

Music of the Whole World

- presentation # 4: April 5, 2006

Persian influenced Intercultural Music

- study materials

by Moshe Denburg

with bibliography and discography
compiled by Farshid Samandari

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General Note

The following study materials are being made available to participants in the educational series, **Music of the Whole World**, presented by the Vancouver Inter-Cultural Orchestra (VICO) at the Vancouver Public Library. The presentation, **Persian influenced Intercultural Music**, took place on April 5, 2006.

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Orchestration of Persian Instruments

These materials form part of a larger work in progress (as of February 2006) entitled ***Orchestrating the World - a Manual of Intercultural Music Making*** by Moshe Denburg. Portions of this work are available for downloading on the VICO website. To download this study guide, as well as an expanded one for musicians and composers which includes orchestration materials for selected Persian instruments, go to:

www.vi-co.org

and click on 'VICO Instruments'.

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The Persian Musical Tradition – Scope and Considerations

The Persian musical tradition belongs, broadly speaking, to a group of traditions we may generally call the ‘modal’ or ‘melodic’ music systems. In this group of systems we may include: Arabic, Turkish, and Indian. To be sure, there are others, but it is these above-mentioned which have strong historical and developmental connections with Persian music.

In modal systems generally there is no emphasis on the edifice of harmony as we know it in the West. The reasons for eschewing harmony as a structural element in music making may be based on established principles of the physics of music. To be brief, in order to create harmonic structures, the musical intervals utilized must vary from the theoretically “perfect” intervals, i.e. – those intervals which are consistent with the harmonic or overtone series. Thus, a bit paradoxically, Western harmony relies upon **non-harmonic** intervals in order to be useful! Modal musics often place a premium on these “perfect” intervals, and on other discrete pitches whose appreciation would be compromised in an harmonic setting.

Another element of modal music that makes it unique is the utilization of specific ‘in-between’ notes, such as the quarter tones of Arabic music, and the microtones of Persian music. One way (not the only way) of understanding the scale utilized in Persian music is to conceive of it as comprising 17 gradations to the octave, rather than the 12 of Western music. This is illustrated below in the chart pertaining to the tuning of the Tar.

It is not that we subscribe to the adage of “East is East and West is West and never the ‘twain shall meet’”. However, when trying to understand a modal system we do well to look at what is valued within that system. Persian music places an emphasis on monophony (single musical line), melody, and the fluidity of musical lines. In modal musics generally, the notes themselves, and the unique melodies and ornaments they give rise to, are valued above all else, and harmony can be an impediment to the appreciation of the melodic forms. Whether this must always be the case, or whether an intercultural context of music making can honour the esthetics of both east and west, is the question artists today, the world over, are actively exploring.

The system of modal exposition in Persian music is known as the **dastgah** system. There are 12 dastgahs – more precisely 7 main dastgah, plus five **avaz** (related dastgah) - each representing a group of melodic forms passed down by tradition. The dastgah is a collection of modes and melodies, and each dastgah may contain several different modes. The term that is used to signify an individual mode is **gushe**, which is somewhat analogous to the term **maqam** utilized in Turkish and Arabic music. In fact, the term **maqam** was, and still is, common in the Persian system as well, but in modern practice **gushe** serves to better signify the modes of Persian music as distinct from those of the Turko-Arabic world.

Persian music belongs to the systems of aural musical transmission, and as is common to these systems, it involves a strong element of structured improvisation. Even so, music notation existed for centuries in Persia, in a system comparable to the early European alphabetic system for notes. Over the centuries it was abandoned and revived several times, until, around 150 years ago, modern western staff notation was adopted, together with the special musical signs and symbols signifying specific microtones and ornaments.

Persian music, which goes back 3000 years, has been very influential in the musics of the Middle East and of North India. There are sources that relate that in ancient times the Greeks borrowed the seven tone system from Persia. Its use of compound meters such as 5, 7, 9 and 11 is typical of its repertoire. Odd time signatures such as 2/3 and 4/3 can also be found. The musical instruments of Persia have their counterparts in, and have influenced the development of the instruments of the above-mentioned musical traditions.

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Descriptions of selected Persian Instruments

Barbat – A short necked fretless lute, known famously throughout the Arabic world as the Ud, it typically has 5 double courses of strings tuned in intervals of a perfect fourth. It has a full, warm sound and its fretless neck allows for quarter tones and sliding effects. The European Lute derives directly from the Ud; in fact, the word Lute is derived from El Ud (the Ud).

Daf - The daf is a frame drum, traditionally covered with goat skin. In the hands of a professional it is capable of all kinds of intricate rhythms and a variety of timbres by utilizing finger work, closed and open sounds, slaps, and pitch inflections. It may have metal rings attached to the inside of the rim, which create a jingling sound as the skin is struck.

Dohol –The dohol is a hollow cylindrical drum made of wood and covered on both sides with skin. It is played with sticks and projects a very strong sound. It is often paired with the *sorna*, a double reed instrument, and these are utilized much in ceremonial music, often on joyous occasions.

Dotar - The dotar is a pear shaped long necked lute whose name literally means “two strings”. The body and neck of the instrument are made of several kinds of wood – mulberry, walnut, and others. Its two strings are made today of steel, though in former times they were fashioned of silk. It is tuned in intervals of a perfect fourth or fifth, and its neck has frets, placed to render a chromatic scale. It is a plucked instrument, and utilizes the fingers rather than a plectrum.

Kamanche - (pronunciation: *ka-man'-che*) The Kamanche is a 4 stringed bowed lute common in Persian Music and in other middle eastern and Arabic traditions. It can be found all over the near and middle east, and in countries such as Azerbaijan, and Russia. It has a resonance box made of hardwood on one end, which is covered with a very thin skin. Its wooden bridge is curved to allow for the bowing of separate strings. It is sometimes called a ‘spike fiddle’ due to its having a spike protruding from the bottom end, permitting the player to play it in an upright position, somewhat like a cello. Its strings are made of steel, and are tuned in various ways, including the western violin tuning of G, D, A, E.

Ney - Also known as *Nay* (pronounced: na'-i), it is an end blown cane flute without mouthpiece or reed. A very significant instrument throughout the Arabic, Turkish, and Persian worlds, this instrument generally has 6 upper holes and one on the underside for the thumb. It is capable of a range of 2 to 3 octaves and has been used for performing all forms of music: art, folk, and religious. The Persian ney is distinct from its Turkish and Arabic counterparts in that it possesses a small brass cylinder at its upper end, which the performer anchors between his upper incisors, producing a unique timbre.

Santur - The santur is the Persian hammered dulcimer (more precisely called a *struck zither*) whose trapezoid body is made of a hard wood such as walnut or rosewood. It has 72 strings, which are strung over two sets of 9 bridges on either side of the instrument. The instrument is strung 4 strings to a note, and the gamut rendered has a diatonic range of just over 3 octaves. It is played with 2 wooden mallets.

Setar The most immediate relative of the tar (see below) is the setar. It is the older version of the tar, a smaller instrument, very portable, but not possessing the tar's projective qualities. It has one double string and two singles - 4 strings in all, which are commonly tuned to the tonic and dominant notes of the mode, e.g. - double string #3: c/c^1 ; string #2: g ; string #1: c^1 . The setar is plucked with the fingers rather than with a plectrum.

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Sorna – a double-reeded wind instrument, the sorna has many relations all over Asia, from the Zurna and Mizmar of the of the Arabic and Turkish traditions, to the Shenai of North India and the Suona of China. Shawms, and latterly oboes, of the western world are part of this family as well. The sorna is tubular in construction and has 8 finger holes, giving it a range of just over an octave.

Tar - Belonging to the lute family, the tar appeared in its present form in the middle of the eighteenth century. The body is a double-bowl shape carved from mulberry wood, with a thin membrane of stretched lamb-skin covering the top. The long fingerboard has twenty-six to twenty-eight adjustable gut frets, and there are three double courses of strings. Its range is about two and one- half octaves, and is played with a small brass plectrum. A smaller version of the tar is the *setar*. This is the older more traditional instrument. It can play most everything the tar can play but without the tar's projective capacities. The tar is a more modern development.

Tonbak - (also written tombak, donbak, dombak; and also known as **Zarb**) is a goblet shaped drum made of wood and covered with lamb or goat skin. It is the chief percussion instrument of Persian art music. The technique of play utilizes much finger articulation, and snapping sounds, which are typical of the sound of the instrument. The syllables of its name imitate the two prominent sounds of the drum: *tom* – a deeper sound produced in the middle of the drum head, and *bak* – a higher sound produced by striking nearer the rim. It is related to other goblet drums of the Middle Eastern world, especially the Darabuka (also known as **Dumbek**) of the Arabic musical tradition.

Ud – (also written *Oud*) see **Barbat** above.

Tar – an Example Instrument – and the 17 Tone Scale

What follows is a fuller description of the Tar, the fretted plucked lute of Persian music. Its scale is illustrative of the 17 tone scale system of Persian music. Though this is not the only way of conceiving the notes and modes of Persian music, it will give the reader some insight into their inner workings.

For a more detailed analysis of the Tar's instrumental capacities, please see the study guide for composers and musicians, available for downloading on the VICO website: www.vi-co.org

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- Tar



Description

Belonging to the lute family, the tar appeared in its present form in the middle of the eighteenth century. The body is a double-bowl shape carved from mulberry wood, with a thin membrane of stretched lamb-skin covering the top. The long fingerboard has twenty-six to twenty-eight adjustable frets made of cat gut, and there are three double courses of strings. Its range is about two and one-half octaves, and is played with a small brass plectrum. A smaller version of the tar is the *setar*. This is the older more traditional instrument. It can play most everything the tar can play but without the tar's projective capacities. The tar is a more modern development.

Tuning and Scales

Tuning

The three courses of strings on the Tar are basically tuned c - g - c¹. (Piano notation: C28 - G35 - C40). There are several scordaturas possible, which are discussed below.

The highest course, double string # 1, has 2 steel wire strings; the middle course is comprised of 2 copper strings; and the lowest is comprised of a lower copper string plus a higher steel string. Thus, double string # 3 will sound the octave c-c¹.

	<u>Course</u>	<u>Tuned</u>
[highest]	Double String # 1 -	c ¹ c ¹
	Double String # 2	g g
	Double String # 3	c ¹ c
[lowest]		

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Scale

In the Persian-Turkish-Arabic traditions of modal music, there are notes which do not conform to the 12 tone gamut of western music. A rough theoretical idea of the gamut employed in these systems is what is called the 24 tone equal temperament, in other words, the system which divides the octave into 24 quarter tones of equal ratio. If the 12 tone equal temperament octave of western musical practice consists of 12 semitones, each separated by an interval of 100 cents (1200 cents to the octave), the 24 tone equal temperament octave would consist of 24 quarter tones each separated by an interval of 50 cents.

This theoretical idea is only a rough snapshot, and in practice the actual notes played do not conform to the theoretical ideal.

The Tar utilizes a gamut of 17 tones to the octave, where (taking the note C as tonic) the positions:

C - D - E - F - G - A - B

are tuned approximately as in the western system, and the positions:

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

each have 2 variants, at least one of which approaches a quarter tone alteration.

These altered notes are signified by one of 2 symbols:

p is known as "koron" - and means lowered by a microtone;

> is known as "sori" - and means raised by a microtone.

To illustrate, here is one theoretical construct for the tuning of the Tar (put forward by the theoretician Professor Hormoz Farhat).

<u>interval</u>	<u>cents</u>	<u>note name</u>	<u>approximate interval ratio</u>	<u>description</u>
0	0.000	C	1/1	unison, perfect prime
1	90.000	Db	256/243	Pythagorean limma
2	135.000	Dp	27/25	large limma
3	205.000	D	9/8	major whole tone
4	295.000	Eb	32/27	Pythagorean minor third
5	340.000	Ep	243/200	acute minor third
6	410.000	E	81/64	Pythagorean major third
7	500.000	F	4/3	perfect fourth
8	565.000	F>	25/18	classic augmented fourth
9	630.000	Gp	36/25	classic diminished fifth
10	700.000	G	3/2	perfect fifth
11	790.000	Ab	128/81	Pythagorean minor sixth
12	835.000	Ap	81/50	acute minor sixth
13	905.000	A	27/16	Pythagorean major sixth
14	995.000	Bb	16/9	Pythagorean minor seventh
15	1040.000	Bp	729/400	acute minor seventh
16	1110.000	B	243/128	Pythagorean major seventh
17	1200.000	C	2/1	octave

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Another representation of the 17 tone gamut is as follows:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
C	C [#] D _b	D [↑] _b C [↑] _#	D	D [#] E _b	E [↑] _b D [↑] _#	E	F	F [↑] _# G _b [↓]	F [↑] _# G [↑] _b	G	G [#] A _b	G [↑] _# A [↑] _b	A	A [#] B _b	A [↑] _# B [↑] _b	B	

Note that the 8th and 9th positions, which correspond to the raised 4th and lowered 5th of the gamut, do not have a variant which approximates the western scale. The raised 4th, F[>] (F sori) is less than a semitone, and the lowered 5th, G_p (G koron) is similarly not quite a semitone. Other than these two, the entire gamut of western music can be approximated, not in equal temperament of course, but nonetheless in tune with the western trained ear.

Frets

In order to obtain the 17 tone scale on the fretboard of the tar, the gut frets are placed at the appropriate positions. These frets can move to a small degree, but since the tar's neck is graduated in thickness from the nut to the sound box (thinner at the nut, thicker at the box), only incremental movements, of perhaps a couple of millimetres, can be made; these however are sufficient to adjust the tuning of the scale.

Since the circumference of the neck graduates as one proceeds from the nut to the sound box, moving the frets towards the nut would loosen them to the point of being unusable, and in moving them towards the box they will refuse to budge due to over-tightening. Thus one cannot really change their positions within a composition. Alternate scales or notes can be called for, but these would entail untying and retying the frets to the neck of the tar, not at all an easy or quick task. Nor is it certain that the performer would be amenable to the task.

The correct placement of the frets, in order to render the 17 tone scale, is done by ear.

Range

The tar has a range of 2 and 1/2 octaves, from **c** to **g²** (C28 to G59).

Related Instruments

1. The most immediate relative of the tar is the Persian **Setar**. For a description see above in 'Descriptions of selected Persian Instruments'.
2. There are other forms of the tar which are found in Azerbaijan, Uzbekistan, and Turkey.

Asian/Middle Eastern Relatives of the Tar

There are many lutes in Asia with frets, many of which are utilized in rendering the modal musics of the Near and Middle East. Here are some notables.

- Bouzouki (Greece)
- Saz (Turkey)
- Pipa (China)

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Study Leads

Institutions

University of Southern California

Musicians

Hossein Behrouzinia (North Vancouver)

Farshid Samandari (Vancouver)

Amir Koushkani (North Vancouver)

Internet Resources

Mahoor Institute of Culture and Art

- on the internet: <http://www.mahoor.ir/>

Persian MusicAcademy

<http://www.persianmusicacademy.com/>

The Art of Persian Music

<http://www.santur.com/>

Arash Dejkam's Iran Pages – Iranian Music

http://www.dejkam.com/music/iran_traditional/

For more information on intercultural events, music, and study

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