sup></b>	<b>a</b>
Indian Sargam:	dha	<u><b>or</b></u> Dha

Fret Position:	15	16	17
Western note:	<b>a<sup>#1</sup>/b<sup>b1</sup></b>	<b>b<sup>1</sup></b>	<b>c<sup>2</sup></b>
Indian Sargam:	ni	Ni	Sa

Fret Position:	18	
Western note:	<b>c<sup>#2</sup>/d<sup>b2</sup></b>	<b>d<sup>2</sup></b>
Indian Sargam:	ri	<u><b>or</b></u> Ri

Fret Position:	19	
Western note:	<b>d<sup>#2</sup>/e<sup>b2</sup></b>	<b>e<sup>2</sup></b>
Indian Sargam:	ga	<u><b>or</b></u> Ga

Fret Position:	20
Western note:	<b>f<sup>2</sup></b>
Indian Sargam:	ma

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The notes not rendered by the fret choices can still be played - by pulling the string from a lower fret position, but this generally cannot be done with the same speed or pitch discreteness as the notes played at the fret positions themselves.

In performance the basic tuning of the sitar and the fret choices should not be changed, but the notes of the gamut can be played in all tunings, with the limitations only as prescribed by the fret choices. If a special effect is called for, such as lowering or raising a string, the composer is advised to consult carefully with the performer.

### Range

The sitar's most characteristic range extends for 2 octaves. Sitar in C will render **f** to **f<sup>2</sup>**. This is the range playable on the main melody (1st) string. This range can be expanded in its upper limit by pulling the string - how great an interval is achievable by such means depends upon the tautness of the string and the playing ability of the sitarist. In the hands of an excellent sitarist the range can be extended by a fifth. This said however, one ought not assume anything but the simplest ornamental extensions above the top fretted note.

Below the note on the open 1st string certain notes may be obtainable - down to **c** on the second string, and then further down on the 3rd and 4th strings. However, these are virtuosic techniques, especially as applied to the 3rd and 4th strings. Consultation with the performer is advised for all notes called for below the open 1st string (**f**).

### Notation

The tradition of sitar music, as that of all Indian music making, is primarily an aural one. As described elsewhere (see the chapter on Indian Notation) it is not as if Indian musicianship is illiterate. Quite the contrary, it is full of concepts and structural language as precise, or more so, than any musical language ever invented. What is not utilized in the tradition is the written form of the musical language as the **starting point** of music making, of composition.

In this regard, the written traditions of composition and performance are at a disadvantage when it comes to writing for classically trained Indian musicians. However, with a modicum of inter-cultural training, a musician of the Indian tradition will be able to negotiate written musical language.

These are ongoing questions for the composer: How much to compose; how much to leave to the musician to improvise; how to create structures that can be committed to memory easily; what notational language or combination of languages should one use?

All this borne in mind, we propose here that notating for the sitar (as well as for other Indian pitched instruments) can take one of the following forms:

- utilize western staff notation and notate at concert pitch, no matter what the tuning of the sitar. Utilize the treble clef primarily, the bass clef only if completely necessary.
- *alternatively*, utilize Indian notation as described in the chapter on Indian notation, and place western stems above the Indian syllables as a further aid to durational values. There may be an advantage to this system in that, since Indian notation is a *movable do* system there is no mental adjustment necessary for the sitarist when changing one tuning for another.

### General Considerations

The main melody string is utilized to play most, if not all, of the melodic lines. By pulling it sideways the performer can play up to an interval of a 5th on one fret position. Certain limitations of speed, and difficulties of intonation, need to be considered when calling for multiple notes on the same fret position.

## *Music of the Whole World - Indian-Western Fusions...continued*

Crossing strings is somewhat unusual but with the left hand in 1st position it can be done between the 1st and second strings.

Tunings of the strings, from the 3rd to the 7th can be varied from those stated above. Certain strings can be removed entirely, and other strings added - there is much experimentation going on with the sitar. The elements that are stable are the 1st string and to a very large extent the second or tonic note string.

The sitar has a 'haunting' quality, due to the resonance of its sympathetic strings and other structural elements. Its sound is very harmonically rich and this has to be considered when writing for it in the context of ensemble. Its melody string is often plucked together with the second string, which gives the tonic note. While the drone string presence is quite appropriate in solo sitar or simple sitar-tabla contexts, too much of this tonic wash will drown out the melodic content. The prominence of the second string varies with the player.

Sitar music belongs to the North Indian (aka. Hindustani) classical tradition. It is primarily a melodic tradition, and the modal system of India, called Raga, is the wellspring of its music. Study of Raga and Tala (the modes and rhythmic structures, respectively, of classical Indian music) will give the composer a better grasp of the aesthetics of the sitar and its musical idioms.

It is important to bear in mind that there are many schools of sitar playing - thus the techniques that different sitarists know may vary widely. Always consult with the specific performer about techniques.

### **Dynamics**

The sitar is tonally rich and tremendously expressive, but dynamically it is on the quiet side. In large and/or loud ensembles a solo sitar would need sound reinforcement in order to be heard well. In quieter contexts the sitar lends itself excellently to the expression of tranquil or meditative moods. Dynamic variations, i.e. - soft and loud, are not traditionally part of sitar music. One can call for these, but their effectiveness may be small.

### **Speed of Execution**

Since the technique of play utilizes the movement of the left hand fingers over one string, melodies that are stepwise are most idiomatic and executable. A general fact to bear in mind is that the maximum stretch for the fingers of the left hand is the index to the third finger. 3rds and even 4ths can be taken quite quickly but a lot of jumping around will not work.

A good student can play 16th notes at mm120 (to the quarter note), a virtuoso can play 16th notes at mm192. The greater the speed the harder it is to execute intervallic leaps. Frets are often far apart on the sitar, and so the entire hand needs to move along the melody string continually in order to play ascending and descending figures.

## **Techniques**

### **I. General Technique of Play**

The sitar is played with a wire plectrum, called *mizrab*, worn on the index finger of the right hand. The left hand fingers the notes at the frets and the right hand plucks the strings.

#### **Strokes and Accents**

Normally the sitarist himself will choose the strokes which fit the melodic and rhythmic patterns he is called upon to play, but a knowledge of certain strokes and accents can help the composer understand the instrument and its colour, and he can call for specific accents if he wishes.

## *Music of the Whole World - Indian-Western Fusions...continued*

The basic right hand strokes are known as:

**Da** - normally accented, inward towards the body, "downstroke", indicated by |

**Ra** - normally unaccented, outward away from the body, "upstroke", indicated by –

Other strokes and accents are:

**Diri** - *Da* and *Ra* in quick succession, on one note, indicated by **V**

**Dra** - very quick *Da* followed by an accented *Ra*, a flam as it were, indicated by |–

**hard Ra** - very strong accent to end a phrase - after plucking the melody string the mizrab (plectrum) hits the body of the instrument as well as striking the lowest sympathetic string. There is no standard stroke indicator for **hard Ra**.

Stroke indicators are placed below the notes in Indian music notation. In western notation one may simply use the conventions of downstroke and upstroke, above the staff, with accompanying explanations to the performer.

## II. Main Techniques

There are a tremendous number of subtle accents and ornaments that are possible on the sitar. The composer can acquaint himself with these by "going to school" with a sitarist. Here we will note only the main classifications.

### Krintan - hammering on and off

Hammering off from a note above or hammering on from a note below, or a combination these is known as *krintan* (also spelled *krntan*).

In Western notation use a slur below the notes affected plus a ^ sign beneath the first note affected. Below is a page with the western notations of all the common techniques.

### Instructions For Sitar


1. *Mind* (~)

2. *Krintan* (^)

3. *Ghasit* (/)

The image shows three musical staves in treble clef with a key signature of two sharps (F# and C#).  
 1. *Mind* (~): A sequence of notes with a slur below and a tilde (~) under the final note. A triplet of three notes is indicated by a '3' above them.  
 2. *Krintan* (^): A sequence of notes with a slur below and an accent (^) under the first note of the affected group.  
 3. *Ghasit* (/): A sequence of notes with a slur below and a slash (/) under the first note of the affected group.

## *Music of the Whole World - Indian-Western Fusions...continued*

In Indian notation (also western notation if the composer prefers) use a downward horizontal bracket above the notes affected, as follows: 

Here are examples of *krintan* in Sargam (Indian solfege notation):

$\overline{\text{D}^{\text{P}}}$  - cut;  $\overline{\text{P}^{\text{D}}}$  - hammer;  $\overline{\text{D}^{\text{P}}\text{D}}$  - hammer and cut;  $\overline{\text{D}^{\text{P}}\text{M}^{\text{P}}}$  - cut, slide, and hammer

The last of these indicates that *krintan* may include slides as well. Slides (or *ghasit*) are dealt with below.

Though the finger action of *krintan* is similar to that used in legato slurs on the guitar, unlike the guitar slur it is often regarded more as an ornament than as a way to create smooth continuity (legato) between notes. *Krintan* generally has more pluck to it than guitar hammer and cut. Check with a sitarist.

### **Ghasit - sliding or glissando**

Sliding from one fret position to another is known as *ghasit*. *Ghasit* can be executed in a variety of ways:

- up or down;
- lightly for grace notes;
- slowly to suggest intermediate microtones;
- a dramatic slide.

Generally, quick *ghasit*, both of short and long diapason, are fine for the sitar, but a continuous glissando sound is best created by the *meend* (see below).

In Western and in Indian notation *ghasit* is indicated by a straight line between the notes.

### **A Note on Krintan and Ghasit**

*Krintan* is understood to be a short figure which can utilize hammer, cut, slide, or a combination of these. Thus *ghasit* (slide) is part of *krintan*, though it is usually reserved for longer figures. The sitarist's tendency, in any *krintan* type figure, would be to find the most suitable technique. It is advisable to indicate to the sitarist that he may choose different techniques from those written, if he deems them best.

### **Meend - pulling the string**

The action of pulling the string sideways, on one fret position, is called *meend* (also written *mind*). In this way notes up to a fifth above the fretted note are playable, dependant upon the tension of the strings, and upon the register in which the notes are being played. Higher up the notes created by *meend* decay more quickly, and it is more difficult to obtain a full fifth. Generally, the composer may consider that the interval of a 4th is already quite a large extension.

The sound of the *meend* can be continuous between notes, a true portamento (i.e. - continuous glissando). As well, the performer may pluck at any point during the *meend* to create discrete notes. Microtonal shadings can be accomplished with this technique as well.

The action of *meend* is both ornamental and as an extender of the notes playable on the sitar. This is especially useful for those notes missing due to fret choices (fret positions 8, 14, 18, and 19). When calling for these in-between notes the composer must take care not to compose figures which are too fast, nor intervallic. It is highly advisable to compose stepwise movements when discrete notes in *meend* are required.

In western notation, *meend* can be notated by placing a slur above or below the group of notes affected plus a  $\sim$  above or below the first notehead of the group. In Indian notation only a slur is required, placed always above the notes.

## *Music of the Whole World - Indian-Western Fusions...continued*

There are many varieties of meend, and many uses. Here are several to consider:

Andolan (slow vibrato) - a slow repeated shaking of a note.

Gamak (quick vibrato) - a quick repeated shaking of a note.

To notate these, one can utilize the different forms for vibrato and explain the markings for the performer.

Another use of meend, sometimes also called 'gamak' - just to confuse the uninitiated :- ) - is to create small repeated grace notes. These would be notated as follows:



### A Note on all Techniques

All techniques - krintan, ghasit, and meend - have less sound (i.e - a shorter decay) the higher up they are played; thus, they are more difficult to execute convincingly in the higher register.

### III. Other techniques

**Jhala** - a cross string plucking technique, which alternates between plucking the chikari strings (strings 5, 6, and 7) and the melody string. Often played in accelerando to increase tempo.

**hard Ra** - (Also described above in *Strokes and Accents*) - a very strong accent to end a phrase - after plucking the melody string the mizrab hits the body of the instrument as well as striking the 1st tarab (sympathetic) string. It will sound **sa** ( $c^1$ ) not (the higher octave) **sa'** ( $c^2$ ). There is no standard stroke indicator for **hard Ra**.

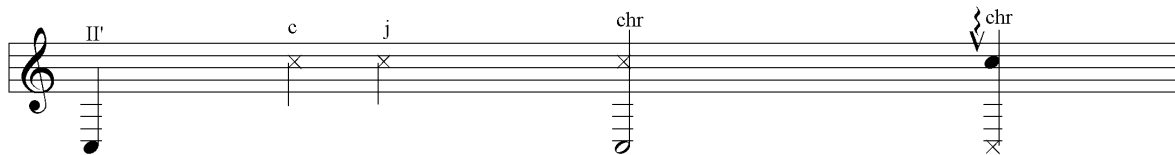
**Chher** - Strumming the strings, from string # 7 thru # 2, (or # 2 thru # 7).

**Use of chikari and jora** - Chikari and jora play can be indicated, in western notation, by an x for a notehead, plus the letter c or j above it.

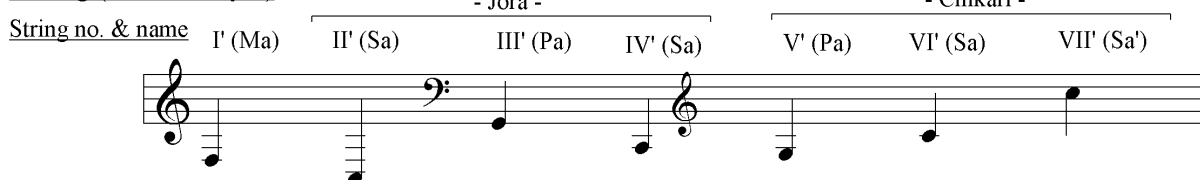
### Instructions For Sitar - Chikari and String #'s

#### String indicators

- a) String number 2      b) Chikari & Jora      c) Chher (String 2 to Chikari)      d) Downwards Chher (chikari to string 2)



#### Tuning (Shankar Style)



## *Music of the Whole World - Indian-Western Fusions...continued*

### Western Style techniques as applied to the Sitar

**Articulations** - Articulations on the sitar, such as the western staccato, tenuto and so on, are not common. The accent mark > may be used to indicate greater emphasis. Articulations do not play a significant role in Indian music, but are playable. Consult with the sitarist regarding articulations and their effectiveness.

**Tremolo** - The one note tremolo is not a traditional sitar technique, but can be played. Tremolo is more closely associated with the *Sarod* (see elsewhere). The sitarist needs to be consulted in order to ascertain the effect desired, and the speed achievable.

**Harmonics** - Harmonics on sitar are playable, though they are rare within the sitar tradition. Another technique is to hold the string down with the left hand at a fret, and create a harmonic with the right hand alone. The resultant harmonic can then be bent with the left hand playing meend. This should be considered an extended technique that few can perform.

**Muted Notes** - Muted notes may be playable - their effectiveness needs to be ascertained together with the performer.

**Timbres** - playing closer to the bridge or further from it are done, and are effective.

### **IV. Thoughts on Intonation and Indian Modes (Ragas)**

In Indian music much is made of microtonal variations in pitch. This is undoubtedly true, but the gamut can safely be assumed to be 12 semitones to the octave. The salient difference between the Indian raga system and the music of the west is one of intonation. The Indian raga system comes much closer than the west to just intonation. Just intonation utilizes those intervals which accord with the structure of the human ear, and thus is the point of departure for all tuning systems the world over.

In the west, just intonation has had to be compromised due to the artifice of harmony. Without going too deeply into tuning theory, we will say that since the time of J.S. Bach the west has adopted equal temperament as its intonational standard. Equal temperament is the result of actually *mistuning* every interval in the gamut by *an equally small amount*. This is what allows for harmonic modulation from any tonic centre to any other without compromising the intonation too much. Without this mistuning, one tonal centre would sound fine while another would sound terribly out of tune.

Thus, melodic systems of music, such as the Indian Raga and the Arabic Maqam, do not utilize harmony in the traditional western sense, since their focus is on precise intonation and precise pitches in the mode.

As distinct from the Indian Raga system, the modal systems of the Arab-Turkish-Persian musical worlds (known as: Arabic Maqam, Turkish Makam, and Persian Dastgah) utilize quarter tones, or other partial tones, as part of its modes. This is unusual in the Indian Raga system, though, as stated above, Indian Ragas have subtle pitch variations built into its modes, which distinguish them from anything traditionally produced by the west.

### Bibliography

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#### Web:

**North Indian Musical Notation - An Overview** by David Courtney, Ph.D.

[http://chandrankantha.com/articles/indian\\_music/lippi.html](http://chandrankantha.com/articles/indian_music/lippi.html)

*Music of the Whole World - Indian-Western Fusions...continued*

### Related Instruments to the Sitar

**Surbahar** - The surbahar is basically a bass sitar, and is tuned anywhere from a 4th to an octave lower. Its deep rich tone is especially useful evoking contemplative moods. Its *meend* is even more flexible than that of the sitar.

**Vina** - The vina is a long necked lute with a large resonating bowl, and a very old and traditional Indian instrument, associated with the Goddess of Learning, Saraswati. It normally has 24 frets and seven strings - 4 playing strings and 3 drone strings. Unlike the sitar the vina has no sympathetic strings.

- **Tabla** - Pitched Skin Percussion



[ Picture of Tabla ]

The Tabla is already listed in many western orchestration texts under the Percussion heading. What is not usually discussed is a cogent explanation of what the instrument can do, plus a system of acceptable notation for it.

The following entry is based on the author's collaborations with Niel Golden, a long time student of the Tabla, a disciple of Pandit Sharda Sahai of the Benares Gharana (the Benares School), and a performer/composer who has wide experience playing North Indian Classical Music and inter-cultural music from written materials.

There are several schools, each emphasizes a different aspect of technique, thus each lays claim to a unique aesthetic. Certain drum strokes found in one Gharana (school) are not practiced in another. However, taking one Gharana as a starting point, it will not be a matter of unseemly difficulty for a practicing Tablist of another Tabla tradition to play the part by substituting certain strokes with his own. This will certainly hold true for an ensemble part, though a significant solo part may need more care. As always, collaboration with the practicing musician will render the best result.

#### Description

The Tabla are a pair of small kettle drums. The smaller drum, called *dahina*, renders a distinct pitch when played in an open-stroke manner. The larger drum, called  *bayan*, has a more bass-like tone. It also renders a pitch but this pitch is not as discrete, not as central musically, as that of the *dahina*. The *bayan* can render a variety of pitch inflections as well, a very idiomatic technique. The Tablist presses on its head with the heel of the palm while playing. By varying this pressure a variety of ascending or descending pitches are rendered.

In the center of the dahina is a raised black circular spot. This gives weight to the head and is the technology whereby the distinct pitch is obtained.

## *Music of the Whole World - Indian-Western Fusions...continued*

The sounds are created by playing these drums with the fingers and palms of both hands. A right handed player will play the dahina with his right hand and the bayan with his left. Both drums can render open and closed strokes. Open strokes will sound the pitch of the drum. Rhythmic patterns are created by alternating strokes on the two drums, and also by playing combined strokes for emphasis. Extremely fast and highly complex rhythmic patterns are performable on the tabla. The speed will be determined always by the type of pattern being played - certain patterns can be done extremely quickly, due to the finger and hand placements needed to perform them. Other patterns may require too much variation of hand and finger placement to render very quickly. Patterns that call for rapid strokes of the same duration are more easily sped up than more complex patterns of strokes of differing durations. \*

In the North Indian musical tradition the dahina is usually tuned to the tonic or dominant note of the raga (melodic mode) being played. In performance the dahina's pitch cannot be varied without stopping to retune, but a number of dahinas of different sizes may be utilized, rendering different pitches during performance. In principle, the entire gamut can be rendered, but a tablist will not normally have more than 2 or 3 dahinas at the ready. Common dahina tunings are: C, C#, D, E, G, A. [A unique situation is the *Tablatarang* - a group of many tablas which can play a raga in and of themselves. ]

The most typical function of the tabla is for accompaniment. It is also famous as a solo instrument, and masters of the tabla give entire concerts in a solo capacity. In the context of a musical concert the tabla normally performs short solos, as a section within a piece or on its own.

The sound output of the tabla is not loud, but in itself it is capable of good dynamic variation. In concert nowadays, the tabla is almost always miked. Many E. Indian musical instruments were developed in the context of chamber music and small ensembles of 2 to 4 musicians. Thus sound volume has not been a pre-occupation of instrument makers. The tabla is no exception to this historical rule. In quieter textures the unmiked tabla can come through, but against any forte playing by an ensemble of stronger instruments it will be lost. For a westerner, the sound output of the tabla may be compared to that of a classical guitar.

\* To learn how patterns are formed from the strokes, one needs to study tabla parts and/or learn them from a practicing tablist. As well, a good book to study is *The Tabla and the Benares Gharana* by Frances Shepherd, [1976, University Microfilms International.]

### Explanation of Strokes and Instructions for the Tablist

The Tabla notations here are organized according to the strokes of the Benares school of Tabla playing.

#### Nomenclature

Bayan	-	The low pitched drum
Bol	-	Monosyllabic name of a stroke
Chanti	-	The rim of the drum head
Dahina	-	The high pitched drum
Gamak	-	An inflection of pitch on the bayan
Lao	-	The space between the black spot and the rim of the drum head
Syahi	-	The black spot on the drum head

*Music of the Whole World - Indian-Western Fusions...continued*

**Stroke Indicators**

All indicators for dahina strokes are placed above the bol, those for the bayan are placed below. A stroke may have 3 indicators: type, fingering, and placement.

<b><u>Type of Stroke</u></b>	<b><u>Symbol</u></b>
Open	° placed above the bol for the dahina, below the bol for the bayan
Closed	x placed above the bol for the dahina, below the bol for the bayan
Gamaks	↑ → ↓ indicate high, middle, and low pitches respectively; they are played only on the bayan, thus they are always placed below the bol.

**Fingering of Stroke**

**Symbol**

<u>bayan:</u> hand and fingers	none needed - universally understood
<u>dahina:</u> index finger	1 [note: in cases where no symbol appears, the index finger is assumed]
middle and ring fingers together	2
index, middle, and ring fingers together	3
index, middle, ring, and little fingers together	4
middle finger alone	†
right side of palm	•
left side of palm	•

*Music of the Whole World - Indian-Western Fusions...continued*

Placement of Stroke

Symbol

bayan:

various places on the head    none needed - universally understood

dahina:

syahi    no placement symbol will appear when a stroke is to be played on the syahi

border of syahi and lao    /

lao    L

chanti    C

Rules of Use

1. The order of appearance of stroke indicators is thus: first the type, above this the fingering, and above this the placement of the stroke.

Examples

C  
o  
dha    -    open stroke on bayan, open stroke on chanti of dahina with index finger  
o

C C  
1 2  
o o  
ta ra    -    dahina open strokes, on chanti, first with index finger and then with middle and ring fingers.

Note:

sometimes these strokes are written with fingering above placement indicators: ta ra

/  
2  
o x  
ti na    -    dahina strokes, first open with index finger on syahi, then closed stroke with middle and ring fingers on the border of syahi and lao.

2. In every measure, all strokes that are utilized in that measure have stroke indicators the first time they appear; however, when a stroke is repeated in a measure, the stroke symbols are not repeated.

3. Remembering the following rules may help: there will always be an indicator for type (open or closed), but not always for fingering and placement. The syahi indicator is simply **no** indicator; and where there is no fingering indicator, the index finger is implied. These considerations apply only to the dahina; the bayan receives indicators for type only.

*Music of the Whole World - Indian-Western Fusions...continued*

Here are some examples of tabla notations, utilizing bols and stroke indicators together with western staff, stems, and noteheads.

**Tabla examples**

ex 1      Unrushed      ♩ = 84

6/4

dha dhin ka te dha ge ra na ga dha ra dhin ka te dha ra ge ra na ga

ex 2

6/4

dha ra gi na dhe na dhe na gi na ti ra ki ta dha ra gi na dhe na dhe na gi na dha ra

ex 3

6/4

ta ra na dhin ta ka ti ra ki ta dha ta ra nadhin ta

6/4

ka ti ra ki ta dha ta ra na dhin ta ka ti ra ki ta dha

## *Music of the Whole World - Indian-Western Fusions...continued*

### **Discussion of Aural and Written Traditions**

There are two main approaches to music making in the world: aural and written. There is no telling which is the greater which the lesser, these two approaches each have their strengths and weaknesses. The issue of significance, with regard to our present discussion, is how to transmit composed materials to aural musicians and bring them together with reading musicians in performance.

#### **Ideas on how to transmit composed materials to aural musicians**

- Provide a taped vocalized rendition.
- Provide a midi rendition of the piece, with rehearsal letters overspoken.
- In a percussion part, provide a solkattu (spoken rhythms) type rendition.
- Write holding patterns (ostinati) - a cue needs to be given by the conductor to begin and end.
- Cueing them in and out is important, and needs to be clear from the context.
- Make the aural musician's part 'continuous', that is, not dependent upon counting empty measures; give him a specific melody that he can memorize.
- Provide a conductor or leader or desk mate who can read. Put together a reader and a non-reader on a part whenever possible.
- Use improvisation techniques:
  - Embellishments ad lib: keep the main accents
  - Variations ad lib: accents may be altered
  - Solo: free improvisation; or structured improvisation (based on a mode or scale)
  - Call and answer in imitation: if the first player reads, the second can try to catch it by ear; if neither reads then improvisation can be used, but for a set number of measures.
  - A specific technique of development, applied to several musical phrases, resulting in longer sections.

After all is said and done, the composer who wishes to call for specific musical utterances, and not only improvised elements, must find aural musicians who are willing to work on written materials to some small extent. This is not so much to ask, since most musicians have a musical language that they speak, if not read, and preparing a written musical part, if combined with aural aids, can work. In the experience of this author, many aural musicians are willing to work on acquiring a modicum of skill in reading.

### **Descriptions of selected Indian Instruments**

**Bansuri** - A transverse bamboo flute from North India, it comes in many sizes to accommodate various ragas (modes). It has a range of about 2 1/2 octaves, and is capable of microtonal variations, sliding pitches and tremendous flexibility. It is a featured solo instrument in the North Indian (Hindustani) classical tradition.

**Mrdangam** - The Mrdangam is the South Indian classical drum, parallel in its importance to the Tabla in the North. It is a log drum, with two heads, the right one somewhat smaller and higher pitched and the left one a bit larger and lower pitched. The right head especially sounds a fixed pitch, in Carnatic music (S. Indian classical music) it normally is tuned to the tonic note of the raga (mode) being played.

**Nagaswaram** - Also known as Nadaswaram, it is a seven-holed double-reeded instrument of South India. It is played in temples, processions, festivals and auspicious occasions like marriages. It is made of a kind of ebony and has a conical bore which gradually flares toward the lower end. It has a range of two and a half octaves and semi and quarter tones are produced by adjusting the pressure and strength of the air-flow into the pipe. Due to its intense volume and strength it is basically an outdoor instrument and much more suited for open spaces than for closed indoor concert situations.

## *Music of the Whole World - Indian-Western Fusions...continued*

**Sarangi** - The sarangi is a bowed string instrument carved from a single piece of wood. Its strings are traditionally made of gut and its neck is fretless. The strings are fingered with the cuticles of the index and middle fingers of the left hand. The sarangi commonly has 3 gut playing strings, 1 bronze rhythm string tuned to the upper tonic, 11 sympathetic strings tuned to the notes of the raga (mode), and at last 25 sympathetic strings tuned to the entire gamut of two octaves. The bow used is different from the violin bow, it is shorter and its wood is more convex.

**Sarod** - A plucked lute of the North Indian classical tradition, it is made of one piece of carved wood. The neck is fretless and the bridge is seated on a skin stretched on the body of the instrument. Generally it has 4 playing strings, 2 rhythm strings tuned to the upper octave tonic, 4 strings placed on a flat bridge near the neck, and at least 13 sympathetic strings tuned to the notes of the raga (mode). The musician uses the end of the nails of the left hand fingers to stop the strings while the right hand plucks the playing strings with a plectrum.

**Shehnai** - A six-holed double-reeded instrument of the North Indian tradition, it is the counterpart to the Nagaswaram of the South though its tone is soft by comparison. Like the latter, it is made of a dark-grained black wood, and it has a conical bore which widens towards the bottom. Semi and quarter tones are produced by adjusting the pressure and strength of the air-flow into the pipe.

**Sitar** - A North Indian long-necked plucked lute, the Sitar is fashioned from a seasoned gourd and teakwood. It has a track of twenty metal frets, with six or seven main playing strings above them and thirteen sympathetic resonating strings placed below. The instrument is generally tuned to the raga (mode) being played, and the main strings are plucked by a plectrum worn on the index finger of the right hand. Its uniqueness of tone is characterised by a long decay, due both to the resonance of the sympathetic strings and other structural features.

**Tabla** - A set of 2 pitched kettledrums from North India. The right drum has a ringing definite pitch, usually the fundamental tone of the raga (mode) being accompanied, while the left drum is lower and more indefinite in pitch. A staple of North Indian classical music and already very well known all over the world, it is capable of an enormous degree of rhythmic precision, complexity, speed, and pitch inflection.

**Tambura** - The tambura is a 4 stringed instrument which gives an essential drone background to all E. Indian music. Generally it emphasizes the tonic and dominant of the mode being played. The tone has a long decay, and the technique of playing is quite simple - with a little instruction even non-professionals can handle it.

**Venu** - A transverse bamboo flute from South India, in most respects it is just like the North Indian Bansuri. However, it has 8 finger holes plus one hole for blowing, rather than the bansuri's 6 finger holes. It is generally smaller than the bansuri and may have a wider bore as well. Its fingered holes are large enough to permit half (or partial) holing, thus facilitating the playing of all ragas (modes) on one venu. It is very agile and, due to the open holed and unkeyed nature of its construction, all manner of glissandi and microtonal ornaments are possible.

**Vina** - A South Indian long-necked plucked lute, the vina is usually made of jackwood. It has a large resonating bowl called the Kudam, held across the lap by the player. There is also a smaller gourd called the Kudukkai, which hangs from the neck and which serves as a rest. There are generally 24 metallic frets and 7 strings - 4 playing strings and 3 drone strings. Only the index and middle fingers activate the playing strings while the little finger is used to keep time on the drone strings. The Vina is associated with Saraswati, the Goddess of Learning in Hindu mythology.

**Violin** - The Indian violin is in fact the bowed string instrument imported from the western world. However, its mode of play and tuning differs significantly. In Indian classical music the musician is seated crosslegged with the end of the violin's pegbox resting on his right foot. Its strings are tuned to the tonic and dominant of the raga (mode) being played. It has been especially integrated into Carnatic music (South Indian classical tradition), where it is used extensively to accompany classical vocal performances and as a solo instrument as well.

*Music of the Whole World - Indian-Western Fusions...continued*

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- Publisher: P. Smith, 1972

**Music in India: The Classical Traditions** by Bonnie Wade

- Revised edition. 1999, xx, 262 p., map, figs., ISBN 81-85054-25-8.

- Web Store: <https://www.vedamsbooks.com/no14885.htm>

**Sitar Music in Calcutta** by James Hamilton

- University of Calgary Press, 1989

**My Music My Life** by Ravi Shankar

- Simon and Schuster, 1968

**South Indian Drumming** by Trichy Sankaran

- Lalith Publishers, 1994 (contact the author at: [tsank@yorku.ca](mailto:tsank@yorku.ca))

**Internet Resource pages:**

- Indian Music: [http://chandrakantha.com/articles/indian\\_music/](http://chandrakantha.com/articles/indian_music/)

- Indian instruments: <http://makar-records.com/siteus/frameinstrument.html>

- Books on and recordings of Indian Music: <http://aacm.org/shop/index.html>

- Orchestration materials (time limited downloads): [www.vi-co.org](http://www.vi-co.org) (the VICO website)

**General Study Leads**

1. Ali Akbar College of Music Store  
215 West End Avenue  
San Rafael, CA 94901  
Tel. 415-454-6264
2. UBC music library
3. Vancouver Public Library, main branch

**Selected Discography of Indian-Western Fusions**

**The Incredible String Band**

- a 60's band that utilized Sitar and other non-western instruments

**The Beatles**

- recordings from 1966 on (especially, "Rubber Soul", "Revolver", and Seargent Pepper's...")

**Paul Horn**

- Paul Horn in India

*Music of the Whole World - Indian-Western Fusions...continued*

**Ravi Shankar**

- Sitar Concerto #1
- Sitar Concerto #2

**Codona**

- Colin Walcott, Don Cherry, and Nana Vasconcelos; sitar, tabla, pitched percussion, flutes, trumpet, hammered dulcimer; a jazz based indo-western fusion ensemble.

**Shakti**

- John McLaughlin, L. Shankar, Zakir Hussein, and T. H. Vinayakram; a great group, making authentic jazz based indo-western fusion since the mid 70's.

**Trichy Sankaran**

- master mrdangamist, teacher at York University since 1970, and inter-cultural composer; (unsure whether or where recordings are available; contact the composer at: [tsank@yorku.ca](mailto:tsank@yorku.ca))

**Moshe Denburg**

- several scored large ensemble works utilizing the instruments, rhythms, and modal ideas of India together with western instruments and ideas; some excerpts are at: [www.vi-co.org](http://www.vi-co.org); listen to other VICO repertoire as well, esp. *Kusumamaya* by **Niel Golden**; for more materials contact the composer: [moshe@vi-co.org](mailto:moshe@vi-co.org)

**For more information on intercultural events, music, and study**

The Vancouver Inter-Cultural Orchestra (VICO), #12 - 719 East 31st Avenue Vancouver, BC V5V 2W9  
Tel. 604-879-8415 Fax 604-873-0501 mailto: [info@vi-co.org](mailto:info@vi-co.org) web: [www.vi-co.org](http://www.vi-co.org)

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