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The Iranian National Musical Instruments and Their Techniques

Os Instrumentos Musicais Nacionais do Irã e Suas Técnicas

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Abstract. This article offers an in-depth examination of Iranian national musical instruments and the diverse techniques employed in their performance, underscoring the critical importance of organology in understanding the cultural and historical dimensions of music. It categorizes Iranian instruments into three main groups: string, wind, and percussion, each of which possesses unique structural characteristics and playing methods that embody the rich musical traditions of the region. The discussion highlights how these instruments are not merely tools of musical expression but also serve as symbols of cultural identity, reflecting the social and historical narratives of Iran. By exploring the craftsmanship and cultural significance of each instrument, the article illustrates their roles in various musical contexts, from traditional ceremonies to contemporary performances. Furthermore, the article addresses the challenges facing the preservation of these traditional instruments in an era of globalization, where modern influences often overshadow Indigenous practices. It advocates for revitalization efforts aimed at educating new generations of musicians and fostering a deeper appreciation for the nuances of Iranian music. By emphasizing the intricate techniques of performance and their cultural implications, this research aims to contribute to the ongoing discourse on the preservation of musical

heritage. The article concludes by exploring the potential of Iranian instruments to engage with the global music scene, highlighting their capacity to enrich cross-cultural dialogues and promote a deeper understanding of world music traditions.

Keywords: Iranian musical instruments. Organology. Performance techniques. Cultural identity. Traditional music.

Resumo. Este artigo oferece uma análise aprofundada dos instrumentos musicais nacionais iranianos e das diversas técnicas empregadas em suas performances, ressaltando a importância crucial da organologia para compreender as dimensões culturais e históricas da música. Ele categoriza os instrumentos iranianos em três grupos principais: cordas, sopro e percussão, cada um dos quais possui características estruturais únicas e métodos de execução que incorporam as ricas tradições musicais da região. A discussão destaca como esses instrumentos não são meramente ferramentas de expressão musical, mas também servem como símbolos de identidade cultural, refletindo as narrativas sociais e históricas do Irã. Ao explorar o artesanato e a importância cultural de cada instrumento, o artigo ilustra seus papéis em diversos contextos musicais, desde cerimônias tradicionais até performances contemporâneas. Além disso, o artigo aborda os desafios enfrentados para a preservação desses instrumentos tradicionais em uma era de globalização, onde as influências modernas muitas vezes ofuscam as práticas indígenas. Defende esforços de revitalização com o objetivo de educar novas gerações de músicos e promover uma apreciação mais profunda das nuances da música iraniana. Ao enfatizar as técnicas intrincadas de performance e suas implicações culturais, esta pesquisa busca contribuir para o discurso contínuo sobre a preservação do patrimônio musical. O artigo conclui explorando o potencial dos instrumentos iranianos de interagir com a cena musical global, destacando sua capacidade de enriquecer diálogos interculturais

e promover uma compreensão mais profunda das tradições musicais mundiais.

Palavras-chave: instrumentos musicais Iranianos. Organologia. técnicas de performance. identidade cultural. música tradicional.

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1. Introduction

Organology, the study of musical instruments, plays a vital role in understanding music's cultural and historical contexts. This classification not only aids in musicology but also enriches global musical heritage by highlighting the diversity and significance of instruments across cultures. Exploring organology fosters an appreciation for both local traditions and worldwide musical practices.

The study of instrumentation in ethnomusicology reveals deep insights into cultural values, historical contexts, and societal beliefs. Musical instruments often carry symbolic meanings, reflecting a culture's supernatural beliefs and sacred traditions. According to Curt Sachs, the evolution of musical instruments can be understood in three stages, each significantly influencing cross-cultural communication and the exchange of knowledge throughout history.

1.1 An Introduction to Iranian Music

Traditional Iranian music, initially focused on solo performances, saw a shift to ensemble playing and concert works about a century ago, leading to the rise of concert groups and the creation of new orchestral instruments. However, Persian music faces challenges in tuning and coordination, as it uses micro-notes and variable frequencies, unlike The Western standard of 440 Hz for A4 (Farhat, 2004). The quarter-tone, a key musical interval in Iranian music, is absent in Western twelve-tone systems but plays a crucial role in defining melodies and instrument tuning.

1.2 An Introduction to the Classification of Instruments

The oldest instrument classification method originated in ancient China, India, and Greece. (Darvishi, 2004), ancient China (Editors of Encyclopedia Britannica, "Eight sounds" and Keeton, 2018) Categorized instruments based on eight different materials, while in ancient India (Sharma, 2021) Instruments were grouped into four

categories based on the method of sound production and, ancient Greece (Murray, 1953 and West, 1992) Divided instruments into three main groups: wind, strung, and percussion.

Sachs (Sachs, 1940) classifies musical instruments into four main groups (Hornbostel, Sachs Moritz von, 1914): idiophones, membranophones, chordophones, and aerophones.

Idiophones are divided by impact (direct or indirect) and further categorized by material and shape. Membranophones include two-sided and one-sided percussion instruments, with some utilizing abrasion techniques, though abrasive membranophones don't exist independently in Iran. Chordophones are split into plucked and bowed types, with finer classifications for fretted and fretless instruments. Aerophones, producing sound through vibrating air, are classified into free aerophones and wind instruments, including reed, lip-vibrated, and flutes, each with diverse materials and construction styles. (Hornbostel, Sachs and Moritz von, 1914)

2. Plucked String Instruments

Many plucked-string instruments feature a resonating body at the bottom known as the belly, a neck or "fingerboard" where the left-hand fingers press the strings, and a head where the tuning pegs are. Strings are anchored at the base of the belly and extend upward across the neck to the tuning pegs. These instruments can have varying numbers of strings attached around or near the belly. For some instruments like the Tar, the belly is composed of two distinct parts: the bowl and the Naqarah. Occasionally, the surface of these instruments is covered with sheep rumen skin (Titon, 2005) (Sadie, 2014) (Marcuse, 1975)

2.1 Tar

The Tar, a key string instrument in Iranian music, features a unique design that enhances its rich sound. Its body is divided into two sections, with the smaller part called "Naqarah," covered by stretched skin to support the soundbox. The neck, measuring

45 to 50 cm, is attached to the Naqarah. Measuring approximately 95 cm in total length, the Tar has a fingerboard with 28 frets of varying diameters, allowing for precise tonal distinctions. The headstock, located at the neck's upper end, holds six tuning pegs—three on each side—enabling meticulous tuning. This combination of structural elements contributes to the Tar's distinctive voice, making it an essential instrument in traditional Persian music.

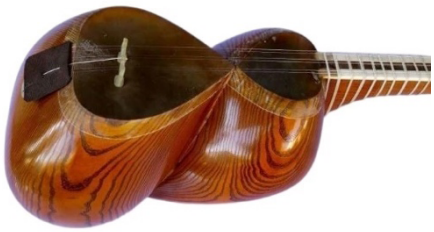
Pictures 1 & 1-2 -The Tar instrument from different sides.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

The structure:

The resonant bowl: The structure of the Tar consists of a resonant bowl made from a single piece of mulberry wood, featuring two hollow, pear-shaped sections—one larger (the "bowl") and one smaller (the "Naqarah"). The larger bone bridge on the fingerboard measures about 5 cm and supports the strings. The smaller bridge about 3 cm, placed on the skin covering the resonator bowl.

Picture 1-3 -The resonant bowl.



Source: Sala Muzik. Persian and Turkish Musical Instruments.

Tuning box: The tuning box, a hollow wooden structure, contains six wooden tuning pegs, three on each side. The fingerboard, typically made from walnut or mulberry, is 50 cm long and 2 cm in diameter, adorned with bone strips to prevent wear. The Tar has six strings arranged in three pairs, passing over the bridge, along the fingerboard, and into the tuning box, where they are tuned to unison, consonant, and octave intervals.

Picture 1-4 - The tuning box.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Frets: Frets are made of nylon thread, and tied around the fingerboard at adjustable positions to accommodate different musical modes. Finally, a small wooden or bone wire catcher is installed at the end of the bowl to secure the strings.

Picture 1-5 -Frets on the Tar.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

The strings extend from the lower end of the bowl, pass over the bridge, run along the fingerboard, and are inserted into the tuning box, where they are wrapped around the tuning pegs. The two white strings are tuned in unison, while the two yellow strings are tuned to consonant intervals. The thin white and yellow bass strings are usually tuned to in octave interval. Typically, the interval between the white consonant strings and the yellow strings is a fourth, while the white strings are tuned to octaves or sevenths relative to the bass strings. The tuning can be adjusted to accommodate various modes and pieces of music, with the fifth and sixth strings having variable tuning.

The sound of the Tar can be modified by changing the size and shape of its components, such as the bowl, Naqarah, fingerboard, and skin. Additionally, variations in string thickness and color also affect the sound produced. The alto Tar and bass Tar are the most common among the variations.

Tuning

The standard tuning for the Tar is typically C – G – D – A for its six strings.

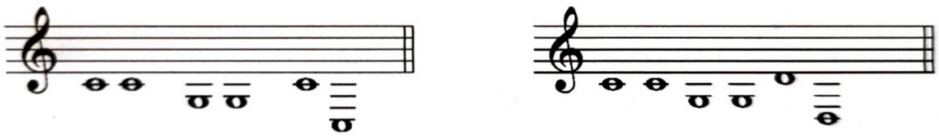
The first string is tuned to C (highest pitch)

The second string is tuned to G

The third string is tuned to D

The fourth string is tuned to A

Note 1 -Two of the most common string tunings.



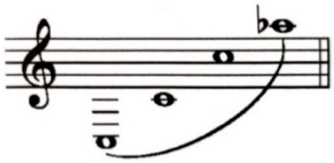
Source: compiled by the author.

Features:

The Tar is a versatile string instrument for solo performances and accompaniment. It boasts a sound range of approximately

three octaves. The instrument is played using a small brass plectrum, about 3 centimeters in length, which has a portion covered with wax to enhance grip and comfort for the musician.

Note 2 -The Audio Range of the Tar Instrument.



Source: compiled by the author.

Picture 1-6 -The Tar mezrab.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Techniques:

Push: Playing the string in the resonant part of the instrument, typically at the intersection of the bowl and the Naqarah.

Right Beater: Striking the strings with a downward motion using the plectrum (Mizrab-e Rast).

Left Beater: Striking the strings with an upward motion using the plectrum, known as (Mizrab-e Chap.)

Beating Color: Varying the intensity and method of tapping the strings to create different tonal colors.

Shell: Striking the strings and quickly releasing them to produce a short, bouncing sound.

Roll: Rapidly alternating between downward and upward strokes (Right and Left Beater) with the plectrum to create a fast and continuous sound, referred to as (Mizrab-e Rizeh).

Trail: Quickly alternating between two consecutive notes.

Vibration: Moving the fingers of the left hand rapidly to create vibrato, resulting in quick fluctuations in sound frequency.

Golriz: Executing rapid, fine notes in succession, often used in climactic or concluding sections of a musical piece. This technique is also known as (Rizeh) or (Riz).

Picture 1-7 - Playing Tar.

Source: compiled by the author.

Notation Symbols:

o: Open string, played without pressing the string.

ʌ: Right-hand stroke, where the string is struck from top to bottom.

ʏ: Left-hand stroke, where the string is struck from bottom to top.

T: Denotes a tensioned note played with a fine beater.

+: Indicates that the thumb of the left hand is placed on the bass string.

Applications:

Weddings and celebrations, Formal and informal gatherings, and Performances in various orchestras and symphonies.

Some advantages:

The Tar is relatively easy to learn, especially for musicians familiar with the Setar, as their techniques are transferable, allowing quicker mastery of the Tar.

It produces an appealing acoustic tone, with the ability to play chromatic and quarter notes.

The Tar is well-suited for live performances and recording due to its loud sound and dynamic range.

It is capable of performing a variety of techniques and can coordinate well with other instruments.

Some Disadvantages:

The Tar has a higher risk of damage compared to other instruments due to its delicate structure.

It is not moisture-resistant, requiring regular maintenance to ensure durability.

Some featured Musicians:

Jalil Shahnaz, Mohammadreza Lotfi, Hossein Alizadeh

2.2 Setar

The Setar is a pear-shaped stringed instrument made of wood and metal, with strings often crafted from either metal or nylon thread. It typically features four strings and closely resembles the Tar, though it has a smaller body. The Setar's bridge is shorter, and its fingerboard is thinner than that of the Tar. It is equipped with two tuning pegs on the front of the headpiece (the end of the fingerboard) and two on the side surface. (Mansouri, 2000)

Traditionally, the Setar is placed horizontally on the musician's thigh when seated, with the fingerboard on the left and the body on the right. The left hand's fingertips move along the fingerboard,

while the right hand plucks the strings using the fingernail of the index finger. The Setar can also be played while standing. Classified within the Tanbur family, the Setar shares similarities with the Tar, and many Tar players are familiar with playing the Setar.

Picture 2-1 The shape of the Setar instrument.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Structure

Resonant Bowl: The Setar's bowl is pear-shaped, made of wood, and has a wooden plate at its opening. It can either be carved from a single piece of wood or made by connecting several pieces. In some cases, the bowl is decorated with shells or bones for aesthetic purposes.

Picture 2-2 -the resonant bowl from the back side.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Plate: The wooden plate covering the bowl's opening has small holes to allow sound to escape from the resonant bowl.

Picture 2-3 the plate.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Bridge: The bridge is made of wood, about 2 cm long and 7 mm high. It has a flat bottom surface that rests on the plate and shallow grooves for the strings to pass through.

Fingerboard: The wooden fingerboard is tube-shaped with a 2.5 cm diameter and a length of 45 to 50 cm. One end of the fingerboard connects to the bowl, and the other connects to the instrument's headstock. It may feature decorative bone inlays along its length.

Tuning Pegs: The Setar's tuning pegs are broad, nail-shaped wooden pieces. The narrow end of each peg is inserted into the headstock, and the strings are wound around this end. Some loops are tied to the strings to prevent slipping.

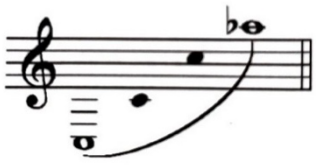
Frets: The Setar typically has 25 to 28 frets made of string or nylon thread. These frets are organized into groups of four and three, similar to the Tar.

Wire Catcher: The wire catcher is a small wooden or bony piece at the end of the bowl where the strings are knotted.

Strings: The Setar features four metal strings of varying thickness. The fourth string, known as "bam," was added by Mushtaq Ali Shah, a dervish Setar player.

Range: The Setar's sound typically spans close to three octaves, offering a broad range of musical expression.

Note 3 The range of Setar.



Source: compiled by the author.

Tuning: The tuning of the Setar can be adjusted for different national maqams, with the third and fourth strings often tuned variably depending on the mode or piece.

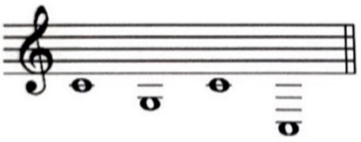
The standard tuning for the Setar is typically C – G – C for the three strings.

The first string is tuned to C

The second string is tuned to G

The third string is tuned to C again, one octave higher.

Note 4- Tunings of the strings of Setar.



Source: compiled by the author.

Notation Key: The Setar's music is notated using the treble clef, with the second line.

Other Features: The Setar is played by plucking the strings with the nail of the right-hand index finger. Occasionally, artificial nails or rings are used to enhance sound quality. Special conventional symbols are applied for different techniques and modes. The Setar is suitable for both solo and ensemble performances. Initially, the Setar had three strings, but a fourth string was added for urban and classical Persian music. Smaller versions, called "book Setars" or "under-the-cloak Setars," have also been developed for easier transport while retaining the same basic design.

Picture 2-4 & 2-5 - The mezrab of Setar.

Source: Delaramm music. Mezrab (Pick) for Setar - Bone.[1]

Techniques:

Plucking: The sound is produced by plucking the strings with the right-hand index finger on the Setar (Howard, 2016) (Naderi, 2019)

Hammer-ons and Pull-offs: These techniques facilitate smooth legato transitions. A hammer-on involves playing a note and quickly pressing down another finger on the string to produce a higher pitch, while a pull-off entails playing a note and swiftly releasing the finger to create a lower pitch.

Vibrato: This introduces a slight pitch fluctuation to a sustained note, achieved through gentle finger movements while maintaining contact with the string.

Posh: This technique creates a softer sound by striking the string with the fingernail, followed by playing a short phrase with the left hand while the string resonates.

Picture 2-6 - The form of playing the Setar.

Source: compiled by the author.

1 https://www.delaramm.com/product/mezrab-pick-for-setar-bone/

Applications

The Setar is a key instrument in Persian classical music, used in ceremonies and cultural events, including traditional weddings, religious ceremonies, and mourning rituals, where its soothing tones enhance the atmosphere. It is also featured in concerts, cultural festivals, and educational settings to showcase Iranian cultural heritage (Wright, 2009)

Some advantages

Produces a strong audible sound with a high frequency.

Lightweight and portable due to reduced wood use in construction.

Easier to learn and play compared to other Iranian instruments.

Delivers a unique and beautiful sound, particularly in traditional music.

Exhibits a special playing style that varies across different regions of Iran.

Some disadvantages

Susceptible to water damage due to its wooden construction.

Thin strings can be easily damaged when in contact with hard surfaces.

Some featured Musicians (Krone, 1952)

Mohammadreza Lotfi, Mirza 'Abd Allah Farahan, Jalal Zolfonun, Hossain Alizadeh

2.3 Barbat

The Barbat, known as the Oud in Arabic, is an ancestor of the modern Oud instrument and a significant part of ancient Iranian music. The Barbat referred to as the Oud in Arabic, is considered a precursor to the modern Oud and has deep roots in ancient Iranian music. While the assertion that the Barbat is the direct ancestor of the Oud is widely accepted, It is also important to

clarify that the instrument, like many others, likely evolved through cultural exchanges over centuries, particularly in regions such as Mesopotamia and Persia. Today, the Barbat is still recognized as an integral part of Iranian music and holds significant cultural and historical value.

The Barbat can be played solo or in conjunction with other instruments. It is believed to have evolved into the modern Oud, which may have entered Europe under the Arabic name "Oud," eventually becoming known as "Lut." The historical significance of the Barbat is underscored by its classification as an urban instrument.

Picture 3-1 & 3-2 -The Barbat instrument from different sides.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Structure

Constructed from wood, nylon strings, and bone, the Barbat is pear-shaped and primarily made from mulberry wood, occasionally incorporating betel nut and ebony. It features a large resonant bowl and a short fingerboard, measuring approximately 85 cm long. When played, the instrument is held horizontally on the player's thigh, with the fingerboard on the left and the resonant bowl on the right side. Lacking frets, the Barbat typically has ten strings or

five pairs, each pair tuned together, producing a muffled, soft, and melancholic sound that remains relatively strong.

Resonant bowl: The Barbat features a resonant bowl resembling a pear, divided in half, with interconnected wooden cracks that converge at the bottom and near the fingerboard. Its plate is made from high-quality wood, incorporating circles to enhance sound projection.

Bridges: Five horizontal bridges connect the plate to the bowl's interior, ensuring structural integrity. The Barbat bridge, about 10 cm long, is located in the lower part of the bowl and has shallow grooves for the strings.

Fingerboard: a short wooden piece about one-third the bowl's length, lacks frets in modern designs but may include decorative elements.

Headstock: The headstock, or tuning pegs box, is a hollow structure that holds ten tuning pegs, five on each side, for tuning the strings.

Picture 3-3 Resonant bow and plate of Barbat.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

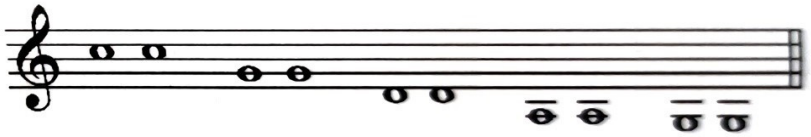
Nut: Additionally, the nut is a narrow wooden piece with shallow grooves for the strings.

Strings: The Barbat typically has ten strings arranged in pairs (five courses of two strings each). In some variations, the bass string may be singular. The strings are traditionally made from materials such as twisted sheep gut, silk coated with metal, or modern materials like nylon. For a more powerful and resonant bass sound, the bass strings often have a metal coating, enhancing the instrument's lower register and projection.

Tuning: The Barbat is notated in the treble clef, sounding an octave lower than written. For better representation, it's advisable to notate one octave lower in the bass clef on the fourth line.

The Barbat, lacking frets, can produce all intervals of Persian music, including half and quarter tones.

Note 5 - The tuning of the strings in pairs from left to right.



Source: compiled by the author.

Tuning in Different Regions:

Arabic Tuning: C-G-D-A-G

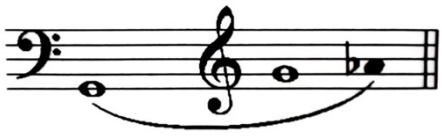
Turkish Tuning: D-A-E-B-A-E-E

Persian Tuning: C-G-D-A-G

Sound range

Its range typically covers around two to two and a half octaves.

Note 6- a real range of Barbat.



Source: compiled by the author.

Notation

In finger notation, 1 represents the index finger, 2 the middle finger, 3 the ring finger, and 4 the little finger. The right-hand percussion (٨) is played from top to bottom, while the left-hand percussion (٧) is executed from bottom to top, with the T-sign denoting the thumb. The Barbat provides a strong bass sound in both ensemble and solo settings.

Techniques

Techniques employed on the Barbat include bartakiyeh, Tremolo (Risha), Arpeggio, Downstroke & Upstroke, ornamental notes, longitudinal glissando, Hammer-on, Pull-off, and double notes, among others.

Downstroke & Upstroke: Basic playing methods where the player strikes the strings downwards or upwards with the plectrum, producing different sound dynamics.

Tremolo (Risha): A rapid back-and-forth motion of the plectrum across the strings, creating a continuous, flowing sound.

Hammer-on: After plucking a note, the player taps a higher fret with another finger to create a new note without re-striking the string.

Pull-off: The opposite of hammer-on, where the player pulls their finger off a string to produce a note below the initially struck one.

Tremolo: Rapidly plucking a single note repeatedly to create a wavering sound effect.

Arpeggio: Playing the notes of a chord sequentially rather than simultaneously, enriching harmony and texture.

Picture 3-4 - the player is playing the Barbat.

Source: compiled by the author.

Applications

The instrument is frequently used in weddings, religious ceremonies, music festivals, and local events.

Some advantages

Strong sound with fine details

Versatile in classical, jazz, pop, and more

Suitable for vocal groups and orchestras

Good solo performance capability

Some disadvantages:

Requires intense practice to learn

High cost: The craftsmanship involved in creating a high-quality Barbat, particularly with expensive materials like ebony and metal-coated strings, makes the instrument relatively expensive.

Some featured Musicians:

Mansour Nariman, Hossein Behrouzinia, Abdolvahab Shahidi

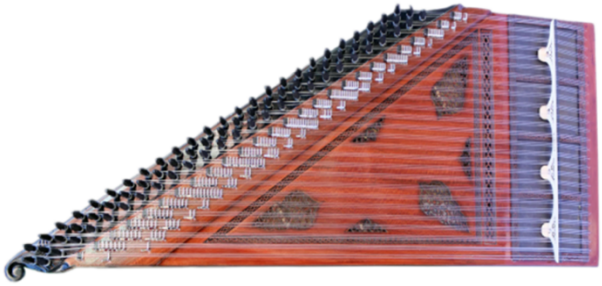
2.4 Qanun

The Qanun is a trapezoidal stringed instrument that holds a significant place in the traditional music of the Middle East, particularly in Iran, Turkey, and Arab countries. The Qanun Is a trapezoidal stringed instrument traditionally made from durable, aged walnut wood and incorporates various materials like wood, skin, metal, bone, and strings. Players position the larger side on their lap or a table and pluck the strings with their thumbs and index fingers.

Its trapezoidal shape features one side slightly over one meter long, with the shortest side parallel. The right side measures about 40 centimeters and includes a rectangular soundhole, approximately 15×40 centimeters, often covered with skin.

The Qanun typically has 26 or 27 sets of triple strings, each set producing one note, anchored on the right side, passing over a bridge, and extending along the instrument's length. The tuning system, enhanced by levers, allows for the production of microtones, facilitating precise adjustments to achieve the various scales and modes characteristic of Eastern and Persian music (Picken, 1975) (Touma,1996)

Picture 4-1 - The Qanun instrument.



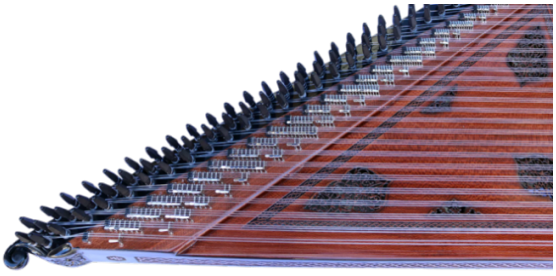
Source: Sala Muzik. Persian and Turkish Musical Instruments.

Structure

Sound Box: The Qanun features a trapezoidal sound box, tapering towards the back, typically crafted from walnut wood, although other woods may also be used. The sound-producing surface is covered with thicker skin, usually from camel, calf, or sometimes fish, to withstand the tuning pressure of the strings. The instrument has 81 tuning pegs on the left side, arranged in 27 courses.

Tuning Mechanisms: The tuning mechanisms, located on the left side between the nut and the bridge, consist of cylindrical or slightly tapered pegs used for tuning the strings.

Picture 4-2 – the Tuning Mechanisms of the Qanun instrument.



Source: Sala Muzik. Persian and Turkish Musical Instruments.

Tuning Pegs: Each string is attached to a cylindrical or slightly tapered wooden tuning peg, which can be adjusted with a winding tool.

Bridge: A wooden bridge, approximately 35 cm long and 2 cm high, is situated on the right side of the soundboard. It supports the strings and transmits their vibrations to the soundboard.

Nut: The nut is a narrow, low piece of wood located between the tuning pegs and the bridge, over which the strings pass.

String Holder: Known as the knot box, the string holder is found on the right side, where the string knots are secured.

Strings: The Qanun typically has 81 or 82 strings arranged in 27 courses, with two strings per course. The strings are usually metallic, although some may be nylon or silk-coated, particularly in the bass section.

Finger Picks: Attached to the index fingers of both hands, finger picks are used to strike the strings and are commonly made from horn, plastic, or metal.

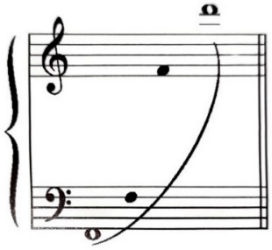
Picture 4-3 & 4-4 –plastic finger picks.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Range:

Common Qanuns in Iran typically span three to four octaves.

Note 7 -The Qanun Range.

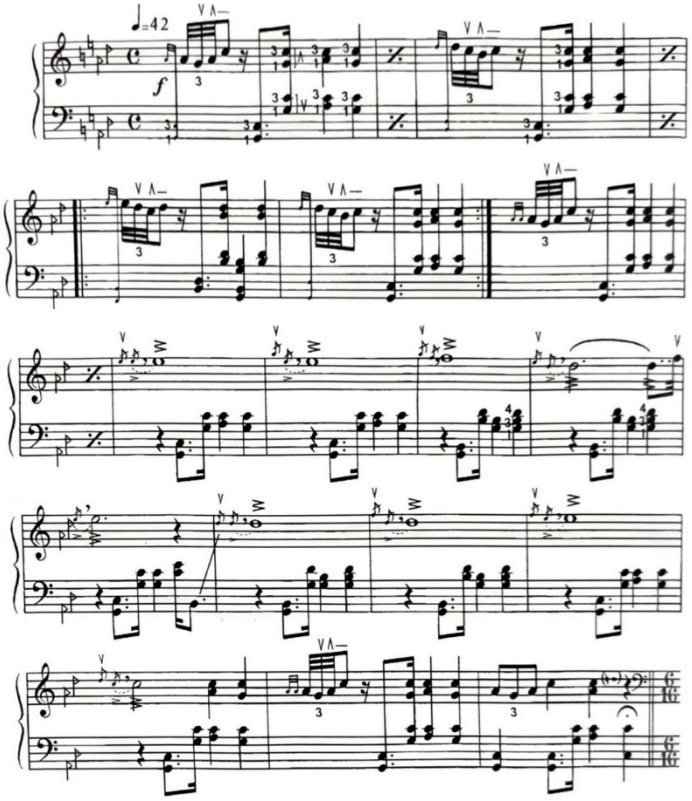


Source: compiled by the author.

Notation:

The Qanun primarily uses the treble clef for its notation, as it typically covers higher registers with a wide range. Depending on the music and arrangement, bass clef may also be used for the lower pitches when required. Each note corresponds to a specific string or group of strings, and musicians use symbols for microtonal adjustments, including quarter tones, which are commonly used in Persian and Middle Eastern music systems like the maqam. These pitches are adjusted using mandals, allowing for quick modulation during performances.

Note 8 - The notation for the Qanun instrument.



Source: Arfa' Iṭā'ī and Muḥammad Rizā Darvīshī. Sāz'shināsī-i Īrānī. Tehran: Mahoor Institute of Culture and Art, 2017.43.

Other Features:

The Qanun, equipped with a revolving curtain, can produce all national musical intervals and play polyphonic chords through various fingerings. It is widely utilized in countries like Egypt, Turkey,

and Armenia and is available in various sizes. The instrument includes specific symbols for finger positions and different musical modes.

Special Features:

A temporary tuning changer (revolving curtain) installed on the instrument plate allows the Qanun to achieve all the chromatic tones of Oriental music quickly and easily. (Nettl, 1987)

Applications

The Qanun is a principal instrument in traditional music across Iran and the Middle East, crucial for preserving and transmitting the cultural heritage of these regions. Its beautiful sound, versatility across various styles, and capability to perform complex pieces contribute to its popularity in live performances and studio recordings. The Qanun is frequently used in ceremonies, including weddings, festivals, religious observances, and national events.

Qanun's Playing Techniques:

The Qanun uses several key playing techniques:

Plucking: Strings are plucked with plectra on the index fingers, with alternating fingers for fast passages.

Tremolo: Rapid plucking of a single note to create a sustained, shimmering sound.

Glissando: Sweeping across multiple strings for a smooth, sliding effect.

Damping: Muting strings with the hand for short, sharp notes.

Ornamentation: Techniques like trills, grace notes, and mordents for decorative effects.

Microtonal Adjustments: Using levers to alter pitch mid-performance for Eastern scales.

Chords: Playing multiple strings to create harmonic textures.

Strumming: Striking several strings for rhythmic emphasis.

Picture 4-5 - Playing the Qanun.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Some advantages:
Beautiful and durable sound

Ability to produce various tones

Versatility in solo, duet, and group performances

Cultural significance in Turkey and the Middle East

Application in both traditional and contemporary music

Some disadvantages:
Requires significant skill and practice

Difficulties in shipping due to its size

High cost of the instrument

Requires careful maintenance and repairs

Sensitivity to high humidity

Famous Musicians (Touma, 1996)
Simin Agharazi, Mohdyar Aghadiar, Rahim Qanooni

3. Bow Stringed Instruments

In Persian and Iranian music, bowed string instruments have rich histories and extensive geographical influences, typically comprising three main parts: the body, fingerboard, and head. Each instrument features multiple strings running nearly parallel

along its length, wrapping around tuning pegs at the head. The continuity and intensity of notes largely depend on the player's technique; longer bows produce more sustained and dynamically varied sounds.

The bow consists of a slender, sturdy wooden rod with mounts at both ends to secure a horsetail hair bundle. This hair is carefully tensioned, and a substance called "colophony" is applied to provide the friction necessary for effective adherence and vibration against the strings. Notably, these instruments lack a spring mechanism; players must manually adjust the tension by placing fingers beneath the hair at the bow's end to achieve the desired sound quality. (Farhat, 1990)

3.1 Kamancheh

Kamancheh is a traditional bowed string instrument made from wood, skin, and bone typically measuring about 75 cm from its metal base to the head. Played in a seated position, the musician holds it vertically with the left hand, using the fingers to navigate the fingerboard, while the right hand operates the bow in a back-and-forth motion to produce sound. It is commonly constructed from various processed woods, including walnut, mulberry, and maple, contributing to its rich tone and resonance. The instrument features a metal rod base with an end appendage that rests on the ground.

Pictures 5-1& 5-2 - Kamancheh from different *sides*.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Structure

Resonant Bowl: A nearly spherical, hollow wooden body with an open upper surface covered by stretched skin, often decorated with shell or bone pieces.

Picture 5-3 & 5-4 Resonant Bowl from different sides.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Skin: Made from thin layers of animal hide, typically sourced from deer, goats, or lambs, this skin covers the open surface of the resonant bowl and is essential for sound production.

Bridge: A wooden (or sometimes bone) piece measuring approximately 4 cm in length and 2 cm in height, is positioned on the skin. It features shallow grooves to maintain a consistent distance between the strings.

Fingerboard: A wooden tube about 25 cm long and approximately 3 cm in diameter, which narrows towards the bowl. It connects the bowl and the neck and is designed in the shape of an inverted cone.

Neck: A wooden component with a hollow upper surface, featuring four ears that extend along its length.

Tuning Pegs: Four wooden pegs arranged in pairs on the sides of the neck, are used for tuning the four strings.

Picture 5-4 - Tuning pegs.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Nut: A narrow piece made of bone or wood situated between the neck and fingerboard, guiding the strings to the tuning pegs.

Wire Catcher: A small wooden or metallic piece installed at the end of the bowl to secure the ends of the strings.

Base: A narrow metal rod approximately 10 cm long, with one end attached to the bowl and the other resting on the ground, providing stability.

Wood: The Kamancheh is typically constructed from durable woods such as walnut, mulberry, and maple, which contribute to the instrument's overall sound quality.

Strings: The instrument features four metal strings of varying thicknesses.

The Kamancheh also uses violin strings to achieve the desired sound quality.

Bow: A 60 cm wooden bow strung with horsetail hair, used to play the strings. The bow is slightly curved, allowing for smooth bowing techniques.

Picture 5-5 The kamancheh bow.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Sound Range:

The Kamancheh features four strings with distinct tunings, allowing it to play all intervals of national music due to the absence of frets. It employs the treble clef for notation. As a central instrument in traditional Iranian music, the Kamancheh holds a significant position in classical Iranian compositions because of its distinctive sound and extensive technical capabilities. The tonal range of the Kamancheh typically spans from G3 (G in the third octave of the piano) to E6 (E in the sixth octave of the piano). This

range can vary based on the specific tuning of the instrument and the player's technique.

Tuning

The tuning of the Kamancheh is generally based on the authority and preferences of the musician, along with the context of the performance.

The most common tuning is:

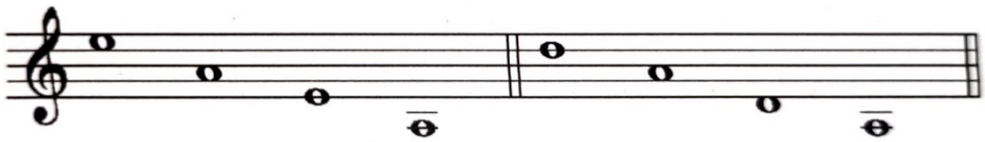
C-G-D-A: This tuning is standard and suitable for many musical pieces.

However, there are alternative tunings based on the specific piece of music or the maqam (modal system) being performed. Some musicians may also tune the strings in fifths, leading to variations like:

G-D-A-E: This tuning is often used in Azerbaijani music.

The tuning can be adjusted to accommodate different tonalities and microtones, which are essential in Persian music.

Note 9 - The tuning and regular intervals of Kamancheh.



Source: compiled by the author.

Historical Note

The Kamancheh initially had three strings, later gaining a fourth after the violin's introduction to Iran.

Audio Features

The Kamancheh has an amplitude of about three octaves. Due to various tunings and the absence of frets, it can produce all intervals of national music, including half and quarter tones.

Role in Music

The Kamancheh effectively serves as both a solo and accompanying instrument. The sound quality is significantly influenced by the contact of the bow hairs with the strings.

Playing Techniques

Bow Techniques: The primary method involves drawing a horsehair bow across the strings (arco), while pizzicato involves plucking the strings.

Vibrato: This adds richness to sustained notes by oscillating the left hand on the string.

Glissando: Sliding along the string for smooth pitch transitions, emphasizing microtones.

Harmonics: Producing ethereal tones by lightly touching the string at specific points while bowing.

Tremolo: Creating a trembling effect through rapid bowing or finger movements.

Double Stops: Playing two strings simultaneously for harmonic richness.

Picture 5-6 Playing Kamancheh.

Source: compiled by the author.

Types of Kamancheh (Iṭā'ī and Darvīshī, 2009) (Harris, 2018)

Kamancheh Shahry: This type has four strings and is used for urban and classical Persian music.

Kamancheh Mahally: This instrument, featuring an open back, is used in Lorestan, Kermanshah, and Kurdistan, producing a stronger sound. This type of Kamancheh has a resonant bowl covered with skin, resulting in a clearer and sharper sound. It has three strings, and the bow's wood is completely smooth.

Applications

The kamancheh plays a significant role in various ceremonies and events within Iranian culture. It is prominently featured in weddings, where its expressive melodies enhance the celebratory atmosphere. During religious ceremonies, the kamancheh contributes to a reflective ambiance, often accompanying devotional songs. Its presence is also felt in cultural festivals, where traditional music is showcased, allowing audiences to connect with their heritage. Additionally, the instrument is used in funerals and mourning ceremonies, offering poignant sounds that resonate with grief and remembrance. The kamancheh's versatility allows it to be integral in both joyous and somber occasions, highlighting its cultural importance across different settings.

Some advantages:

The Kamancheh produces a wide range of sounds and nuances, from soft to resonant tones.

With an amplitude of about three octaves, it supports complex musical pieces.

The instrument allows various techniques, including glissando, triel, and pizzicato.

It functions well as both a solo and accompanying instrument in groups and orchestras.

Some disadvantages:

Mastery requires extensive practice and skill.

It is sensitive to temperature and humidity changes.

Maintenance can be costly and requires careful attention.

Limited educational resources and expert instructors may hinder learning in some areas.

Famous Musicians:

Kayhan Kalhor, Ali Asghar Bahar, Ardeshir Kamkar

3.2 Ghaychak

The Ghaychak is a bow-stringed instrument made of wood, metal, and skin, commonly used in Iran. The urban Ghaychak has gained popularity with slight modifications. Measuring about 56 centimeters, it features a two-part body: a smaller lower section covered with skin and a larger resonating upper section.

It is played vertically with the left hand while the right-hand draws the bow horizontally across the strings.

Supported by the Ministry of Culture and Arts, the Ghaychak comes in three sizes: soprano, alto, and bass, each with distinct tunings. The soprano can be played solo or as accompaniment, while the alto and bass are primarily for orchestral use. The Ghaychak is common in southeastern Iran, is even used in traditional medicine and the bow is similar to that of a violin's bow.

Picture 6-1 - The Ghaychak (front).

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Structure

Main Body: The Ghaychak's body is made from a single piece of durable wood, typically walnut or mulberry. The resonant bowl has two recesses, forming smaller and larger sections. The smaller section at the bottom has a skin covering with the bridge, while the larger section remains open. The fingerboard covers half of the larger section and is usually made of sheep or deer skin.

Pictures 6-2 & 6-3 - The main body of Ghaychak.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Fingerboard: The fingerboard, carved from the same wood as the body, connects to the larger bowl section and the instrument's head. The strings pass through grooves in the fingerboard and extend toward the tuning pegs.

Headstock: The headstock is a small hollow wooden box at the fingerboard's start, featuring four ears, each supporting two strings. It has a backward-curved crown made from the same wood.

Tuning Pegs: The Ghaychak has four wooden tuning pegs shaped like wide nails, with two on each side of the headstock. The player uses their left hand to turn them for tuning.

Bridge: The bridge, made of wood or bone, is about 2 cm tall and rests on the skin of the smaller bowl, supporting the strings.

Wire Catcher: At the end of the bowl, the wire catcher is a small piece made of wood or metal that secures the knotted end of the string.

Strings and bow: four metal strings, with the fourth being thicker and coated. The length from the wire catcher to the nut is about 33 cm. Modern Ghaychaks use a violin bow for solo and ensemble performances, with alto and bass versions developed for deeper sounds in folk music.

The Sound Range

The sound range of the ordinary Ghaychak is about two octaves, and it can be played in this instrument due to the lack of manual arrangement of all the intervals of the national music (curtain, semitone, and quarter curtain). There are two main types: bass Ghaychak and soprano Ghaychak. The tonal range of the bass Ghaychak typically spans from C2 to C5, while the soprano Ghaychak ranges from G3 to A6. The tuning of the ordinary Ghaychak strings is in descending fifths and the tuning of the third and fourth strings changes in different positions.

In notation, the treble clef is used, and the instrument can perform various techniques specific to Iranian music.

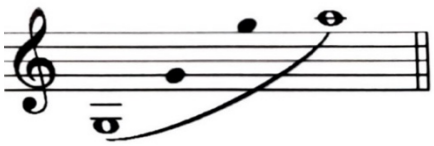
Note 10 - Sound range of Ghaychak.

Source: compiled by the author.

Tuning

The tuning of the Ghaychak typically follows perfect fourths, with four strings. In the common tuning, the strings are tuned from G to D, providing flexibility for performing melodies in Iranian music.

Note 11 Ghaychak tuning.



Source: compiled by the author.

Techniques

Picking: Notes are produced using fingers or a plectrum for precise articulation.

Percussion: Various strikes on the body create different nuances and rhythms.

Tremolo: A continuous, vibrating sound is produced through rapid, repeated strikes on the strings.

Sliding: Smooth transitions between notes by moving fingers along the strings.

Plucking: Softer tones are produced through gentle finger movements, adding expressiveness.

Pizzicato: Plucking the strings to create a percussive sound.

Vibrato: Producing pitch variation by oscillating the fingers on the strings.

Glissando: Sliding between pitches for smooth transitions.

Harmonics: Lightly touching the strings to create higher-pitched overtones.

Picture 6-4 - Playing the Ghaychak.

Source: compiled by the author.

Picture 6-5 - Playing the Bass Ghaychak.

Source: compiled by the author.

Applications

The Ghaychak is extensively used in various ceremonial contexts, particularly in Iranian weddings where it enhances the celebratory atmosphere and accompanies traditional dances. Additionally, it plays a significant role in cultural festivals, religious ceremonies, and folk music performances, helping to preserve and promote regional musical traditions. The Ghaychak expressive sound contributes to the emotional depth of these events, making it a beloved instrument in Iranian cultural practices utilized in concerts, music schools, recording studios, ceremonies, and festivals.

Some advantages

The Ghaychak is capable of producing a diverse array of sounds, from soft and delicate tones to strong, resonant sounds, allowing for dynamic expression in performances

It accommodates various playing techniques, including glissando (sliding between pitches) and pizzicato (plucking the strings), which add to its expressive potential and versatility.

The Ghaychak serves effectively as both a solo instrument and an accompanying instrument in ensembles, making it a flexible choice for various musical settings.

It is particularly well-suited for folk music, as it resonates well with traditional melodies and rhythm.

The instrument can be adjusted to different tunings, allowing musicians to adapt it to various musical styles and regional preferences.

In some regions, the Ghaychak is also utilized in music therapy, harnessing its soothing sounds to promote emotional healing and relaxation.

Some disadvantages

Playing the Ghaychak demands a high level of skill and extensive practice, making it quite challenging for beginners to master.

The instrument can face high humidity and variable temperatures, affecting the wood and skin materials. This sensitivity may lead to difficulties in tuning and sound quality.

Regular maintenance is essential to ensure the Ghaychak maintains its sound quality and structural integrity.

Neglecting this can lead to deterioration.

The Ghaychak is relatively vulnerable to impact and physical damage due to its construction materials, requiring careful handling.

Some featured Musicians (Darvishi, 2004)

Din Mohammad Zangshahi, Hossein Farhadpour, Mohammadreza Ildar Jaleh

4. Percussion string instrument

The Santoor, unique to traditional Iranian music, combines percussion and string elements, producing sound through striking techniques. Its variations are found worldwide, each offering distinct rhythmic and melodic qualities.

4.1 Santoor (Santour)

The Santoor is a trapezoidal dulcimer, a stringed instrument played percussively with two wooden hammers. Positioned horizontally in front of the seated player, it is typically made from

durable woods. Its main components include the soundbox, bridges, tuning pegs, and string holder. The trapezoidal box has the longest side closest to the player and the shortest side farthest away, with two diagonal sides. The hollow instrument has two rows of bridges on its upper surface, where strings are held. The right row is nearer the instrument's edge, while the left row is further away. Each bridge supports four strings, with tuning pegs located on the right side.

Santoor strings are categorized into "white" (melody) and "yellow" (bass). The white strings pass over the left-row bridges, while the yellow strings pass over the right. Additionally, white strings can produce higher-pitched sounds when played behind the bridge. The standard Santoor typically has 11 yellow and 9 white strings, offering a range of slightly more than three octaves. Although it lacks chromatic intervals and requires tuning adjustments during performances, the Santoor is highly versatile for both solo and accompaniment. **(**Darvishi, 2004)(Mansouri, 2000 Section on Santur)

Picture 7-1 - the santoor from a different direction.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Structure

Sound Box: The sound box consists of two trapezoidal plates connected by four side coils. The larger side measures about 90 cm, the smaller side is 36 cm, the height of the side surfaces is 6 cm, and the base is 26 cm.

Face Plate: Crafted from fine wood, the face plate features two lattice sound holes, which enhance resonance. It has two rows of bridges positioned on its surface, allowing strings to pass through.

Bridges: Inside the sound box, cylindrical wooden bridges, approximately the diameter of a pencil, control string pressure,

and balanced tone. These bridges, about 2 cm high and 1.5 cm in diameter, feature grooves to hold the strings. There are a total of eighteen bridges divided into two rows (9 left, 9 right), each supporting multiple unison-tuned strings. The grooves may help ensure a clear sound and may vary in height and placement to produce different octave intervals.

Picture 7-2 & 7-3- the Bridges and Tuning Pegs.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Tuning Pegs: The Santoor typically has several tuning pegs that correspond to its string configuration, commonly made from stainless steel. These pegs are organized on the right side and can be adjusted with a wrench to hold the strings in place, featuring various designs such as rectangular, square, or conical.

Strings: The instrument has 72 strings, consisting of 36 white steel strings on the left side and 36 yellow copper strings on the right. White strings generally produce a lower pitch, while yellow strings create a softer sound. Each group of four strings is threaded through a bridge.

Hammers: The hammers (mezrab) are small pieces of walnut or pear wood used to strike the strings. A felt layer is often attached to soften the sound and prevent direct contact with the strings.

Picture 7-4 - the mezrab of santoor.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Types of Santoor (Mansouri, 2000 Section on Santur)

The Santoor has evolved over the past two decades, leading to two main variations: the Chromatic Santoor and the Bam Chromatic Santoor.

Chromatic Santoor: This variation includes 11- and 12-bridged models with 20 and 22 bridges, respectively. Developed at the suggestion of Hossein Dehlavi, the Chromatic Santoor maintains the same basic sound structure as the traditional Santoor but features more bridges, allowing for chromatic scales. It offers a wider range of notes and more complex melodies, making it suitable for pieces requiring chromatic execution and providing a richer harmonic palette.

Bam Chromatic Santoor: Designed to produce lower-pitched sounds, this variation features a total of 35 bridges, including additional ones on the larger side. It is notated with the bass clef, offering a deeper, resonant tone ideal for orchestral accompaniment. Its rich, resonant bass notes complement higher-pitched instruments.

Santoor Tuning

The Santoor is typically tuned to Persian musical scales, with each scale having a unique tuning. Adjusting the strings and bridges with a special wrench can be challenging for beginners.

Standard Santoor: Tuned in the key of C, it spans three octaves, from C3 to C6, commonly used in Persian music.

Chromatic Santoor: Also tuned in C, it includes chromatic notes, allowing precise half-step execution, with the same tonal range of C3 to C6.

Bass Chromatic Santoor: Tuned lower, usually in G, it spans G2 to G5 and suits bass parts.

Techniques

Striking: Tapping the strings with the nails or fingertips in various hand positions.

Pressing: Applying finger pressure on the strings to change the pitch.

Twisting: Twisting the strings with a finger to create sound vibrations.

Pull-off: Pulling the strings and then releasing them to produce a quick, short sound.

Picture 7-5 Playing santoor.

Source: compiled by the author.

Applications

The Santoor holds a prominent position in Iranian music, cherished for its bell-like, melodic tones that lend themselves well to both solo and accompaniment performances. This versatility makes it integral in teaching Persian music, as many students begin their musical education with this instrument. In modern contexts, the Santoor has seen a surge in popularity, especially in contemporary performances such as film and theater, where innovative musicians experiment with new techniques and collaborate with other instruments. Its use extends to religious ceremonies, official events, and festive occasions, where it helps create a spiritual or celebratory atmosphere. Thus, the Santoor not only enriches the musical landscape of Iran but also plays a crucial role in cultural and ceremonial settings.

Some advantages:

The Santoor is loved for its melodic, bell-like tones that beautifully express emotions.

It can perform both complex solos and group accompaniments.

Many Persian music students start with the Santoor to build foundational skills.

The instrument can be easily tuned to fit various musical settings.

Some disadvantages:

Changes in temperature and humidity can affect tuning and sound quality.

Constant care is needed for its wooden body and metal strings.

Mastering its techniques and tunings requires dedication.

The Santoor generally lacks strong bass sounds, limiting its range in certain pieces.

Tuning 72 strings is a tedious process, especially on lower-quality instruments.

Some featured Musicians

Faramarz Payvar, Parviz Meshkatian, Pashang Kamkar, Ardavan Kamkar.

5. Wind Instruments

Wind instruments have a long-standing significance in Iranian music, with some becoming obsolete over time while others continue to evolve.

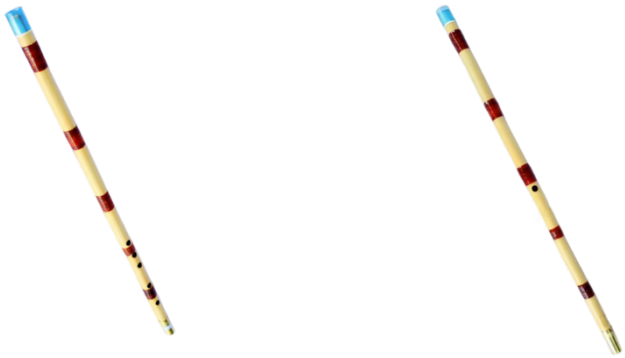
Wind instruments in Iran fall into three categories: wooden inflatables, brass inflatables, and reed keyboard instruments. Their sound depends on factors like tube length and diameter, with most producing transitory notes. The Ney, as the national wind instrument, plays a dominant role, while others like the Duduk and Balaban remain locally important but less integrated into national music. The Ney stands out as a central figure in Iranian classical music, known for its warm, pleasant tone.

5.1 Ney

The Ney is an ancient and traditional wind instrument from Iran, prevalent in various regions. Structurally, it is characterized by six nodes and seven segments, which is why it is also referred to as the “seven-stanza reed.”

The Ney is made from the reed plant, forming a cylindrical tube that ranges from 30 to 65 centimeters in length and 1.5 to 3 centimeters in diameter. It features five front holes and one rear hole for sound variation. Brass cylindrical tubes reinforce both ends for durability. Reeds from dry regions are stronger and less prone to cracking, making the Ney ideal for solo performances and ensembles.

Picture 8-1 & 8-2 The Ney instrument from front and back side.



Source: Sala Muzik. Persian and Turkish Musical Instruments.

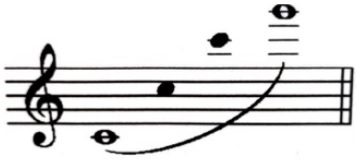
When playing Ney:

The musician holds it vertically, positioning the opening between the lips or lightly against the teeth. The five front holes and one back hole are covered or uncovered with the fingers to produce different notes. Air pressure changes significantly affect sound production, allowing for pitch modulation, including lowering by an octave. Typically, the right hand is above the left for better control. Due to its unique tuning challenges, the Ney is mainly used as a solo instrument and is not easily harmonized with others. It is notated using the treble clef.

Sound Range:

The Ney has a sound range of approximately two and a half octaves, categorized into four distinct zones:

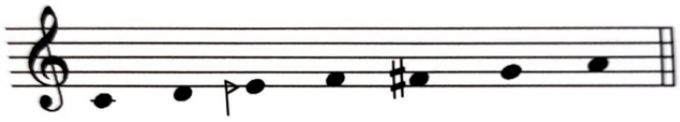
Note 12 areas and sound range of Ney.



Source: compiled by the author.

Soft and Bass (Bam)Sounds: This range includes lower tones, generally around two octaves (C3 to C4) that produce deep, calming sensations. These tones are often used to convey introspection and emotional depth.

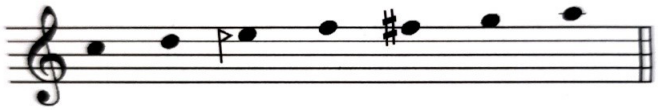
Note 13 - Soft and bass sounds on Ney.



Source: compiled by the author.

Climactic Sounds: The middle range, typically covering notes from approximately C4 to C5, features the main melodies and upbeat notes essential for driving the narrative and expression in performances.

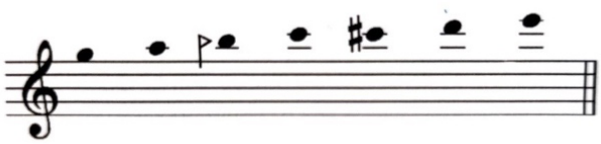
Note 14 - Climactic sound on Ney.



Source: compiled by the author.

Ghaith Voice: This zone incorporates higher and lower sounds around the main range, extending from approximately G5 to E6, allowing for expressiveness and dynamic shifts in the music.

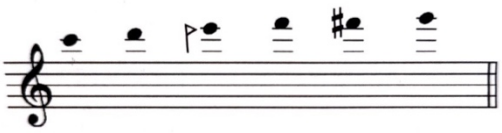
Note 15 - Ghaith voice on Ney.



Source: compiled by the author.

Subsequent Sounds (Pas Ghaith): These very low, thin sounds are situated at the lower end, typically below C5, showcasing advanced techniques and unique textures in specialized pieces.

Note 16 - Ghaith sounds on Ney.



Source: compiled by the author.

Tuning (Tokallou, 2024)(Nezhad, 2014)

The Ney cannot be tuned in the conventional sense due to the natural structure of its reed body. However, variations in sound quality can be achieved by altering the length and diameter of the tube. Pitch adjustments can be made by changing the tube length, modifying oral space, or adjusting blowing intensity, allowing for some control over tonal variation.

Techniques

The Ney utilizes specific blowing techniques to create varied tremolos, essential for expressive performances. Techniques such as taqiyah, staccato, and vakhwan are employed as needed, with expressive musical modes achieved through adjustments in blowing pressure and finger movements on the holes.

Takieh: Tapping a finger or hand on a hole to create a distinctive, sustained sound.

Staccato: Playing notes with shortened durations while the holes remain open, resulting in clear, repetitive sounds.

Short Arpeggios: Rapid finger movements over the holes to generate additional sound effects.

Vakhwan: A soft, breathless technique using the tongue to produce subtle nuances in sound.

Picture 8-3 - playing the Ney.

Source: compiled by the author.

Applications

The Ney, a traditional Iranian wind instrument, plays a significant role in various ceremonial contexts. It is commonly featured in religious ceremonies, especially in Sufi rituals, where its ethereal tones enhance spiritual experiences. Additionally, the Ney is integral to weddings and festive celebrations, providing a joyful atmosphere during traditional dances and songs. During cultural festivals, it showcases Iran's rich musical heritage, while at funerals, its melancholic melodies offer solace to mourners. The instrument is also used in artistic performances, allowing musicians to express deep emotions and connect with their audience.

The Ney is particularly well-suited for various forms of Persian poetry, including different types of Masnavi.

Some advantages:

The Ney produces a pleasant and soothing sound, evoking deep emotions.

As a traditional Iranian instrument, it embodies significant artistic and national characteristics.

It plays a vital role in performing traditional and national pieces and communicating the culture and history of Iran.

Some disadvantages:

The Ney spans approximately two and a half octaves, but specific pitches may be absent depending on the Ney's tuning.

Playing the Ney demands special training and extensive practice.

Players may experience relatively high fatigue while playing.

Some featured Musicians:
Hassan Kasaei, Jamshid Andalibi, Mohammad Mousovi

6. Percussion Instruments in Iranian Music

Percussion instruments are integral to Iranian music, producing sound by being struck. They can be categorized into two main groups:

Membranophones: Sound is generated by striking a surface stretched over a circular ring, cylinder, or bowl. These instruments can have skin covering one or both surfaces, leading to some producing an indeterminate pitch and others having a specific pitch that can be tuned. In most Iranian percussion instruments with leather surfaces, players use their fingers for performance.

Bell and Semi-Bell Instruments (Idiophones): These instruments produce sound by striking two hard, often bell-like objects and typically do not have a specific pitch.

Among the most important national Iranian percussion instruments, those belonging to the category of Membranophones are prevalent. However, there are no national instruments classified under Idiophones, as most instruments in this category are local. Therefore, this section will focus on the examination of Membranophone instruments.

6.1 Tombak (Tonbak)

The Tombak, also known as “Zarb” in Iran, is a percussion instrument made from walnut, maple, or mulberry wood. It consists of two parts: the bulkier trunk and the narrower change. The length of the Tombak from the large opening to the small opening is typically 45 cm. When you’re playing the Tombak, it’s horizontally

on the left thigh, with the larger opening facing outwards, and the skin is struck with both hands. The size of the Tombak used in orchestras is usually larger.

Picture 9-1 & 9-2 - The Tombak from different slides.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

Structure

Picture 9-3 the structure of Tombak.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

The Tombak consists of two main parts:

Upper Part (Top): The upper surface of the Tombak, known for its goblet shape, typically has a diameter ranging from 20 to 30 centimeters and is covered with a skin (often made from goat, camel, or calf) that is stretched over the top and attached securely to the lower part. The section from the skin to the Nafir (the lower part) is approximately 25 centimeters long.

Lower Part (Nafir): The Nafir is a narrower, cylindrical body that gradually widens to form an opening at the end. This section is also about 20 centimeters long, leading to a small exit hole for sound.

Trunk: The broader trunk of the Tombak, known for its convex shape, has a diameter of about 28 centimeters for orchestral versions and 15 centimeters for solo performances. This design features grooves to prevent slipping during play.

Sound Exit: At the bottom of the Nafir is a small opening, which serves as the exit for the sound produced by the vibrations of the skin. The diameter of this sound hole typically measures about 22 centimeters for orchestral Tombaks and 15 centimeters for solo versions.

The skin: The skin used for the Tombak, typically from a goat or ewe, is processed and attached to the large opening of the Tombak using glue. The size and dimensions of Tombaks can vary, with the most common being the smaller solo Tombak and the larger ensemble version. Other variations, such as the Zurkhaneh Tombak, are used in larger ensembles for different musical contexts.

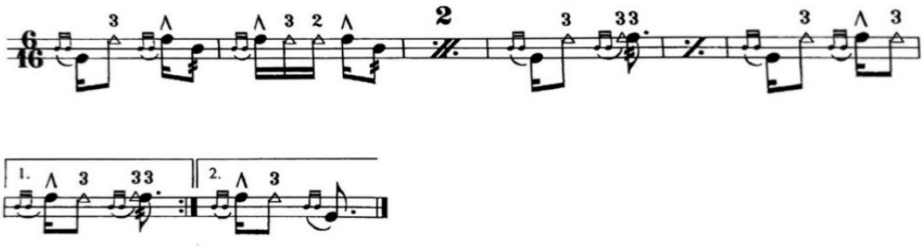
How to Play:

The Tombak is played by positioning it horizontally on the seated musician's thigh. The left hand strikes the top of the drum, while the right hand plays the side, using various techniques that involve the fingers, palm, and entire hand. The sound produced by the Tombak has no fixed pitch, allowing for a wide range of rhythmic and expressive nuances. Its versatility enables it to serve as both an accompaniment and a solo instrument.

Notation

Tombak notation is generally written on a three-line staff, with each line representing different areas of the drum's surface. The central line indicates the middle of the drumhead, the second line represents the middle area, and the third line covers the outer edge. Additional lines may be used for complex rhythms. The Tombak uses international music notation and incorporates specific symbols for finger placement and technique.

Note 17 - A notation for Tombak.



Source: compiled by the author.

Some techniques

The Tombak is considered the most technical of all Iranian instruments, prized for its intricate rhythms and complex playing techniques.

Various playing techniques allow the Tombak to produce a range of sounds. These include finger strikes, palm hits, fingertip tapping, side-hand strikes, finger tremors, and the "broom" technique, which involves gently scratching the drum's skin. The instrument's wooden body can also be used for ornamentation, allowing the player to perform trills, glissandos, and other embellishments. This instrument not only plays a central role in traditional Iranian music but also finds its place in modern compositions and displays its versatility and rich sound.

This instrument not only plays a central role in traditional Iranian music but also finds its place in modern compositions and displays its versatility and rich sound.

Peleng: Quick, alternating beats that provide rhythmic variety.

Roll: Rapid, continuous beats for rhythmic embellishment.

Hammer: Stronger hits at the center of the skin create a powerful sound.

Caresses: Gentle touches that produce softer sounds, often utilized at the beginning or end of a piece.

Picture 9-4 - Playing the Tombak.

Source: compiled by the author.

Applications

Tombaks come in different sizes, with solo instruments being smaller and ensemble instruments larger. Tombaks like the Zurkhaneh version are commonly used in larger group performances. The Tombak is widely used in various settings, including weddings, religious ceremonies, and concerts, and playing it requires technical skill, physical training, and a deep understanding of rhythm.

Some advantages

Tombak has a rich and varied sound, making it versatile for different styles of music.

Its wide range of playing techniques allows for diverse sound production.

The Tombak is integral to Iranian traditional music, playing a key role in preserving cultural heritage.

Despite its complex techniques, the basics of Tombak can be learned relatively quickly.

High-quality Tombaks made from durable wood and leather can last for years without needing repairs.

Some disadvantages

Wooden Tombaks are often heavy, making transportation difficult.

The Tombak's skin is sensitive to humidity and temperature changes, affecting sound quality.

High-quality Tombaks can be expensive, limiting access for some enthusiasts.

The skin requires preparation for extended or intense performances.

Some featured Musicians:

Hossein Tehrani, Bahman Rajabi, Mahmoud Farahmand

6.2 Zurkhaneh Tombak

The Zurkhaneh Tombak is a traditional Iranian percussion instrument used in Zurkhanehs, venues dedicated to ancient sports and rituals. This instrument differs from the ordinary Tombak in several distinct aspects.

Picture 10-1 - the Tombak Zurkhaneh.

Source: compiled by the author.

Structure

Shape: It features a cup-shaped upper part and a conical lower section, which contributes to its unique sound characteristics.

Material: Typically constructed from a single piece of high-quality wood, the Zurkhaneh Tombak produces a rich, resonant sound. In some cases, baked clay may also be used, offering a bass-heavy quality.

Dimensions: The standard height is approximately 45 cm, with a skin opening diameter of about 28 cm. The dimensions can vary slightly based on regional styles.

Trunk: The broader section measures around 28 cm for orchestral versions and 18 cm for solo performances. Grooves along the body prevent slippage during play.

Nafir: This narrower section is about 26 cm long, with an outer diameter of approximately 18 cm.

Sound Exit: The sound exit point features diameters ranging from 22 cm for orchestral use to 18 cm for solo performances.

How to play

The Zurkhaneh Tombak is traditionally played while positioned horizontally on the left thigh, using both hands for performance.

It produces a bass sound with no fixed pitch, allowing for intricate details and expressive finger techniques.

Techniques

Peleng: Quick, alternating beats that provide rhythmic variety.

Sagack: Fast, combined strokes that enhance the dynamic range.

Roll: Rapid, continuous beats for rhythmic embellishment.

Hammer: Stronger hits at the center of the skin create a powerful sound.

Caresses: Gentle touches that produce softer sounds, often utilized at the beginning or end of a piece.

Picture 10-2 - Playing Tombak Zurkhaneh.

Source: compiled by the author.

Applications

The Zurkhaneh Tombak is primarily used in Zurkhaneh ceremonies and can accompany other instruments or be played solo.

Advantages

The powerful bass is well-suited for energetic ceremonies.

Its durable construction ensures longevity, even under rigorous use.

Disadvantages

The Zurkhaneh Tombak is larger and heavier than standard Tombaks, making transportation challenging.

Its use in public orchestras is limited compared to other instruments.

The complex techniques involved require extensive practice to master.

Skin tension can loosen during play, necessitating frequent adjustments.

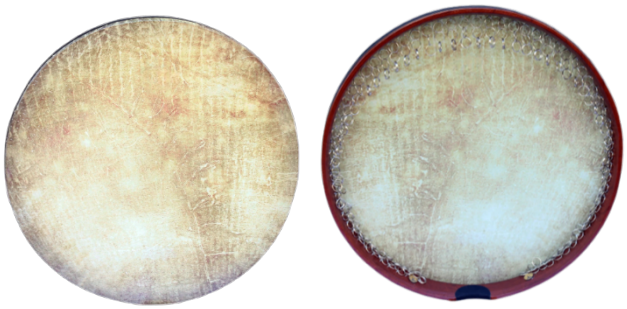
Featured Musicians

Morshid Valiollah Torabi, Morshid Mohammad Reza Taheri, Morshid Ali Dadashi, Morshid Hassan Javani

6.3 Daf

The Daf is a significant percussion instrument with a long history in Iranian musical culture, as well as in many Middle Eastern and Central Asian countries. Known for its resonant sound, the Daf plays an important role in mystical music and ceremonial traditions.

Picture 11-1 & 11-2 – Daf from different sides.



Source: Sala Muzik. Persian and Turkish Musical Instruments.

Structure (Rezaei Barghahi, 2022)

The normal diameter of a Daf typically ranges from 48 to 55 centimeters (approximately 19 to 22 inches). This measurement is considered for various types of Daf, and it can vary slightly depending on the specific style and type of the instrument.

Frame Types: The Daf's frame consists of a wooden collar, which can be of two types:

One Frame: Made of a single piece of wood about 1.5 cm thick, forming a circle. This frame is lighter, making it suitable for extended playing.

Button Frame: Constructed from two pieces of wood, approximately 0.5 cm thick and 6 cm wide, joined together. This type is heavier but more durable and resistant to stretching and warping.

Thumb Indentation: A small groove on the open side of the frame where the left-hand thumb is placed, helping to stabilize and control the Daf during play.

Skin: Traditionally, the Daf's skin is made from sheep, goat, or deer hides, offering a warm, natural sound. Modern Daf may also use plastic skins for better durability and resistance to humidity and temperature changes, although natural skins are often preferred for their superior acoustic properties.

Metal Rings: Small metal rings attached to the inner side of the frame produce jingling sounds when they strike the skin, enriching the sound texture.

Studs/Nails: These secure the skin to the frame, with some modern Dafs using glue instead for a simpler and more durable construction.

How to play

The Daf is played by holding it vertically, slightly tilted towards the body. The left hand supports most of the weight while the right hand plays by striking different parts of the skin with the fingers. Here are some common

The sordina for the Daf is a muted device typically made of felt, which dampens the drum's sound to create a softer, more controlled tone, enhancing expressiveness and suitability for various musical contexts.

Techniques

Finger Strikes: Players use their fingers to strike various areas of the skin, creating distinct sounds.

Palm Strikes: The palm can be used to hit the center of the skin for a fuller, deeper sound.

Rim Shots: Striking the rim of the Daf adds a unique percussive quality.

Shaking: The Daf can be shaken to create a jingle effect from the metal rings, enhancing its rhythmic contribution.

Muting: Players can dampen the sound by pressing their fingers against the skin after striking, allowing for more control over the dynamics and rhythm.

Combination Techniques: Many players combine various strikes and shaking techniques to produce a wide range of rhythmic patterns, making the Daf highly expressive.

Picture 11-3 - Playing the Daf.

Source: compiled by the author.

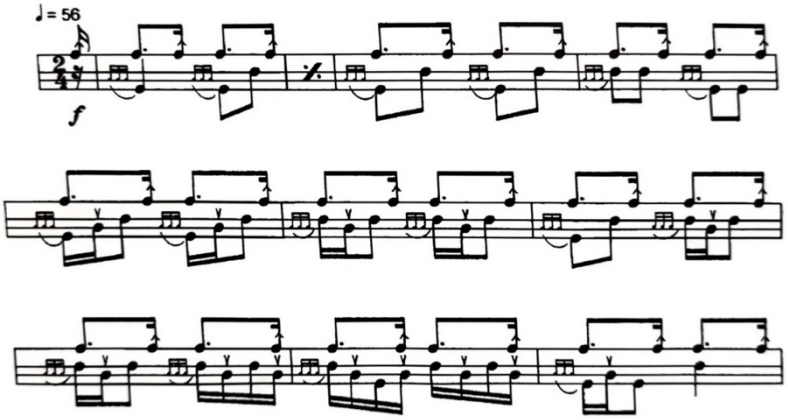
Applications

The Daf is widely used in mystical music, especially in Sufi rituals. It also has an important role in modern traditional and fusion music ensembles, where players use diverse percussion techniques to produce energetic and dynamic rhythms.

Notation:

A four-line staff is commonly used to notate Daf music, where each line represents a specific area of the Daf's skin, indicating different sounds to be played. While a four-line staff is prevalent, different notational systems can exist based on regional practices.

Note 18 - The notation of the Daf N24.



Source: Arfa' Iṭā'ī and Muḥammad Rizā Darvīshī, Sāz'shināsī-i Īrānī. 67.

Some Advantages:

Warm, resonant sound suitable for mystical and spiritual music.

Allows for the creation of a wide variety of sounds and complex rhythms.

Harmonizes well with other instruments, making it an essential part of group performances.

Versatile enough to be used in different musical genres beyond traditional Iranian music.

The communal aspect of the Daf enhances its role in group settings, particularly in Sufi rituals.

Some Disadvantages:

Natural skin is sensitive to environmental changes, affecting sound quality.

This instrument is rarely utilized as a solo performance piece, despite its ability to produce intricate rhythms. While it can effectively be featured in solo performances when integrated with other musical elements, its volume may become overwhelming over time during both solo and ensemble performances if a sordina is not employed.

Some featured Musicians:

Masoud Habibi, Bijan Kamkar, Zakaria Yousefi, Majid Khalaj

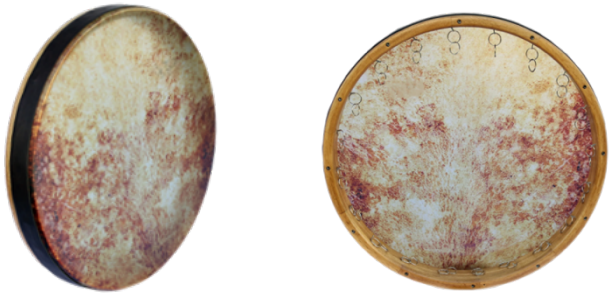
The Differences Between the Daf and the Dayereh

The Daf and Dayereh are similar percussion instruments made from a wooden frame with stretched animal skin, but they differ significantly in size and sound. The Daf is larger and includes metal rings inside the frame, which produce deeper and more diverse sounds. It is commonly used in mystical, celebration, and religious Iranian music. In contrast, the Dayereh is smaller and lighter, lacking metal rings, which results in sharper, brighter sounds. It is used in various local and traditional music styles across Iran.

6.4 Dayereh

The Dayereh, with its wooden frame and animal skin stretched over it, it's typically between 25 and 40 centimeters in diameter. It is played by striking and circling the skin with the fingers, producing rhythmic support for musical performances. The Dayereh has a significant role in urban and traditional music, including styles such as Bakhtiari and Kurdish music.

Picture 12-1 & 12-2 & 12-3 – Dayereh from different sides.



Source: Sala Muzik. Persian and Turkish Musical Instruments.

6.5 Dayere Zangi (Tambourine)

The Dayere Zangi is a specialized version of the Dayereh, distinguished by the addition of bells and rings attached to the inner wall of its frame. These additions create more complex and unique sounds by combining with the skin's vibrations during play, enhancing the instrument's character and depth. Unlike the Dayereh, the Dayere Zangi produces noticeably different sounds and is suitable for a wide range of performances. It is used in both urban and traditional Iranian music, especially in ceremonies and artistic settings, with its use tailored to the musician's needs and the specific context of the performance.

Picture 13-1 & 13-2 – the Dayere Zangi (Tambourine) from different sides.

Source: Sala Muzik. Persian and Turkish Musical Instruments.

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