

# Comparative Study of Colored Stained Glass in Gothic Art with Sash-window making (Orosi Sazi) in Qajar Era; Case study of Charter Church and Salaar Saeid Mansion

## Estudio comparativo de vitrales de colores en el arte gótico con la fabricación de ventanas (Orosi Sazi) en la era Qajar: estudio de caso de la Iglesia Charter y la mansión Salaar Saeid.

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### Resumen:

En Europa, el uso de vitrales de colores en la construcción de ventanas de la iglesia era común, alcanzando su apogeo durante el período gótico. Por otro lado, la tendencia a usar vidrio de color, llamado Orosi (Sash), en la arquitectura iraní comenzó en la era safávida y, bajo la influencia de la cultura y el arte iraníes, se convirtió en un arte genuino llamado azulejos Girih; este arte floreció sin precedentes durante la era Qajar. El presente estudio tuvo como objetivo identificar los vínculos interculturales en el arte de la era Qajar con elementos tomados de la cultura occidental y mediante la comparación de técnicas estructurales, color, patrones, y el impacto de factores conceptuales como la luz trata de identificar las posibles similitudes entre los dos métodos basados en la coincidencia de las muestras de estudio de sus dos estructuras sobresalientes (Iglesia Charter y Salaar Saeid Mansion). Especialmente en Irán, siendo un territorio que siempre está en el centro de los intercambios culturales, estudiar la relación entre esta tendencia en la arquitectura iraní y sus raíces puede ser útil para una mejor comprensión del arte iraní. El presente estudio es un caso práctico y a nivel metodológico es un estudio descriptivo-analítico. Los datos se recogieron mediante un estudio documental (biblioteca). Los hallazgos han demostrado que la tradición de los vitrales ha existido más en tierras europeas, y su formación en Irán está más influenciada por los componentes culturales importados. Se puede afirmar que la fabricación de ventanas (Orosi Sazi) durante la era Qajar es la continuación del mismo vitral del arte gótico, aunque es natural que la geografía cultural y religiosa haya dado lugar a diferencias estructurales y conceptuales en su desarrollo en ambos territorios.

Palabras clave: arte gótico, vitrales, arte Qajar, Orosi (sash).

### Abstract:

In Europe, the use of colored stained glass in the construction of church windows was common, reaching their peak during the Gothic period. On the other hand, the tendency to use colored glass, called Orosi (Sash), in Iranian architecture began in the Safavid era and, under the influence of Iranian culture and art, became a genuine art called Girih tiles; this art flourished unprecedentedly during the Qajar era. The present study aimed to identify intercultural links in Qajar era art with elements borrowed from Western culture and by comparing structural techniques, color, patterns, gender, and the impact of conceptual factors such as light tries to identify the possible similarities between the two methods based on matching the study samples of their two outstanding structures (Charter Church and Salaar Saeid Mansion). Since Iran, as a territory that is always at the center of cultural exchanges, asking about the relationship between this trend in Iranian architecture and its roots can be helpful in a better understanding of Iranian art. The present study is a practical-case study and methodologically is a descriptive-analytical study. The data were collected using a documentary study (library). Findings have shown that the tradition of colored stained glass has existed more in European lands, and its formation in Iran is more influenced by imported cultural components. It can be claimed that the sash-window making (Orosi Sazi) during the Qajar era is the continuation of the same colored stained glass of Gothic art, although it is natural that cultural and religious geography has resulted in structural and conceptual differences in their development in both territories.

Keywords: Gothic art, colored stained glass, Qajar art, Orosi (sash)

## 1. INTRODUCTION

Colored stained glass windows were first used in Europe in the construction of church windows because, during that time, stained glass window making with designs from the Bible was very important and helped to create a spiritual and light atmosphere in the church. During that period when the construction of magnificent and luxurious churches was more prosperous such that during the Gothic period, the art of stained glass window making or tessellation flourished, reaching its peak. The colored stained glass of the churches of the Gothic period can be considered as one of the most important artistic heritage of that period, and its effect can be traced to cultural exchanges between different cultures.

On the other hand, the tendency to use colored stained glass in Iranian architecture began in the Safavid era<sup>1</sup> and flourished during the Qajar era,<sup>2</sup> which had no precedent in Iranian architectural culture, but since Iran, as a territory that is always at the center of cultural exchanges, asking about the relationship between this trend in Iranian architecture and its roots can be helpful in better understanding of Iranian art. Undoubtedly, understanding such studies can rich our knowledge on Iranian art. So, the present study aimed to identify intercultural links in Qajar era art with elements borrowed from Western

culture and also to deeper and better understand the stylistic and cultural roots of Qajar sash-window (Orosi), and assess the relationship between sash-window (Orosi) and stained glass of Gothic era. The main purpose of this research is to find the possible connection between the sash-window making (Orosi) of the Qajar period and the colored glass of the Gothic period that through matching some of the index examples, act to examine the similarities and differences between them in terms of technique, structure, patterns, color, gender, and the effect of conceptual factors such as light.

To achieve this goal, the necessity of research requires that at the beginning of the Gothic art and Sash-window making (Orosi Sazi) in Qajar Era be examined and matched. And then, based on that, the questions of the present research are raised: Is the Sash-window making (Orosi Sazi) in Qajar Era taken from the art of the Gothic period? What are the similarities and differences between the two arts?

## 2. LITERATURE REVIEW

The limitation of actions in this field is itself a strong reason for the importance of this research because the published works in this field have not been able to fill the gap as they should and have provided a general overview. So, in order to answer the questions mentioned in the introduction, after reviewing the existing articles, books, and dissertations in this field, it was found that comprehensive studies with scientific methodology have not been done in this regard. According to the studies, most of the books and articles have from used on a case-by-case basis to assess the subject of light, the application of color and light elements in Islamic architecture and art, sash (Orosi) or stained glass, and have pointed out to their structural and functional features.

Kazemi (2018), in his article entitled "*The Reasons for the Use of Vitrail in Gothic Churches and the Effect of Dionysius Light on It*," to the reasons for the use of Vitrail art in the gothic church, the impact of the aesthetic theories of Dionysius on the selection of this art. To clarify some of the encrypted reasons and meanings of its use. The article entitled

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<sup>1</sup> The art of the Safavid era (1736 –1501) is one of the brilliant periods of Iranian art. In many respects, the art of this period is the continuation of the golden age of art of the Timurid court. In this period, Iranian art is represented in architecture, painting, calligraphy, carpet weaving, metalwork, pottery, textile decoration, and so on. For more information, refer to (Ghaffari Frad, 2002).

<sup>2</sup> Art of the Qajar era refers to art, architecture, and all works of art of the Qajar dynasty (1789-1925). The prosperity of works of art in Iran was one of the positive effects of the relative calm that prevailed in the country during the reign of Agha Mohammad Khan and his descendants. The experience of Iranian society's close encounter with the West and its art began in the middle of the Qajar period. The reigns of Fathali Shah and Mohammad Shah marked the beginning of the widespread import of European goods to Iran, including paintings and works of art. The reign of Nasser al-Din Shah was the culmination of extensive imports from the West and the king's frequent trips to "Western" countries. At the same time, foreign tourists traveled to the Middle East to see and experience what was known as the "Mysterious East," and cultural ties between Iranian society and its elites with European countries increased. For more information, refer to (Pakbaz R. , 2020).

"*The Mystical Symbol of Light and Color in Gothic Painting and Architecture*" states that Gothic architecture and paintings with religious meanings try to manifest the presence of God in a mysterious space with a combination of lights and colors if manifested. (Alizadeh Oskuei et al., 2020). Vasefi and Hosseini, in the article entitled "*Research of Painting Behind the Qajar Glass*," examined the Qajar arts and artists of that period and the historical background of glass painting in Iran and then discussed several paintings behind the Qajar period. Data (Vasafi and Hosni, 1396). Emraei (2012), in his book "*Sash (Orosi) windows facing light*," has more addressed the structural aspects, construction, function, and carpentry of Sash (Orosi) windows. Alipour (2011), in his article entitled "*the study of orosies of Tehran Qajar palaces*," has studied the designs and patterns of the orosies of Tehran palaces with similar motifs in other arts such as carpet weaving, gilding, etc. Shafipour (2006). Yousefi (2011), in his (unpublished) dissertation entitled "*qavareh bori in Tehran Qajar buildings*," has investigated the details and micro-scale techniques of Sash (Orosi) window making. In another study,

Zarei (2013), in his article entitled "*Sanandaj, sash (Orosi) city, a study of the formation and expansion of the art of sash making (Orosi-sazi) based on existing examples*," has mainly investigated the design and sash making (Orosi-sazi), tried to introduce its components and application. Madhoshiannejad et al. (2016), in an article entitled "*Qualitative and quantitative differences in the evolution of Qajar sash (Orosi) in Tabriz*," categorizes the Qajar sash (Orosi) in Tabriz into three periods and examines the apparent differences of the sash (Orosi) in each period. Khomeh and Nabi Tabar (2015), in an article entitled "*The study of Gothic theories and its impact on art and architecture*," have only addressed the subject of Gothic art and stained glass, and a number of other researchers have pointed to only a part of the mentioned cases. As can be seen, no research has been done on recognizing intercultural links in Qajar art with elements borrowed from Western culture, as well as a deeper understanding of the stylistic and cultural roots of Qajar sash (Orosi), on the

relationship between sash (Orosi) and stained glass in the Gothic period that reveals the necessity of this research.

### 3. RESEARCH METHOD

This research is practical-case research in terms of purpose and descriptive-analytical studies in terms of methodology; the data are in the form of a comparative study between the components governing the stained glass of Gothic churches and sash making (Orosi-sazi) of the Qajar period. The data were collected in the form of method a documentary studies (library), including studying the articles and dissertations of others and written texts on travelogues, archives of research projects of research institutes, and field studies, like objective observation.

### 4. COLORED STAINED GLASS

Colored stained glass windows, although not invented by Gothic architects, are used as a synonym of Gothic architecture. Such beautiful windows have not been manufactured in any other era, but the technology of making colored glass is much older. Egyptian artists were among the world's leading artists in making a variety of objects from colored glass, both for homes and tombs, and archaeologists have excavated thousands of objects made of colored glass in ancient sites (Gardner, 2017, p. 337). The mosaic beads into the mosaic tiles from early Christianity were often made of glass that caught and reflected light and made surfaces shine. Ancient mosaicist artists sometimes used glass beads, but the Romans preferred opaque marble pieces. Mosaic tiles quickly became a common tool for decorating walls and arches in early Christian buildings. Mosaic tiles absorbed light that shone in through the windows in a glowing reflection, creating a sharp contrast of color and color focus that could draw the viewer's attention to the main features and components of each composition (Gardner, 2017, p. 251). But the culmination of stained glass art dates back to the pre-Renaissance, and especially to the Gothic era. Gothic artists found new applications for stained glass. In earlier times, Christian clerics entered the painting and painting religious objects into

the church, especially with frescoes and mosaics full of glorious effects. Stained glass windows differ from those styles in a very important way. These windows do not hide the walls behind them but sit in their place. Moreover, instead of reflecting, they pass the light through themselves and cause the natural light of day to shine into the church (Davis & et al, 2009, p. 251).

During the fourth to sixth centuries-AH, Sham was considered as one of the main centers of glass making. These glasses had different applications. During the first to third centuries, glass industries were mostly used to decorate buildings and make various types of mosaics or on windows to prevent dust, heat, and cold from entering houses (Rahmatabadi, 2011, p. 70). The Christians entered the stained glass into the Islamic lands, especially the Umayyad realm. Since the buildings were built in the Umayyad era, like the Umayyad community in Damascus, they were decorated with mosaics made of colored glass (Ibn al-Faqih, 1994, p. 151). It can be concluded that these glasses were either one of the local and indigenous products of Sham or imported through Rome. The Umayyads also settled in many Byzantine lands. However, evidence shows that in the Umayyad era, with the support of the Umayyad caliphs and their attention to the construction of luxurious buildings, this industry has been re-considered ( Qasimi, 1988, p. 164). As the most beautiful example of mosaic decorations and the use of glass have been seen in the roof lights and windows of the Dome of the Rock Mosque, the Umayyad Mosque in Damascus (Figure 1), and in the palaces of Hırbat al-Mafjar and Al-Muniya (Alam, 2003, pp. 31-32). The bathroom of Hırbat al-Mafjar Palace can be mentioned as an



Fig 1: Umayyad dynasty  
Source: URL: 1

example, which is covered with 31 different abstract designs of tiles, glass, and decorative mosaics ( Ettinghausen & Graber, 2015, p. 41).

The most beautiful glass artifacts were those made for windows. These glasses were colored. Umayyad dynasty of Damascus, the Dome of the Rock, Qasr al-Hirah, Qasr al-Mutasim in Raqqa, and the Nouri Hospital built in Damascus during the reign of Nouredine Mahmoud Zangi, these are some examples where the use of such glasses can be seen in various parts. Ibn Battuta reports that 74 windows of the Umayyad dynasty in Damascus were covered with stained glass. These glasses were in the form of squares, circles, and various vegetable shapes. These glasses were used to guide the light of the building, and the roof lights and windows of this building were covered with colored glass (Ibn Battutah, 1995, p. 308). plaster barred windows were further decorated with roof lights stained glass, which was popular in the Fatimid period, and various designs were made for it; these colored glasses softened the intense daylight that intensified with the increase in the number of apertures, such as paintings on western glass (Connell, 2007, p. 132).

## 5. GOTHIC

In 1550, Giorgio Vasari first used Gothic as a term of ridicule to describe late medieval art and architecture, which he attributed to the Goths (Vasari, 1955, p. 291). Gothic art is more closely associated with the church than anything else, so it can be considered a religious art to a large extent. Regarding the Gothic churches, it can be said that they were the product of two characteristics of their time, one is a product of an era of peace and widespread economic prosperity, deep spirituality, and extraordinary technological innovation (Davis & et al, 2009, p. 250); and another at the peak of the Christian denomination. In Gothic churches, all dimensions and aspects of life are defined in the direction of God and for God, this pattern in the architecture of that time has shown itself in the form of upward arrows (towards God) (Khameh & Nabi Tabar, 2015, p. 5). This led to the groined arches on the ogee arches, which were invisibly but with the help of backrests (suspended or



sword), catch light from outside and inside and a mysterious light coming from huge windows with stained glass and flowed inside (Davis & et al, 2009, p. 252) and become the most important feature of the exterior of Gothic churches.

Gothic architecture, with its gradual development, reached its peak, characterized by height and lightness, the narrowness of pillars, the thinness of walls, the elongation of towers and minarets, and repetition of the emphasis on vertical structures. The surface of the walls is covered with stained glass to allow more light to enter the space. By designing more and more grooved arches, ogee arches, and inclined arches, as well as increasing the complexity of the Gothic style, architects also had the opportunity to form taller and brighter sections for their structures (Major, Speirs, & Tischhauser, 2010, p. 52). However, with the reduction of interior walls in Gothic architecture, the interior left no room for murals. But the stained glass in the windows, the stained glass panels for the back of the church altar compensated for this lack of design and color ( Pakbaz, 2015, p. 878). As a result, colored stained glass windows played a major role in the interior design of Gothic churches. Conceptually, colored stained glass had an important connection with the concept of light due to the flow of sunlight into the church (Bolkhari, 2015, p. 13). As a result, it can be said that the symbolic concepts of light became an important part of the structure of the Gothic church. The ultimate goal in Christianity architecture is to determine the spiritual space. This imagination has been realized through de-physicalization of the building, that is, by special behavior with surfaces, a kind of lighting (Bani Massoud, 2015, p. 87).

Attention to the symbolic concepts of light can be seen from the very beginning of the construction of Gothic architecture by the theorist of this orientation, Saint Souger. He started his work by giving the order for the reconstruction of the Royal Monastery of St. Danny outside Paris. Reconstruction of this monastery was done under the supervision of its chairman, Souger, during the years 1141-1137 AD (Davis &

et al, 2009, p. 390). Souger demolished a small 300-year-old monastery around France for the coronation of Louis in 1140, and the architects, according to a plan, built the Church of St. Denis (Figure 2), one of the last major churches, which has been introduced as the cradle of Gothic art (Moshtaq, 2016, p. 123). Souger leaves two reports of the reconstruction of Monastery of St. Danny: One book describes all activity ranging from the building to Tabbarok on the east side; another one describes valuable attachment decorations, including the colored glass of windows considered as his records as the manager of the Monastery (Panofsky, 1946, p. 87). It can be said that Saint Souger himself was the first who theorized about colored glass. He writes in his notes on the mysterious light of stained glass windows: Stained glass windows are the same as the sacred writings ... and thus their brilliancy makes true light shine into the church (Gardner, 2017, p. 377). William Durandusen expressed similar sentiments in the last decades of the thirteenth century. The glass windows are considered writings in each church that discard the malicious event and pass the light of God and flow into the hearts of believers.



Fig 2: St. Danny Church, 1135-1140  
Source: (Gardner, 2017)

In most Gothic stained glass windows, the narrative scene was displayed, and their picture collection is not as complex as the figure collection of carvings on the entrances of churches. The color curtains and the intensity of the color of the solar window and bayonet windows in consequential hours of the day have different effects and change the whole rigid building into a floating dream descending from the dome of the sky.

Regarding the construction technique, a German monk named Theophilus recorded the complete process of producing stained glass around 1100 AD as follows: First, the master designer designed the exact composition of the window to be built on a piece of wood and drew and showed all the linear details and wrote the colors of each section on it. The glassmakers produced a variety of flat glass cups for glassmakers. They also, using special iron scissors, cut these cups to the required dimensions and shapes. The glassmakers fused one layer of stained glass to another, producing an even larger set of different colors. Then the painters added details such as faces, hands, clothes, etc., made of enamel and by throwing the role of the mother on a wooden plate behind the colored glass. The stained glass was then heated to weld the enamel to the surface of the glass. The glassmakers then connected different pieces of glass together with lead strips called "weatherstrip." Lead weatherstrip not only joined the pieces of glass but also separated the colors to double the overall design effect. The distinctive feature of the Gothic stained glass windows, to a large extent, is the result of the combination of fine linear details with flat and wide colored zones inside a pile of black lead. Finally, the glassmakers reinforced the completed window with iron belts, which in the twelfth century created a grid at the design level (Gardner, 2017, p. 377).

## 6. SASH (OROSI)

Sash (Orosi) is the so-called doors and windows that usually cover the entire wall of a room and are integrated from ceiling to floor, and their opening and closing are vertical and up and down (Pirnia, 2013, p. 192). The Sash (Orosi)

doorway is generally facing the courtyard. The sash (Orosi) body is made of wood with inlaid and lattice methods (Girih Tiles) and various geometric and plant patterns, and then colored glass is placed inside the wooden nets. This type of door and window has been widely used to adjust and soften the light in sunny houses in tropical areas and has been very suitable, but its construction has become more or less common in other areas as well. The sash (Orosi) was usually made of 1 to 6 doublets, and in some cases, mirror decorations were used in it (Shafipour, 2006, p. 34).

There is disagreement about the origin of the sash (Orosi); some consider the sash (Orosi) taken from the windows of Gothic churches (Shafipour, 2006, p. 178). Some consider it as windows imported from Russia (Moin, 2011), and others introduce it as a completely Iranian sash (Orosi) (Pirnia, 2013, p. 98). What makes these windows diverse, original, and beautiful are the geometric and Islamic patterns used and the way the colored glass is arranged on the surface of the sash (Orosi), which creates different color combinations (Shafipour, 2006, p. 178). It seems that the use of sash (Orosi) in architecture began in the tenth and eleventh centuries, AH, but the designs used in it have long been common in window making (Alipour, 2011, p. 8)

Sash (Orosi) function, like the Gothic examples, was not merely for decoration. Sash (Orosi) is usually noticed for its use of stained glass and soft color spectrum. Nature has played a significant role in the diversity of sash (Orosi) colors. This variety of colors has given a special effect to the arrays inside the used space. Colored stained glass allows the person inside the room to have a complete view of the outside view (yard), and at the same time, nothing can be seen from outside the room. In addition, the different colors of the glass often repelled pests such as mosquitoes and flies. They also prevented direct sunlight into the room and, as a result, unpleasant heating of the space in hot seasons (Bozorgmehri & Haddadi, 2010, p. 20). Sash (Orosi) played an important role in directing the appropriate light into the spaces, and in the closed state, it directed soft light in different colors

into the room; so, visual communication was created in different ways with the green environment of the yard or garden and sometimes outside (Zarei, 2013, p. 115). Sash (Orosi) can be divided into two categories in terms of work:

I. Simple sash (Orosi): In this case, the sash (Orosi) bales are very light and can be moved easily by hand and one person.

II. Weight sash (Orosi): In addition to the sliding mode that exists in simple sash (Orosi), it is empty inside the frame, in which the lead weights are facilitated by pulling the slats up and down by means of a string that is attached to the sash blades. In the sash (Orosi) in the mansion of Golestan Palace and Saheboghrañieh Palace, due to the size and grandeur of the blades, they created a balance to open and close them by weight and by placing pulleys above the windows (Amrayi, 2012, p. 85).

In these sashes (Orosi) windows, stained glass was placed in the lattice window frame because the lattice windows adjust the light intensity at different times and seasons of the year; it diffuses the intensity of light during the hours when the light is very intense, and through the colored glass embedded in these wooden frames, it provides a safe space against the intensity of light and heat.

The attractiveness of the Iranian sash was so great that it also attracted the attention of foreign travel writers. Chardin, a French tourist who came to Iran during the Safavid period, describes the houses and their decorations and writes: "The windows of public rooms are made of plane tree wood, but the windows of the house of the nobility are the latticed doors, in each of which a small colored glass is embedded, from which a beautiful pattern emerges." They use either glass or transparent linoleum on the frames of their windows, which have both beautiful patterns and light passes through them" (Chardin, 2014, p. 91). It is also stated in the Tavernier travelogue: The stained glass was installed in the open space between the grooves of the grid and used instead of window glass, especially in the interiors and other parts of the house

where women more present there (Pope & Ackerman, 2008, p. 41). Raphael Duman (second half of the seventeenth century) refers to Venetian colored glass and writes: "Usually the sale and purchase of silk were monopolized by the Armenians and they traded silk with Venetian goods - including mirrors, glasses and colored glass for windows." They would get a lot of profit" (Duman, 1975, p. 36). In the travelogues related to the Qajar period, there are references to sash (Orosi) and colored glass, an example of which is in Madame Carla Serna's travelogue: Darvazeh Dolat opens to a street ... the palace of the king is located at the end of the street, ... The facade of the palace, which is decorated with colored glass, is directly facing the Darvazeh Dolat " (Carla Serna, p. 26).

A type of lattice window that opened and closed vertically and had different functions, and the place of use of these windows was in the interior spaces in upstairs and corner upper rooms located on one or both sides of large and high halls; Sash (orosi) windows were also used on the front of the house facing the public walkway. The surface of sash (orosi) windows is decorated with various intricate patterns and colored and simple glass (Sultanzadeh, 1996, p. 30).

Stained glass has been used in Iran since Safavid times and was used in lattice windows (Pirnia, 2013, p. 18). But their use in the Qajar period reached its peak in sash (Orosi) (Alipour, 2011, p. 7). The difference between the sash (Orosi) of the Qajar period and the sash (Orosi) of the Safavid period is that the openings above the doors and windows of the Safavid period were in the form of squares or rectangles or truncated arches, and intricate patterns were more seen in its decorations; while the openings on the sash (Orosi) doors and windows of the Qajar period were in the form of arches and crescents, and many of the openings were in the shape of circles and ovals, and template patterns were more used in the decorations of the sash windows of the Qajar period (Sarikhani, 2003, p. 60). During the Qajar period, sash (orosi) windows were made in a way that covered the entire surface of the room wall. Each sash (orosi) window, in addition to the grid forming the frame, consisted of two fixed



and moving parts, the fixed part of which functioned as a separator like a wall, and the moving part was used to better view the outside. The sash (orosi) windows were more important in aristocratic buildings, the holy places like mosques and palaces of the Qajar period, and decorated with remarkable decorations. So, we also see paintings on window frames. In these windows, the window frames have been beautifully shaped with special geometric designs, and in addition, the colorful and eye-catching glass has been used to create original and unique works instead of simple and colorless glass.

The technique of sash (Orosi) making, like Gothic glass, has been done by implementing the design and cutting of glass, but the most important difference is the use of wooden straps in Iranian sash (Orosi); it also should be noted that the two worldviews and aesthetics differentiate the design and role of each of these two trends in glassmaking.

Regarding the importance of light, as it was discussed in relation to the Christian world, light also plays an important role in Islamic architecture. In general, the functions of architecture and the issue of

space in this art have caused a discussion entitled "lighting" and "light" in space and its definition, which is considered one of the basic concepts in architecture (Dibaj, 2005, p. 48). In addition to the practical applications of light in architecture, there have always been transcendental and spiritual concepts on this natural element, from the sanctity of light in ancient religions that have influenced architecture to its symbolic use in temples of these religions (Qudusifar, Habib, & Shahbazi, 2012, p. 41). In fact, light and color are the aesthetic elements of Islamic architecture. Light is one of the distinctive aspects of Iranian architecture and is considered an element of divine wisdom (Arjmandi, Mohd Tahir, Shabankareh, Shabani, & Mazaheri, 2011, p. 295). Color is the material property and fit of the geometric order of light. Architects used light in this way to create an aesthetic sense for the audience by using materials and applying them in the right place. Ibn Haytham, in his book *Al-Manazer* says: "Only two factors of light and color of these twenty-two factors alone are able to stimulate the sense of beauty and have the ability to create an effect in the soul that something looks beautiful" (Khojastehpour, 2009, p. 49). The structure of the sash (orosi) and its aesthetic aspects in Iranian architecture is one of the most important examples that show the conceptual and aesthetic capabilities of light and color.

## 7. COMPARATIVE STUDY OF STAINED GLASS OF GOTHIC ART AND QAJAR SASH (OROSI-SAZI) MAKING

In this section, two index buildings are examined to apply the study samples. Charter Church, and Saeed Mansion. Chartres Church is a medieval French cathedral located in Chartres, about 80 miles (80 km) southwest of Paris. This church is considered one of the finest examples of French Gothic architecture. The current church was built between 1193 and 1250 (Davis & et al, 2009, p. 388). In the 13th and 14th centuries, the Charter Church (Figure 3) and similar French buildings became the standard throughout Europe.

A window left over from the fire of Charter Church in 1194 (Figure 5) is the only tall, bayonet window which is called our lady on the beautiful window. The



Fig 3: Chartre Church, Our Lady on the Beautiful Window 1170  
Source: (Penelope & et al, 2009, p. 399)



middle part of the window with the red background, which shows the Virgin Mary sitting on the throne and with the baby Christ in her skirt, dates back to 1170 AD. Here Virgin Mary is the young heavenly queen who has a halo around her head, a crown on her head, and a dove of the Holy Spirit accompanying her. The windows of the Charter Church from the thirteenth century are much more beautiful than our Lady's window on the beautiful window because the use of a suspended backrest allowed the master to design the Charter from the beginning so that it be possible to fill the entire walls with stained glass. The huge solar window and the long bayonet windows, and its long transverse lever (Fig. 4) were gifts from Queen Blanche Ducast in 1220 AD. The crown motifs of the yellow palaces on a red background with a petal iris or the official emblem of the French court on a blue background fill eight narrow windows on the back or lower ledges of the solar window. Virgin Mary, sitting on the throne and the child of Christ, appears in the central embroidery of the solar window, which itself resembles a cover of a bejeweled book or a ball flower or Honeycomb pattern. Four doves of the Holy Spirit and eight angels surround him. Images of the kings of the Old Testament can be seen in the twelve square decorative plates. (Gardner, 2017, pp. 378-379).

Salaar Saeid Mansion (Figure 5) was built about 150 years ago, during the reign of Nasser al-Din Shah Qajar, in three parts by a Sunni scholar named Mullah Lotfollah Shaykh al-Islam, Judge of the Kurdistan Region. From this mansion, the ceremonial hall, the basement or the basin, and its side spaces and the inner part are left. This building was later acquired by Abdul Hamid Khan Sanandaji (Salaar Saied) and is now a museum in Sanandaj. The Sanandaj Museum building is basically the exterior of the Mullah Lotfollah Shaykh al-Islam mansion. The method and style of construction of this mansion have been influenced by the architecture of the Qajar period. The most beautiful and interesting part of the building is the large seven-leaf sash (Orosi) windows and plaster and mirror decorations in the two-door room known as Narenjestan, which are themselves a masterpiece of art and an example of arabesque and Girih tiles motif (Zarei, 2013, p. 119).

Now to understand the intercultural links in Qajar art with elements borrowed from Western culture, as well as a deeper understanding of the stylistic and cultural roots of Qajar sash making (Orosi-sazi) with Gothic stained glass and in order to find the possible relationship between them, we introduce the characteristics of stained glass of Gothic art and sash making (Orosi-sazi) of Qajar period and finally, by matching the examples (Charter Church and Saeid Mansion) (Table 1), the present study examines the similarities and differences between them in terms of technique, and structure (Table 2), motifs and gender (Table 3) and light and color (Table 4).

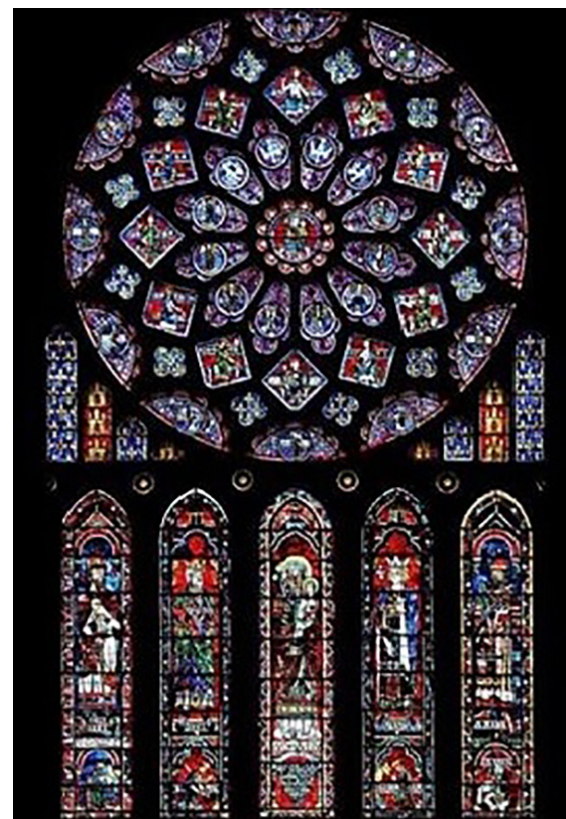


Fig 4: Charter Church, solar window and bayonet windows 1220  
Source: (Gardner, 2017, p. 38)

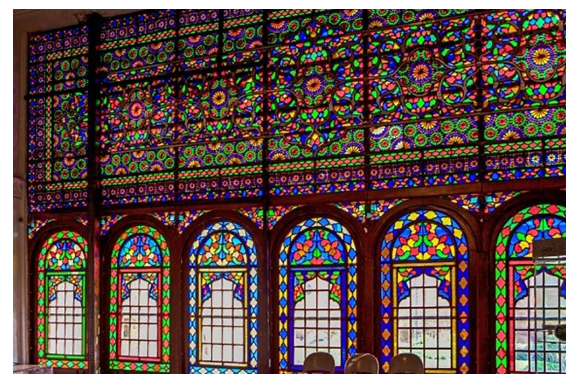


Fig 5: Interior view of Salaar Saeid Mansion (Sanandaj Museum)  
Source: (Zarei, 2013, p. 119)

Gothic art		Orosi (Sash)	
Structure	<ul style="list-style-type: none"><li>- Spatial continuity between indoor and outdoor space</li><li>- Different glasses, with various colors and textures</li><li>- Rich sense of aesthetics</li><li>- Achieving architectural and artistic goals in interior design</li><li>- Creating sound transitions using hexagonal forms that have acoustic properties</li></ul>	<ul style="list-style-type: none"><li>- Exposure of outdoor space</li><li>- Creating privacy, restricting the view from outside to inside the house</li><li>- Creating beauty in the facade of the building</li><li>- Preservation of privacy and privacy of outdoor space</li><li>- Avoid annoying insects</li><li>- Psychologically, the different colors of these glasses and the creation of light of the same color have different effects on humans, and each color next to the other color neutralizes the intensity of this effect.</li><li>- Decorating the surface of sash windows using various knotting patterns and colored and plain glass</li><li>- Creating acoustic displacement using hexagonal forms that have acoustic properties</li><li>- Openings in the form of arches, crescents, and qavareh bori</li><li>- decorations on top of doors and windows</li></ul>	
Technique	<ul style="list-style-type: none"><li>- Design the desired pattern based on the size of the work</li><li>- Cutting</li><li>- Connection to each other by H-shaped metal cross-section</li><li>- Lead weatherstrip with lead strips</li><li>- Welding to strengthen the glass parts after complete assembly</li><li>- Spraying glaze (cement-like powder) on the glass surface for more stability of stained glass</li><li>- Types of colored glass, sandblast, acid wash (salt acid), opal glass and painted in stainless glass with various colors and textures</li><li>- Reinforcement of the completed window with wiring with the help of iron straps</li><li>- The use of shaved glass (Bold) to create a visual game with more beauty and light.</li><li>- The environment of the parts, using a glass milling machine, turns into a diamond, which causes the refraction of light and a beautiful effect in it.</li><li>- Application of stained glass in different spaces, including doors, windows, ceilings, and...</li></ul>	<ul style="list-style-type: none"><li>- Design the desired node based on the size of the work</li><li>- Modeling or molding</li><li>- node (small joints of wood that are locked together in tabs)</li><li>- Preparing sticky wood from prepared molds</li><li>- Cutting the angle of wood joints with a saw tools</li><li>- horizon and bolts</li><li>- Picking a node</li><li>- Involvement of fabricated joints and cut colored glass</li></ul>	
Patterns	<ul style="list-style-type: none"><li>- Human images of Virgin Mary, angels, child Christ and ...</li><li>- Bird motifs</li><li>- Plant motifs</li><li>- Geometric patterns</li><li>- Abstract motifs</li><li>- Use of text</li><li>- Narrative scenes and images from the Bible</li></ul>	<ul style="list-style-type: none"><li>- arabesque patterns</li><li>- Plant patterns</li><li>- Geometric patterns</li><li>- Abstract patterns</li></ul>	
Color	<ul style="list-style-type: none"><li>- Red, yellow, blue, green, brown,</li></ul>	<ul style="list-style-type: none"><li>- Blue, red, yellow, green</li></ul>	
Material	<ul style="list-style-type: none"><li>- Glass</li><li>- Metal</li></ul>	<ul style="list-style-type: none"><li>- Wood</li><li>- Glass</li></ul>	
Light	<ul style="list-style-type: none"><li>- Paying attention to the unusual height and high influx of light inside</li><li>- The general congress rooms have become the greatest manifestation of the union between light and architecture</li><li>- For the first time, light has played both a structural and a decorative role.</li><li>- Transmitting light, creating brightness, and increasing transparency in the environment</li><li>- Soften the light and prevent annoying light radiation</li></ul>	<ul style="list-style-type: none"><li>- Providing interior light</li><li>- Reduce the intensity of sunlight and heat</li><li>- Natural heating based on the natural elements of light</li><li>- Paying attention to light as a source of light in mosques with degrees from the strongest to the weakest</li><li>- Transparency and light reflection</li><li>- Receiving concepts such as sense of presence, movement, concentration, etc. through darkness and light without verbal communication and direct relationship</li></ul>	

Table 1. Comparative study of the characteristics of stained glass of Gothic and Sash (Orosi) art

Structure	Feature	Colored Stained glass	Sash (orosi)	Technique	Feature	Colored Stained glass	Sash (orosi)
	Spatial continuity	*	*		Design the desired pattern	*	*
	General Congress Rooms	*	-		cutting	*	*
	Arc and crescent openings	-	*		Lead weatherstrip	*	-
	Aesthetic sense	*	*		Connecting metal section with H-shaped to each other	*	-
	Achieving architectural goals	*	*		Welding after assembly	*	-
	Achieving artistic goals	*	*		Glazing	*	-
	Vision control	*	*		Use in space for doors, windows, ceilings, etc.	*	*
	Beauty in the facade of the building	*	*		Patterning by molding	-	*
	Privacy	*	*		Tools	-	*
	Get rid of annoying insects	*	*		Horizons and bolt	-	*
	Psychology of colors	*	*		Picking node	-	*
	Audio transfer in hexagonal forms	*	*		Connection by wood	-	*

Table 2. Similarities and differences between stained glass and sash making (Orosi-sazi) of the Qajar period in terms of structure and technique

Patterns	Feature	Colored Stained glass	Sash (orosi)	material	Feature	Colored Stained glass	Sash (orosi)
	Geometric patterns	*	*		Glass	*	*
	arabesque patterns	-	*		Sandblasted glass and acid wash	*	-
	Abstract motifs	*	*		Opal and painted glass	*	-
	Plant motifs	*	*		shaved glass	*	-
	Animal motifs	*	-		Refraction of light with glass in the form of diamonds	*	-
	Human motifs	*	-		Lead and wire components	*	-
	Bird motifs	*	-		Wood	-	*
	Use of text	*	-				
	Narratives and Bible pictures	*	-				

Table 3. Similarities and differences between stained glass and sash making (Orosi-sazi) of the Qajar period in terms of designs and materials

Light	Feature	Colored Stained glass	Sash (orosi)	Color	Feature	Colored Stained glass	Sash (orosi)
	Excessive influx of light into the building	*	*		Yellow	*	*
	The decorative and structural role of light	*	*		Red	*	*
	Brightness and transparency in the environment	*	*		Blue	*	*
	Soften the light	*	*		Green	*	*
	Reduce the intensity of sunlight and heat	*	*		Brown	*	-
	Natural heating based on light						
	Sense of presence, movement, and concentration						

Table 4. Similarities and differences between stained glass and sash making (Orosi-sazi) of the Qajar period in terms of light and color



## 8. CONCLUSION

Asking about the relationship between this trend in Iranian architecture and its roots can be helpful in a better understanding of Iranian art. Undoubtedly, understanding such studies can rich our knowledge on Iranian art. The present study aimed to identify intercultural links in Qajar era art with elements borrowed from Western culture and also deeper understanding of the stylistic and cultural roots of Qajar period sash making (Orosi-sazi) and in the field of relationship between sash (Orosi) and Gothic stained glass, and investigate the possible relationship between Qajar period sash making (Orosi-sazi) with Gothic stained glass and examine the similarities and differences between them in terms of technique, structure, patterns, color, material and the effect of conceptual factors such as light through the adaptation of examples (church Charter and Salaar Saeid Mansion). It seems that since the tradition of using colored glass in Iran is mostly borrowed from Christian culture, it is natural that, like any kind of cultural borrowing, most of its foundations are rooted in the culture of origin, but as the rich cultural background of Iran shows the imported items are undoubtedly transformed into a tangible change in Iranian culture and form new types of art.

The most obvious manifestation of this cultural transformation can be seen in Iranian painting, in which one can carefully see the influence of the art of different lands from Western Christians to Eastern Chinese. In the field of colored glass, these components can be re-identified. Another issue is that the stained glass of the Gothic period and the sash-making (orosi-sazi) of the Qajar period are the most similar in terms of structure and form, color, and the effect of conceptual factors such as light, and have the most differences in terms of technique, patterns, material. Although it cannot be conclusively proven, according to the findings of this study, it can be concluded that the art of sash making (Orosi-sazi) in the Qajar period is a continuation of the same stained glass, because in the Safavid period with significant changes following Iranian-European relations, the presence of Venetian glassmakers,

sending students to France (Western), hiring European engineers and architects, etc., the ruling traditions of the society faded to some extent and instead, the modernist tendencies and modernist culture of the West peaked. During the reign of Nasser al-Din Shah Qajar, the developments and currents of modernity that had begun in society became more pronounced and wider. The art of colored stained glass also appeared in Iranian art and architecture during the same period with the presence of Europeans and has been influenced by Iranian art. Iranian artists, for their part, made changes to the colored stained glass, one of which was a change in their designs, which was due to the prohibition of painting and the dislike of imitating human and animal patterns in the visual arts, they replaced those with geometric combinations, plant patterns, and abstract arabesque patterns. The use of colored stained glass in architectural decorations, although it is completely European art, in Iran also created original and traditional art, which is known as the art of Girih tiles, and the best examples are the art of sash making (orosi-sazi) in the Qajar period.

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