IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 28, Issue 2, Series 9 (February, 2023) 65-70
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Arab folk musical instruments Design-(the Rababa instrument as a model)

Ali Salem alShurman

Luminous Technical University College

Date of Submission: 14-02-2023 Date of Acceptance: 28-02-2023

The discovery of musical instruments was determined based on many possibilities that relied on archaeological finds. The completion of the development that musical instruments underwent over the centuries was keeping pace with the development of the human sciences, especially the civilization side, and the musical cultural aspect in particular.

The global musical art uses thousands of musical instruments that are distinguished from each other in terms of the diapason of the instrument, the tone color of the sound, the shape of the musical instrument, the material from which the musical instrument is made, the method of manufacture and the quality of the material from which the musical instrument is made. Hence, the diversity of musical forms and melodies appeared, and the cultural peculiarity of the races appeared in different countries of the world.(T. Utiokovl, A. Kalibo, E. Gorkov,1986. p. 7).

Many musical instruments contain similar characteristics by which they can be classified in terms of the way the sound, the shape of the instrument, or the method of performance on them is used, or even from the material that this or that instrument is made of. They can also be classified into folkinstruments or classic ones.

The musicians' theorists and the Greeks, used to play different melodies, they used the monochord instruments, which is one of the first musical instruments and is considered one of the primitive forms of the piano, through which they used a special technique to control the high and low of the sound in playing the only string that was contained in these instruments. (T. Utiokovl, A. Kalibo, E. Gorkov, 1986. p.11).

When we want to talk about perfection design of the musical instruments, we must mention some concepts such as the completeness of the beauty of the musical instrument, the general shape of the instrument, the completeness of the tonal structure of the instrument, the beauty and diversity of the tonal color of the musical instrument, and the method of extracting the tone or style of performance.

And if the Rababah was the daughter of the desert, it spread in rural areas, and invaded many cities, through praisers, folk biographers, and folkloric arts groups, which have their listeners and followers in mawlids, Sufi celebrations, and Ramadan nights, where folk tales and epics are told.German historian and philosopher Heine said of her, "It is a machine with human temperaments."(https://www.folkculturebh.org/ar/).

Here we must mention that one of the most important musical instrument makers before Stradivarius, who died in 1737 AD, who designed the modern form of the violin at the beginning of the eighteenth century and was 57 years old, and when he was innovating or trying to develop his design, he had to go back and carefully examine the previous design so that he could to innovate and develop and release a new and beautiful design of the musical instrument.

Therefore, designers have always been designing many different shapes, reaching the end of the design stages, and then returning to innovation and experimentation again to issue and design a more beautiful and more perfect shape than its predecessor.

A group of artists and creative people participated in the creation of a final design for the musical instrument. We notice experienced musicians and teachers and musicians all were consulted in the design of the musical instrument to bring them out the desired shape and design, because they fully realized that form and idealism in design play a pivotal role not only in the aesthetics of the instrument, but in the completeness and aesthetics of the musical image produces by this instrument.

And here it must also be reminded that people who designed musical instruments manually, that is, handmade craftsmen, and here I do not mean the instruments which made by factory, those creators are designed models of musical instruments much more beautiful finishing that had been lacking in the design of industrial factories. The reason is that, and in addition to the creative talent that these makers have, they had to commit to

the requirements of people with high taste who request musical instruments with a specific design and in a manner that the orders see as perfect or beautiful that meets their aesthetic taste, what worked on the development and innovation of various designs more beautiful and a luster of those invented by industrial factories.

The variety of folk musical instruments design:

Musical instruments have varied in particular in the East, as the researcher finds hundreds of folk musical instruments with attractiveshapes and simply shared the musical melody that can be performed on these instruments made of wood more often, while percussion and folk woodwind instruments are the most popular of these instruments.

These instruments were made in different shapes and they all contained a box or tube, which is the most important component in the formation of the musical instrument in terms of tone as well as shape, where the shape plays an important role in the tone color, the dynamics and the diapason of the folk musical instrument.

Musical instruments design:

Here we asking a question, are the folk instruments designed to match the human voice? Or did the human voice refer to the design of the folk instrument,and its sound and its diapason? And since the first human instrument is the human voice created with a sound rang that extends up to tow octaves, and sometimes,tow octaves and a half for experienced singers.We deduce from this argument that the musical instrument is the one that requested its design with requirements to suit the nature of the human voice. We find that the primitive musical instruments were designed by nature, so we find simplicity and spontaneity in the formation, and man imitated the design of nature in his design of various musical instruments, shape, color and musical character that he could perform on this instrument "we find that wind instruments are the oldest physical musical instruments known to humanity".(Utiogova, T., Qalimpo, I., Gorkav. I,1986, p. 135).

As for wooden instruments, there is no doubt, that the cells that make up the wood, from which musical instruments made of wood are designed by definition,grain has an additional meaning indicating the direction of the wood elements as well, where there is a straight, spiral, intertwined, divergent, transverse, wavy and curly direction.

I will do this research to study the design of the Arab Rababa instrument as a model for this study in terms of form and musical design.

Rababa Musical folk instrument:

"The process of practicing rituals since ancient times has constituted itself a synthetic event in which all kinds of arts are involved, and the succession of musical cultures to this day has bequeathed to us musical instruments with a design character that is intimately linked to the materials of the outside world and the craftsmanship of human in it".(AlShurman, Ali, 2019, p.2015).

A global folk musical instrument that has spread in all countries of the world with different shapes and incarnations. Rababa is a very ancient musical instrument that is considered the origin of the global stringed instruments that plays with the bow.Researcher Adel Abdel Aziz has indicated that the rababa is an ancient stringed instrument that may have its origin in the ancient Indian (Ravanastron) instrument, which it's cradle dates back to 500 years, and it is the oldest stringed instrument playing by the bow, but it has ceased to exist. In general, most ethnic musicians' researchers recognize that Arabs are the ones who are attributed the merit of reviving instruments with an arc.

We find that Rababa designed from wood, have physical properties in terms of color, where the natural color of wood varies from white to dark black, including yellow, brown and others, and the wood becomes blacker when exposed to weather conditions.(Muhammad, Ayman Saadi, 2007, p. 45).As for, the natural luster, which tracks the presence of wax or oily materials in the wood in addition to the angle of reflection, or the result of added dyes, and this luster is not desirable to be present in the design of the musical instruments, so, the more the musical instrument is free of wax or oily materials, the higher its quality. The musical instrument is better, because the musical instrument is made of dry, aged wood, and its sound is bright and attractive, and this characteristic on the contrary reduces the aesthetic design of the musical instrument.

Rababa design

The Rababa took different designs and predominantly the square and rectangular shape, and if we take the Arab Rababa, we will see that it is made of tree wood and goat skin, and it dates back to prehistoric times and has been mentioned in the writings of many Arab writers and scholars such as Al-Jahiz in the (Al-Saila group), and the books of Ibn Khaldun, a detailed chapter of it, was also mentioned in the book of Al-Farabi in his book called (The Great Book of Music). There is a picture of the Arab Rababa on a piece of silk found in Iran and it is now in the Boston Museum of Art.

The Arabs designed the Rababa in several forms: the round square, the boat, the pear, the hemispherical, the tanboori, and the open box.

"The poet's rabab is a musical instrument far from complex that the poet himself creates, and it takes the color of Bedouin, and perhaps the ease of obtaining design materials and the simplicity of this design made it adapt to the life of the nomads". (Gawanmeh, Mohammad, 2002, p.70).

The Rababa became famous and widely spread in all Arab countries and a broad through the Islamic conquests, the Rababa spread to Europe with various names. In France it is called (Rapla), in Italy it is called (Rebec), and in Spain it is called (Rabel). The Rababa,is the lover of the desert, spread in Bedouin and rural areas, and somehow spread in Urban, through praises (almaddaheen) and popular biographers, and in folklore arts, Sufi rituals, and Ramadan nights where popular tales and epics are told.

The general shape of the rababa is formed as following:

- the frame: has a different shape
- al- Sabib-the string which made of horsetail hair (meaning the string which is a group of horse tail hair from which the stern of the rababa and the bow string is placed and gathered and fixed by fastening strings),
- al-Karrab: is a piece of wood attached to the top of the arch stick through which the string of the rababa is stretched to the degree Required.
- al-Qaws:the bow
- al- gazal or al-Faras: the horse, made of wood
- al-Makhaddah: the pillow which is a small piece of cloth that is placed under the string from the opposite side from the top and its function is like a horse from the opposite side).

The general structure of the Rababa is designed consistently according to the region in which it is located, even if we take, for example, the square and rectangular shape that is widely spread in the Levant and in Jordan in specific.

The tone color of the rabab's sound is considered a nasal sound that is not soft and not loud, and it has a low dynamics sound in general, this is due to the typicality of the design of the single-stringed and the primitive materials used in the design in addition to the type of wood and the sound box shape of this instrument, which lacks the cavity, and the required depth, and the modest size.

Physical analysis of the sound of the Rababa

The vibrations that are emitted by the traction of the bow on the string of the tympani are considered to be poor vibrations and their number is modest, which is impossible to produce a clear sound with a large dynamics, as the path of the outgoing sound waves does not follow a smooth path, but collides with the angles of the sound box, where the refraction of the sound waves is large and accelerated, so it is not possible for these short acoustic vibrationsto extend and make clear sounds and due to these random repeated refractions, as the sound box contains 4 sharp angles (90 °) separating each corner, which is followed by a distance of no more than (30-40) cm, but in the absence of these sharp angles the sound waves are moving In a circular or oval shape, then dynamics of the sound ofRababa would be stronger and brighter.

We can notice that the rarefaction andcompression of the medium (which is the air in the cavity of the box) does not cause the required loosening in the medium, which causes the sound to come out in a muffled manner and a very narrow sound range, hence the weakness of the Rababa dynamics.

Aesthetics and function

There is no doubt that the concept of aesthetic form and function are two interrelated nodes in the design of any work, so the designed work must contain the two elements in terms of studying the form aesthetically and functionally so that none of them dominates the other. If we look at the Rababa, we see that it is designed of several integral parts. We cannot dispense with any part of these parts. Each part has its function, because the Rababa has side bends from both ends that may have served the functional side in terms of the flow of sound vibrations in a smooth way that makes the sound more streamlined and smoothness and quietness where, as we know, the acoustic vibrations have sharp reflections and less softness and luster when colliding at a sharp angle, but the sound does not exceed this curvature in a very small fraction of a second, until it collides at a sharp angle based on muting the sound and the fluctuation of its luminosity. So these angles were surrounded by the rarefaction and compression emitted by the sound waves as a reaction from the arc being pulled over the tendon to vibrate the skin that covers the sound box to produce sound vibrations on its way to fill all the space inside the sound box of the instrument.

Here, we must point out that in some forms of the rababa, it contains holes in the corners of the leather that is tightened on the frame of the instrument. These holes help to amplify the sound so that the sound comes out with a relatively greater force than those that do not contain such holes.

These holes are designed to be on the four corners of the voice box from the surface side, which intensify the skin vibrations due to the echo formed inside the box, which is based on these vibrations strongly to exit from the body of the machine emptied densely and stronger to reach the ear of the listener in an

exaggerated manner due to the increase in the number of vibrations returning and reacting inside the box and rushing through the holes to the outside.

The effect of the environment on the design and shape of folk musical instruments

There is no doubt that each environment has its own conditions, tools, and materials that play a major role in the design, so we see complex design in their formation, where industrial tools are included, so we see that the designer took the raw material from his environment or imported it from another environment and the factories refined the material and designed the general shape of the musicalinstrument and the sound system, to come out to us. The musical instrument in its well-known as an international design.

As for, when we talk about folk musical instruments, these instruments are often designed using the environmental materials in which that instrument is present, and if we talk about the primitive design of the Rababa as an example, we find that it is concentrated more, in the countries of the East and more specifically in the Arab countries, then we find, that this instrument was born in the desert and it is aninstrument that meets the poet's need In accompanying his voice and his willingness to recite poetry, as the first Arab music in the pre-Islamic era is poetry and the poem more precisely, which depicted praise, satire, pride, longing, nostalgia and family ties, especially if we know that the Arab society in the pre-Islamic era was based on wars and conflicts that are not governed by a law or constitution other than the tribal constitution what was believed by family members and a society that was ruled by tribal nervousness that made them strive to exert a great effort to achieve glory and sovereignty and protect the honor of the tribe in a harsh life and a desert that lacked the elements of contemporary life where they live the struggle for survival.(Al-Mobaideen, Maher Ahmed, 2003, p. 18).

From here we see that the Rababa instrument had a great role in accompanying the description of these images by the word, so the design of the Rababa came in proportion to that, as it is a very simple instrument that produces some simple musical sounds decorated with the poet's voice, so its design was simple and its design materials are from the surrounding environment in which the poet lives which is:

- Wood
- leather made of sheep or camel skins
- sticks from a tree branch
- hairs from the horse's and Camel tails

From here we notice that the design aspect of the Rababa was in contact with the environment whose extracts were exploited to design a simple folk instrument far from complexity and its acoustic field commensurate with this simplicity and gullibility.

Forms of the Rababa:

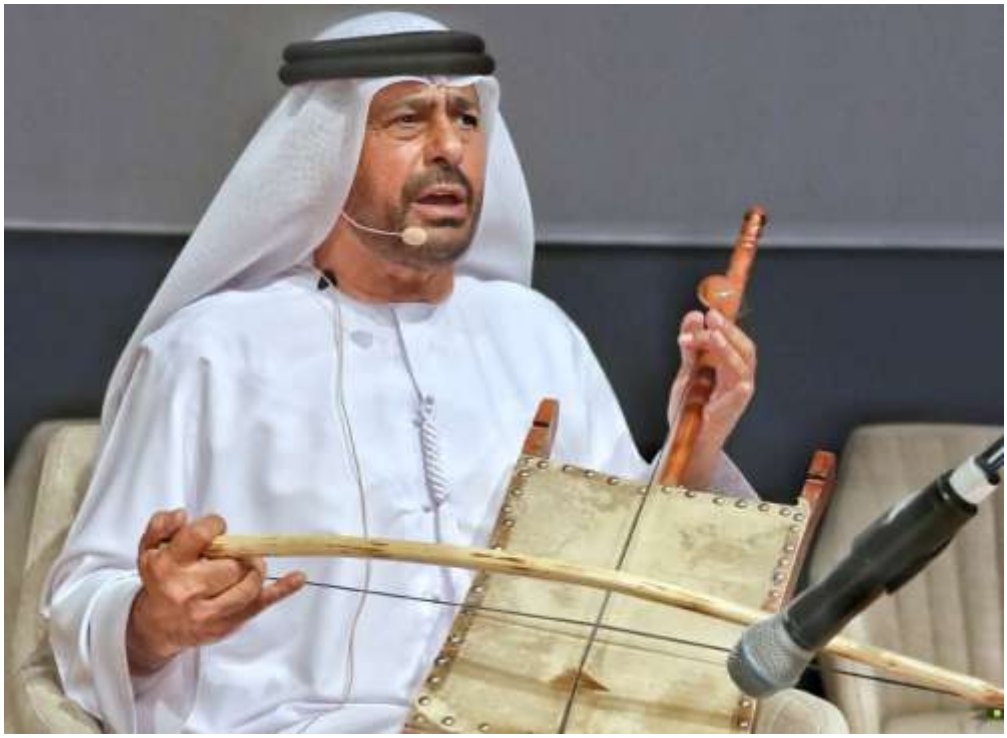
The Arab Rababa has one shape that is subject to some modifications in its general shape in terms of the size of the instrument and the size of its arc or in terms of the material of manufacture.

There are some medium and large Rababas that follow the arc amplitude of the size of the instrument. The larger the size, the larger the arc. Either in terms of shape, there is a Rababa with curved sides and a Rababa with straight sides. The material for making the hair of the bow and the material for making the single string for this instrument is different, and here the researcher lists the following table to show some differences:

Rababa (1)	Rababa (2)
Medium size	large size
Straight sides	curved sides
Arc is slightly curved	semicircular arc
The string is made from animal intestines.	The string is made of metal
The acoustic box is made from wood	the Acoustic Box is made from wood
Leather from animal and deer	leather from fish skin
Bow hair from horse tails or camel	bow hair from synthetic yarn
Used for accompaniment singing	Used to accompany singing on site

Does the simple design match the simple melody played by the Rababa?

From all the aforementioned, we find that the Rababa instrument is designed from simple environmental materials and has one chord and its size is moderate, and we do not find any form of complex design in it, as in musical instruments made in factories and laboratories, and this is what we notice in the nature of the melodies played on this instrument as they are folk simple melodies, its musical diapason does not exceed the interval fifth, and folk songs are performed on it, and it is not possible to play instrumental music , classical or complex lyrical melodies.



https://www.google.com/search?q=arabic+rabab&sxsrf

https://www.google.com/search?q=arabic+rabab&sxsrf

References

[1]. AlShurman, Ali, music and singing in Jordan, al'aannashiroon, Amman, Jordan, 2019.
[2]. Utiogova, T., Qalimpo, I., Gorkav. I., The Birth of Musical Instruments, Music of Leningrad, 1986.
[3]. Muhammad, Ayman Saadi, Raw Technology, Arab Community Library, Jordan, 2007.
[4]. Al-Mobaideen, Maher Ahmed, The Family in Pre-Islamic Poetry, Publications Jordanian Ministry of Culture / Amman, 2003.
[5]. Gawanmeh, Mohammad, Abduh Musa,daralkindi, Jordan,Amman, 2002.
[6]. https://www.folkculturebh.org/ar/?issue=38&page=showarticle&id=726
[7]. https://www.google.com/search?q=arabic+rabab&sxsrf

Ali Salem alShurman. "Arab folk musical instruments Design-(the Rababa instrument as a model)." *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 28(2), 2023, pp. 65-70.