

DOI: 10.7596/taksad.v6i6.1231

Citation: Mehrizi, Z. S. A., & Marasy, M. (2017). The Comparative Study of Art of Manufacturing Orosi and Stained Glass Windows in Iran and Europe. *Journal of History Culture and Art Research*, 6(6), 233-243. doi:<http://dx.doi.org/10.7596/taksad.v6i6.1231>

The Comparative Study of Art of Manufacturing Orosi and Stained Glass Windows in Iran and Europe

Zahra Sadat Abooei Mehrizi¹, Mohsen Marasy²

Abstract

For a long time, glass manufacturing art has been globally common. There are certain similarities between Stained Glass and Orosi works. Based on historical texts, peak of Orosi art in Iran occurred during the reign of Safavid dynasty while its fall was after Qajar era. After introduction to churches after 12th century, Stained Glass manufacturing art was officially recognized. In contemporary era, Orosi art has almost faded away since it did not adapt to architecture. Similarly, Stained Glass art did not develop after it was introduced to Iran. The objectives of comparison between these arts are clarification of effects of the two arts on each other as well as better understanding of Orosi glass and Stained Glass arts. From methodological viewpoint, this study is descriptive-analytical in nature. In order to obtain better results, similar and available works of Orosi and Stained Glass arts were studied. The results of comparing these two arts suggested similar manufacturing methods and designs. In addition, a common application of the two arts is communication of greatness of the building to visitors' minds. Stained Glass was mostly used for representation of Christ's story while Orosi art was commonly used for depicting geometrical patterns. As a result, Orosi art was not initially influenced by Stained Glass art. In some cases, one could claim that Stained Glass art was influenced by Orosi art. Numerous factors played a role in creating differences between these two arts among which one could point to climatic conditions and patrons of such arts.

Keywords: Orosi, Stained glass, Qajar era, Europe, Glass, Architectural decorations.

¹ Department of Art, Shahed University, Tehran, Iran. M.A. Graduate in Study of Arts, Tehran, Iran. E-mail: zahra.abooei1367@gmail.com

² Department of Art, Shahed University, Tehran, Iran. Assistant Professor of Department of Art, Tehran, Iran. E-mail: marasy@shahed.ac.ir

Introduction

Glass manufacturing is one of the global arts with a long background in Iran. In the past, Near East especially Egypt and Syria was characterized by rich glass manufacturing art and industry. There is no definite answer to the question that which tribe and nation started manufacturing glass first. Since manufacturing glass in sheet form is highly difficult, craftsmen of the era used cylindrical glasses for manufacturing window glasses. In fact, the cylindrical glasses were arranged in window frames in inclined manner. Introduction of flat glasses into Iran and manufacturing of colored glasses contributed to evolution of shape of windows and introduction of Orosi windows which are characterized by a combination of wood and glass. Initially, the windows used in courts, religious places and houses of aristocracy showed geometrical and herbal designs under light radiation. The start of this art is not clear because wood pieces used in these windows are perishable and these windows cannot be dated properly. However, pinnacle of the art was during Safavid and Qajar eras. The introduction of flat and colored glasses also led to manufacturing of certain windows called "Stained Glass windows" in France. When churches notices the influence of this art on community, they used the art for representation of Biblical stories. The exact date of development of this art is not clear but its pinnacle was during Gothic era. After 15th century, the art opened its way out of churches into houses of elites and aristocratic families.

Methodology

This study was conducted through descriptive method and based on comparative approach. The necessary data was collected by library review and field study. At first, pictures of Orosi and Stained Glass works were reviewed and manufacturing methods adopted in both arts were studied. In order to understand Orosi art better, written sources and different papers were reviewed and an interview with Dr. Mehdi Amraei on Orosi art was arranged. In regard to Stained Glass art, Dr. Ahmad Khan was interviewed. The analysis of similarities and differences of artistic works is intended to lead to deeper knowledge of both arts.

Orosi Art

Orosi is a type of upward-moving window. It is a window grid which goes up and down of a groove instead of turning around a rotary flap. This type of window is commonly used in buildings located in cold regions. The role of Orosi grid is similar to wooden windows and openings. In Persian language, "Or" is a prefix which signifies "going up". The prefix is also used in other words such as "Ordak" (Persian term for duck), "Olang" (Persian term for Jumping), and "Orchin" (Persian term for step) as well as many other terms. In southern dialects of Iran, the prefix is commonly used to signify grid, light, spring and watching (Pirnia, 2011: 574).

The study of Iranian and global architecture in terms of using windows in different buildings suggest that traditional architecture of European countries used single-opening frames which worked similar to Orosi windows in opening upwards. Even today, there are similar windows called sash windows which are common in European architecture. Comparatively, these windows are no match for Iranian Orosi windows in terms of decoration as they have a completely simple structure. In addition, one should note that use of simple windows or certain accessories such as blinds for regulation of temperature or light of buildings was possible. Therefore, Orosi windows were used due to their decorative function in architecture.

In *Iranian Architecture*, Pirnia explains away the Russian origin of Orosi windows, "Some suggest that Orosi refers to windows modeled on Russian architecture. However, there are some interesting instances of Orosi windows in different buildings and on paintings which date to a time before development of any

significant Russian architecture. Apparently, comparison of “Qand Orosi” with this type of window both of which have Iranian origins has contributed to this false presupposition” (Pirnia, 2010: 574).

Of course, one should note that remaining evidence of wooden artworks dating back to Safavid and Qajar eras are scant as wood can perish against natural climatic factors as well as bugs. Most of the restored works that are available today date back to Qajar era.

In regard to manufacturing date of first Orosi in Iranian architecture, there is not sufficiently accurate information and researchers have to refer to travelogues of Safavid era and beyond. In these travelogues, tourists described Orosi as a traditional and highly beautiful windows. Chardin, the French tourist visiting Iran of Safavid era, described Orosi window grids. He noted, “The windows of typical people were made up of plane tree wood while windows of aristocratic and elite houses were actually door grids and rectangular frames of the grid had small colored glasses. Together, the glasses made up very beautiful designs.... They install glass or clear linen on their window frames which have beautiful designs and light passes through them too” (Chardin, 1995: 875-877). There are some descriptions of Orosi windows in works written by Madame Karla Serna from Italy, Benjamin Travelogue, and Masaharu Yoshida who was the first emissary of Japanese government during Qajar era (1878-1879).

Slate Cutting (Eslimi Cutting)

Among different methods of making Orosi windows, slate cutting has more similarities to Stained Glass making. However, slate cutting is different from Stained Glass making when it comes to manufacturing method. In the case of slate cutting method, the design could have different shapes or curves (not solely eslimi designs) and this is the primary distinction between the two methods. As a result, designs used for slate cutting are circular, curvy and abstract while strictly elimi designs are used in eslimi cutting. To create such diverse designs, they are drawn first and then transferred on wood pieces of low thickness. The cut pieces of wood are arranged beside each other and connected together. In this process, simple or colored glasses could be used. In the case of eslimi art, colored glass pieces of different colors are placed in the space between wooden parts. In this case, glass pieces should be cut according to shapes of the main design. This method is more frequently used for decoration of door tops and windows.

Stained Glass

Stained Glass or filling glass is an art rich with color and beauty which was initially used in churches during 1100 A.D. Based on what Dr. Ahmad Khan, one of the experts of Stained Glass art, suggested, the western sources agree on Islamic origin of the art. The oldest instance of Stained Glass art is used in Al-Sakrahh Mosque. Building of the mosque was ordered by Abdol-Malek Ibn-Marvan 12 centuries ago and it has an instance of Stained Glass work in it (Ahmad Khan, 2015).



Figure 1. Stained Glass window of Qubba al-Sakhra (Jerusalem).

Originally, Romans used glass pieces and the metal available at the time (i.e. lead) to make Stained Glass works. At the time, they used lead for piping because it was available and more durable than iron and steel and it did not rust; however, they were not aware of toxicity of lead. The metal was highly flexible and easy to work with. Since wood and plaster were not durable enough, the humid climate of Europe obliged them to use something more desirable. "In Stained Glass art, lead strips and bars were traditionally used. However, the method was not standard due to undesirable thickness of lead bars and their non-standard inflexibility. Therefore, craftsmen were not able to use complicated and intricate designs. In contrast, thin and flexible copper strips are currently used for making Stained Glass as they enable artists to create complicated designs" (McRee, 2003: 7). The second significant event was introduction of Christianity into Rome. Rome accepted Christianity in 4th century officially. Since then, people were inhibited from using the original biblical language (Hebrew) and Bible was translated to Roman language. Since Roman Empire extended from Constantinople to England, it ruled over different tribes that were not literate and familiar with Roman language. Church recognized the representational power of glass and used it for its promotional measures. Suppose that a church is 10 to 20 m. high and lack of electricity darkens the interior space of the church. The best arrangement to address the issue was using the sunlight radiating from outside into glasses of different colors which also represented scenes of miracle, hell and Jesus.

Another art used in making of Stained Glass is glass painting. To do this, special colors available at the time were used. The paintings were grey and black colored usually. "Glass painting is commonly used in churches. In this case, shadows are used for representation of details such as faces, clothes and hands. The pieces were later heated in furnace. In contrast, colors used for painting of glasses are available today and people can easily paint on glass" (Hicks, 2002: 14). Painting on Stained Glass became popular later but it was exclusive to church up to 15th century. In the case of glass painting and glass cutting, lack of diamonds limited the frequency of cutting the pieces. They used hot iron to cut the glass, remove edges of glass and use lead to remove the unevenness around pieces. Therefore, Christ's face was drawn thinly which made it different in style from artifacts of Vitray. They used iron and copper fillings and Arabic gum, mixed them, and paint and heat the glass. Heating was done two or three times so that highlights can be made. Heating temperature ranged from 500 to 600 degrees as it inhibited glass from deformation. In order to stabilize the color, they coated glass pieces with a layer of silver nitrate and heated it. In that heating step, silver nitrate turns yellowish or glass is stained. That is why final product is called Stained

Glass. During Renaissance, monopoly of church over the art was gradually excluded and aristocratic class used it for the first time. In 17th century, diamond was first used for cutting glasses and this facilitated cutting the glass pieces. Later on, during 19th century, a method for making tensile glasses was invented.

Before the invention, glasses were handmade. Antique glasses were made by blowing air into them manually. At the time, 70cm long glass cylinders were cut at both sides and turned into small glass pieces by further polishing. This method was used until 19th century when glass was made through industrial methods.

In 19th and 20th centuries, Louis Comfort Tiffany suggested painting on glass is a bit unusual as glass loses its original nature. He invented his own distinct technique and radically changed European Stained Glass art. He used copper foils instead of lead ones to cut and create much smaller pieces in his works of art. He also used opal and bicolored glasses which had their own shades and highlights and did not require painting. Proper selection of these highlights creates different states. Through this method, Tiffany was able to make three-dimensional objects and revolutionize the art of Stained Glass.

After World War II, repair and restoration of important churches revived the industry. Today, this art is a fashion in United States and to a less extent popular in Europe. It should be noted that during 19th century Renaissance and industrial revolution contributed to significant artistic change. It started with impressionism. The art was introduced to Iran about 1991 and similar European designs were modeled but some geometrical patterns were also worked out.

Adapting the Art of Stein Glass and Orosi

Historically, both have an unknown history in genesis, and their particular history is their peak period. As it has been stated, the peak period in Orosi art was the Safavid era and more attention was paid to this art during the period of Zandieh and Qajar. Also in the case of Stained Glass art, it originates from the Al-Sakrah Mosque. Of course, it should be noted that this point is not hidden from the researchers that it is possible to add the windows to the mosque in the following periods, but there is still no evidence of rebuilding or adding these windows to the mosque.

The origin of Stained Glass is attributed to the 12th and 13th centuries, or the Gothic era, which until the 15th century was the monopoly of the church. By comparing these two arts, we can conclude that if these two were the same, why did not the tourists compare Orosi with Stained Glass?

If Stained Glass was earlier, when visiting Orosi, using this kind of glass art was not surprising. And at least in one place, the art of Stained Glass and the similarity of both in terms of raw materials and the use of colored glasses or the use of wood for the interior space of the glass instead of metal were pointed out. This created a certain doubt for the researchers that the art of Orosi prevails before Stained Glass, during the Safavid era, which coincided with the era of commerce with the Western world, which could be a factor in getting the idea of starting the art of Stained Glass.

At first, the similarity of using colored glasses is seen in these two arts. During the research and interview with some glass art masters and researchers, other similarities were found as follows:

1. Orosi is most often used in geometric shapes, which is easier to cut and can be cut to the same size and used in the design. But there is a method in the Orosi designs called Ghavareh-bori which includes curved shapes used in a layout once or twice. Ghavareh-bori is more visible in the Qajar era; given the fact that many works of the Safavid era have disappeared due to the decaying of wood. How to cut the curve and single-cut in Ghavareh-bori are similar to cut in Stained Glass works. At first, these slices are somewhat simpler and have larger dimensions, but in the following, these slices get more curvature and smaller

dimensions. It can be said that the art of Stained Glass in the glass cutting method has been more advanced than the art of Orosi.

2. Another point to note is the use of wood in Orosi and metal in Stained Glass as a preservative for glass. It is likely that wood is used in Iran due to the weather and its abundance and beauty. But Europe used clay metal to connect glass to each other due to weather conditions, and further progress was made as the art was welcomed and the aristocracy supported it.

3. In Orosi and in Stained Glass, we see small *Khanebandis* that lead to a big *Khanebandi*.

4. The Orosi design, as it was said, was more geometric and in *Ghavareh-bori* turned into designs that were more curved. In Stained Glass, the designs are more curved and their repetition is low. Of course, in the Stained Glass art, Gospel stories are illustrated. But in Iran, due to the existence of Islam, portraying and drawing human designs were prohibited, which could be the reason for the simplification of the designs in this art.

5. In terms of color, Orosi uses four or five colors due to color limitations, and somehow designs did not require any more colors. But in Stained Glass art, the Church did not have a limit to display Christ and the Apostles and Holy Mary, and needed different colors to perform a true image.

6. In terms of application, both arts took advantage of architecture for more beautiful light and view. But Stained Glass has a decorative effect in some places. The Orosi windows have been used to repel insects and beautify the building. According to the history, Orosi art was always performed on doors or windows, but Stained Glass was originally designed to display the scenes of the gospel and was added to the architecture works afterwards.

7. The Orosi dimensions are larger in size than Stained Glass. It is true that both have used small *khanebandis* to reach large dimensions, but Stained Glass art has large metal columns, which completely isolates the design and does not allow for a general outline.

8. In the art of Orosi, they created grooves in the wood to fit the glass inside and place the wood together with knots without nailing. In the Stained Glass profile method, the profiles have a slotted form which evokes wooden grooves, and this method is used more in large dimensions. In the Profile and Tiffany method, hot tin is used to joint metal to each other and then tin out the entire work.

Table 1: Comparing the features of Orosi art and Stained Glass

	Orosi	Stained Glass
Design	Geometric and vegetative	Mostly human, geometric and vegetative
Subject	Demonstrate the power of the creator of light	Showing stories of the gospel
Raw materials	Wood and glass	Metal and glass
Glass color	Red, green, yellow, blue	Green, blue, yellow, red, pink, purple
Current situation	Inactive	Progress
Dimensions	Large	Large
Use in structure	Showing glory and majesty	Showing glory and majesty

Table 2: Comparing differences in the art of Orosi and Stained Glass

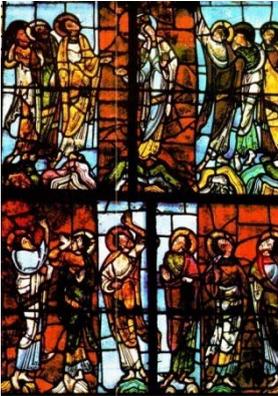
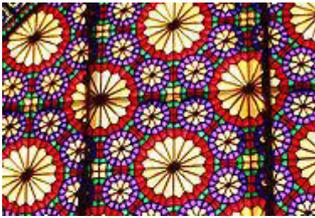
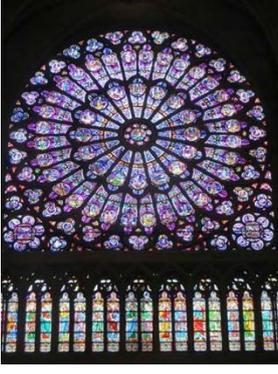
Differences	Orosi art	Stained Glass art	Description
Subject and use			<p>The purpose of making Orosi is mainly to use good light and color application. Of course, its mysticism cannot be denied. But the primary subject of the creation of Stained Glass windows was to display the gospel stories and promote the religion of Christianity.</p>
Design			<p>Most Orosi designs are geometric and vegetative, and most Stained Glass designs are human imagery with geometric and vegetative designs used to decorate and marginize.</p>
Color			<p>Due to the lack of color in Iran's colored glasses, limited amount of color was used, but more color was used in the Stained Glass in Europe.</p>

Table 3: Comparing the similarities of the art of making Orosi and Stained Glass

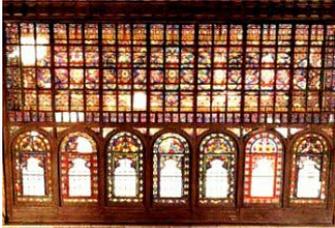
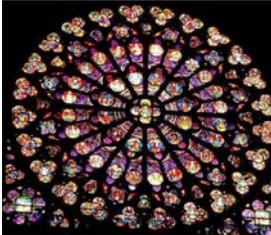
Subject	Orosi art	Stained Glass art	Description
Dimensions			<p>The dimensions at the start of the two arts have been magnificent. In Orosi, construction was from the ground up to the ceiling and in Stained Glass, it was from the ground up to the ceiling or in a large window.</p>
Use			<p>Both windows in a way reflect a certain magnificence and multiply the beauty of the building.</p>
Light dependence for more effects			<p>Both arts have a great deal of dependence on light to demonstrate themselves, and lose their influence without light.</p>

Table 4: Comparing methods and techniques for making Orosi and Stained Glass

Subject	Orosi construction	Stained Glass construction	Description
Dimensions	From the ground up to the ceiling, small-scale works are few; there are many works of great dimensions and walls facing the yard.	Dimensions are usually from the ground to the ceiling or the middle of the wall, which is a distance from the ground and slightly spaced from the ceiling. They used great dimensions for further influence in the church.	In both windows, large dimensions were considered for construction, for more impact and better illustrating the art of their finish.
Cutting of wood and metal	Wood was used to connect glasses to each other. Wood was cut in such a way that the glass would place in it. The reason for the use of wood was the availability and shape ability of the wood.	In this art, at first, lead was used, then copper foil. The reason for the use of lead was flexibility, availability, and rust.	In the art of Orosi wood was used, and in Stained Glass lead was used due to the availability of these materials; and the reason for the difference in materials was the difference in geographic regions of the two arts.
Glass cutting	The glass cutting was carried out in large and very small dimensions, and afterwards the geometric shapes were lost, forming a lot of shapes that became known as Ghavarebori.	Glass cutting was initially not very professional, but with detailed drawings. Later on, cutting became more professional and continuing with the arrival of diamond and the Tiffany method techniques became more professional.	It can be said that the glass cut in Orosi was initially more professional than Stained Glass, and then Stained Glass reached Orosi and surpassed Orosi in the contemporary. Of course, the cut in Orosi, especially in Ghavarebori, proved its craft.
Glass painting and glass coloring	There were not many colors in this art and they were mostly in geometric shapes, and vegetation forms were used more in blue, green, yellow, and red, and in some works, purple and rosary colors were used.	Initially, colors were limited, but the color quickly expanded, and some details were painted, which became known as the Vitray, which was very different from today's Vitray. In the construction of this window, mostly yellow, green, blue, and red, were used. Of course, in different works there are different colors like purple, blue green, pink.	Both arts are common in the use of blue, green, red, yellow and in some cases violet and magenta. The color variation in Stained Glass, of course, is more than Orosi because it narrates a story and needs more color variation.

Conclusion

The results of the research show that there are similarities between the art of Orosi and Stained Glass. Orosi is a purely Iranian art prevalent in the Safavid era in Iran. In the Umayyad era, some of this artwork can be seen but the culmination of this art is during the Safavid period. Due to the dying nature of the wood, little artwork has remained. Making Orosi can be known as the art of cutting and working with wood and cutting glass. Artists in this art seek to make better use of light and color, to magnify the construction and better represent the divine majesty and mysticism.

The history of the manufacture of Stained Glass is brought to the Roman period. Of course, some ideas are taken from this period. There are not many works from the Gothic period, and the works are the result of restoration performed in the ensuing era. Making Stained Glass is the art of glass cutting and painting on glass. Artists of this art sought to show the movement of light on colored glass and magnify the church. The art of Stained Glass, in contrast to Orosi, was used in more varied colors; this art had a beautiful beginning, with support from church, and then came to the aristocratic homes. After a while, it entered artwork and jewelry in various dimensions. This art managed to adapt itself with time and different periods. Of course, it should be noted that Stained Glass was introduced in Iran by Iranian artists in 1370. But unfortunately, this art was not changed in Iran, and it was only the copy of European works, and innovation was only the implementation of the designs used in Orosi on the works of Stained Glass.

The art of making Orosi reaches its peak during Safavid period and remains at the peak in the Qajar era. In the late Qajar, the conditions for the decline of this art are provided intentionally or unintentionally. With the introduction of European culture and architecture and the gradual abandonment of Iranian architecture that began at the end of Qajar and peaked in the Pahlavi era, conditions for abandoning this art were also provided. The style of the Orosi windows was in accordance with Iranian architecture and had no place in the new architecture. Of course, this art attempted to find a place in the interior decoration or view of some of the buildings, but could not fully adapt itself to the time.

In general, it can be concluded that the art of making Stained Glass and Orosi are similar despite their differences. These differences have given a distinct identity to these two arts, and perhaps their similarities are greater than differences. The reason for the similarity of these two arts is the use of light, and similarities like geometric, plant and animal designs; the size of the windows in the building; playing with light and color and the audience taking effect from the artwork are some of the similarities of Stained Glass and Orosi. To better understand the artwork, we need to look more carefully and with a more sophisticated vision, and then go along with the matching of the generalities and details of the artworks. Some of the similarities and differences between these two arts are in general, and some in detail. For example, the use of metal in the manufacture of Stained Glass and Wood in Orosi is of minor difference. The difference in the design is also suggests to be due to the different supporters of the two arts; Stained Glass supporter tended to portray the gospel and people faces, the Orosi sponsor prohibited it from portraying men. In recent years, when Stained Glass artists work for themselves and come out from the support of the church, aristocracy and court, works are created with more similarity in these two arts.

References

Amraei, Mahdi (2009). *Orosi, Light Windows*. Tehran: Semat publications.

Hicks, Oriel (2002). *Beginners Guide to Stained & Decorative Glass*. New York: Sterling Publishing.

McRee, Giorgettes B. & McRee, Livia (2003). *Stained Glass: Exploring New Materials and New Technique*. London: Apple Press.

Pabbaz, Roeeen (2011). *Encyclopedia of Art, (10th ed.)*. Tehran: Culture and Contemporary Art Publications.

Pirnia, Mohammad Karim (2011). *Iran Architectural Stylistics: Islamic Period*. Tehran: Memar Publications.

Serena, Carla (1982). *Madame Carloseena's Travelogue: People and Rites in Iran*, Translation by Ali Asghar Saeedi. Tehran: Zawar Publications.

Shardin (1995). *The Knight Shardin Travelbook, Vol. II*, Translation by Iqbali Ghamaee. Tehran: Toos.

Simson, Otto Von (1989). *The Gothic Cathedral: Origins of Gothic Architecture and the Medieval Concept of Order*. Princeton: Princeton University Press.

Wrigley, Lynette & Gerstein, Marc (2003). *The complete Stained Glass course. How to Master Every Major Glass Work Technique*. London: Apple Press.