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A Survey on the Decorative Patterns of Silhouette Pottery and its Comparison with Metal Vessels of the Seljuk

Ali Behnia[1] and Maryam Mohammadi[*,1]

[*]*Corresponding Author ,*[1]*Department of Archaeology, Bu-Ali-Sina University, Hamadan, Iran.*

E- mail: m-mohammadi@basu.ac.ir

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Abstract

Silhouette Pottery, formed due to the developments of the 12th century, was largely influenced by the slip-painted pottery of the second half of the 10th century and early 11th and also the technique of Sgraffito Pottery. Silhouette pottery motifs mostly include motifs of animal, plant, geometric, human, inscription and imitation of other works of art of the previous period. Some of these motifs were used as the main image on the body, while others were used only to fill the background. The scientific method used in this research is a descriptive-analytical method and data collection has been done through library research process. This survey is an attempt to answer the questions whether it is possible to identified , determine and introduce the range and vastness of the influences and effects of the dominant arts in the previous eras through examining the similarities and differences between the two arts of pottery (shade) and metalwork in the 10th -12th century and also to know if the political and economic power that ruled the society of this period had been able to be effective in creating new ways of embroidering and decorative techniques of these two arts. It is also going to determine what kind of motifs is introduced by the decoration created on the shadow pottery and to identify different kinds of the Shade pottery during the archeological studies and finally the main centers of its production. The purpose of the present survey is to conduct a research and study on the Silhouette pottery in terms of technique, patterns and to compare its patterns with the patterns of the metal works of the same period. Kashan, Rey, Gurgan (Jorjan), Neishabour and Syrjan can be named as the important centers for making Silhouette Pottery. It was also shown in the present survey that there are 8 different types of Silhouette Pottery including cup (beaker), stoup (flagon, ewer, pitcher, jar), bowl, vase, small crock(vat), plate, bottle and drinking cup. The results of the present research also showed that there is a relatively good variety, attractiveness and beauty among the themes of metalworking and pottery, plant and animal motifs. Yet, animal motifs are considered to be more sacred due to the arrival of the new people in the 10th to 12th centuries CE.

Keywords: Typology of Silhouette pottery, Metalwork of the 10th to 12th CE., Silhouette Pottery, Slip-Painted Pottery of the 10th century

Article Type: Research Article

Introduction

Art flourished dramatically during the 10th to the 12th CE. due to the government stability and the support of the kings and princes of this era. This period is considered to be one of the golden ages of the Islamic art. Because of the extensive trade with the Far East, especially China, during this period, most arts including pottery had the proper opportunity to be developed and consequently led to the growth of many arts. The emergence of the white bodies called stone paste is one of the results of these kinds of connections. The development that took place in pottery during this period and caused its development is the one which is called the Silhouette pottery technique. (Shreveh 2006: 79). Silhouette pottery is affected by slip-painted pottery of the second half of the 10th century

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and the early 11th and the scratching or Sgraffito technique in the previous period. The engraving of black slip-painted pottery under the turquoise ivory glaze on shaded pottery has created various shady patterns, including human, animal and plant motifs (Tamadon 2007:63). The growth of pottery in the 10th to the 12th CE. also led to the creation of new techniques in this art, including the fact that most of these motifs were influenced by the art of engraving and hammering of the previous period and many others are influenced by the culture of the religion and literature of the people living in that period. Silhouette pottery is one of the best examples of the pottery in the 12th century CE, which has been replaced by glaze painting. Seljuk metalwork is another art of this period that has reached the peak of its development and is a considered to be a reflection of the society in which it has been created (Tohidi 2011:48). Lifestyles, intellectual pursuits, as well as the ideals and aspirations of the patrons, supporters and rulers, are all expressed through the function and the value of the objects which they used. Decorations and motifs have been meticulously and cleverly engraved on the metal and pottery surfaces and express messages with elegance (Mousavi Hejazi *et al*. 2002: 69). Considering the limitations arising from the advent of Islam in Iran, the decorations and motifs of the Silhouette pottery along with the Metalwork of the 10th to 12th CE. should be regarded as the continuation of the art of decorating Sassanid metal utensils. In the decoration of Silhouette pottery and metal utensils, in general, animal motifs are considered with two perspectives of naturalism and on the other hand symbolism as the manifestation of many sacred things. These motifs appear more frequently and significantly in the 11th to 15th CE. than the preceding and following periods, during which the role of the Seljuk government as supporters of art appears to be more significant meanwhile. The purpose of this study is to have a survey on the patterns of the Silhouette pottery and compare it with the patterns of the metal vessels in the Seljuk period. Therefore, this survey is going to answer whether there is a possibility to identify, introduce and determine the scope of the influence of the dominant art in previous eras through determining the similarities and differences between the two arts of Silhouette pottery and metalwork in the 10th to the 12th CE. and whether the governing and dominant political and economic power that ruled the society of the Seljuk era was able to be effective in creating new ways of embroidering and decorative techniques of these two arts.

Methodology

The present study belongs to the fundamental type which is based on the study of the works of the 10th to the 12th CE.in terms of studying the construction techniques and existing patterns on pottery. Library method and the use of valid reference books and index examples has been employed in order to search for the materials and case examples to compare and match the works. Then the works and the findings have been surveyed with a descriptive-analytical approach.

Review of Literature

There are some studies and surveys about the Silhouette pottery in pottery books of the Islamic period including "Nishabur"(Wilkinson 973), *Islamic Ceramics (Ashmolean-Christie's Handbooks)" (Allen, 2004), " Islamic Pottery ("Grube 1976)* and "Ceramics form the Islamic Lands" (Watson:2004)and articles *"Study and Analysis of Flourished Pottery from Archaeological Excavations in the Historical Site of Gurgan (Jorjan) during 2002-2005" (Mortezaei & Kiani 2008) "Study of Islamic Pottery Excavated in the Meshkin Tappeh Hill Area of Parandak in Markazi Province* "(Mahjoor and Sedighian 2012) *"Islamic Era - the Ancient City of Jiroft"* (Chubak 2012),""*Typology and Introduction of the Baluchistan Pottery of the Islamic Period* "(Mousavi Haji *et al.* 2013)," *A Survey on the Motifs of Pottery of the Silhouette Species (Middle Ages) Based on the Collection of Bonyad Museum* ("Haji Tabar 2016) , *"Seljuk and Its Importance in Iranian Culture* ("Mahboubi and Tandi , 2016). *"Introduction and Analysis of Pottery of the Islamic Period in Zino Abad Area of Bahar, Hamedan"* (Mohammadi & Shabani, 2016), *"Archaeological Study of Medieval Islamic Pottery in the Underground Basement of Dastkand Tahigh Khomein"*(Sharahi & Sedighian 2020), *"Archaeological Study of the Pottery of the Islamic period of Ghaleh Sang Area; Old City of Syrjan* "(Amir Hajiloo & Sedighian 2020),*"A Survey on the pottery of Zolf Abad Area ("Nemati et al. 2010) "A Survey and Analysis of Typology of Pottery from the Beginning of the Islamic Period to the End of Safavid Dynasty in Hamedan"* (Zarei *et al*. 2020) and *"A Survey on the Pottery of the Islamic Era*

in Ghorveh Plain, Kurdistan Province" (Sharifi *et al.* 2020) which introduce and study this type of pottery, but there has been no comprehensive scientific activity in this regard so far. Therefore, it is necessary to have a brief discussion on the decoration techniques, construction centers and the thematic content of the designs of this pottery the thematic content of the designs of this kind of pottery.

Pottery in the Seljuk Period

Due to the political unity in the tenth to the twelfth CE., a common language of art emerged and various arts reached to its excellence. The effective factor on the cultural growth of this period was the influence of the Iranian culture on the Turk and their inclination to the Persian art which influenced the original art greatly (Hatam 2000: 12). Paying more attention to the artists led to the creation of works of art to attract the rulers' attention and they used a variety of colors and delicacies in order to have effective influence on their audiences including rulers' motifs sitting on the throne with the royal servants and hunting grounds, the use of the motifs and pictures of animals such as lions, peacocks and mythological combinations of griffin (Ettinghausen 2003: 495) the motifs of princes and rulers in the garden and drawing their pictures on pottery works to make these rulers and princes happy and gain their support and attention more (Zaki 2009: 175) The support of some of these kings including Malik Shah by removing the tax on trade in 1085 CE. increased the prosperity of art (Ravandi 1999: 118). The development of the artistic and visual products emerged due to the support of courtiers and the upper strata of the society (Brand 2004: 159).

The most important change in the pottery industry of the tenth to the twelfth CE. was the invention and introduction of a kind of white glass paste for making pottery, which was almost similar to the Chinese soil of the Song Sung period, enjoying a great reputation in the pottery in the Middle East.

In the pottery of this period, the use of Frit ware, also known as stone-paste, a type of pottery in which frit (ground glass) is added to clay to reduce its fusion temperature, and alkaline glaze coating caused the production of various glazed and unglazed dishes, lusterware, with molded decorative methods, under glaze wares, monochrome glaze, lusterware, Minaiic wares (Enamels). (Hillenbrand1994:142).

Background of Making Silhouette Pottery

The meaning of the word Silhouette originated from French language is an image, an outline or a black profile, filled in with a featureless solid dark color, especially of a person's head on a white background (Dimand 2004: 173). The definition of the word "Silhouette" in Persian includes something representing, reflecting and indicating shadow. These dishes have become famous by this name because they have created a shadowy state with black and without details under the transparent glaze. Transparent glaze creates a shady state and is known by this name.

In the 12th century CE, the use of stone-paste consisting of various materials such as quartz powder, soft white soil and potash (Grube 2005: 129) provided a white substrate for decoration and background of a wide range of motifs (Watson, 2004: 303). One of the main centers of stone paste production can be named Kashan (Brand 2004: 86). Neishabour, Samarkand and Jiroft, Moshkoyeh Zarandieh and Bamyan can be considered as the other centers of stone paste (Grube 2001: 2005). Another development of the pottery in this period is using the alkaline glaze instead of the lead glaze which has been used due to its adaptation to the items composed of the stone paste (Sherveh, 1999: 80). This glaze caused creating a turquoise blue color on the surfaces of the pottery (Wilkinson 2000: 141). Being soft and being able to be scratched are among the properties of this kind of glass glaze (Sherveh 1999: 80) Among the dishes produced with the stone paste are those known as sylvite dishes characterized by being colored all around (Grube 2005: 129) which is the same pottery which according to Watson is the sign of passing from the traditional stage of construction to the new stage (Watson 2004: 334). The decorative style of the silhouette pottery has all the structural features of the chiaroscuros ceramics and the only difference is in the use of the different decorative method in these dishes and vessels. In this method, the pottery was glazed with two colors of blue and black. Then, the upper glaze was shaved in order to engrave the object based on the plant and geometric patterns, and at the end, the object or dish was covered with a clear alkaline glaze. In this way, the decorative motifs of the lower glaze appeared on the object or dish. In the silhouette style pottery, the potter decorated the vessels using the method of shaving on the glaze instead of painting them. (Zarei and

Shabani 2019: 109).

There are two types of engravings in this type of pottery: *slip-painted pottery and painting under the glaze;* for Slip-painted Pottery, first the item was covered with a thick layer of crust in a way that all or part of the outside of the dish was covered thoroughly, then the desired parts were removed through the engraving process until it reached the white surface. In this method the engraving process was in reverse. By cutting and removing layers, embossed surfaces were created, which after painting, the ultimate goal was creating the motif. Painting under the glaze was done through using the black color on a background of turquoise blue color. (Watson 2004:334).

Silhouette Pottery Manufacturing Centers

Kashan, Rey, Gurgan (Jorjan) and Nishabur and Sirjan in Iran are important centers for making this pottery. Based on archeological excavations carried out during the last few years, it seems that the Zolf Abad, Tahigh Khomein, Moshkoyeh, Meshkin Abad and Aweh area can be considered as the other places in which a large number of the silhouette pottery have been obtained and excavated in addition to the above main centers.

Zolf Abad: During the excavation of the first phase in Markazi Province, pieces of the silhouette pottery were found related to the narrow mouth containers and vessels. The paste of this kind of pottery is white ferrite[1] and the geometric decoration of the chiaroscuros is black and turquoise. This decoration is one of the most widely used types of glazed pottery in this area and has been executed in the form of wide and narrow mouth containers and even lids (Nemati *et al.* 2012: 128).

Tahigh: Located in the city of Khomein: In this area, several samples of this type of pottery with the shape of a narrow mouth were identified, which have inscriptions with script and simple geometric patterns of a black stripe under the turquoise glaze. This decorative style was generally very popular in the twelfth century AD and its most important production center is probably Kashan (Sharahi & Sedighian 2020: 141).

Moshkoyeh or Meshkin Tappeh: Located in Parandak, Markazi province: a number of silhouette pottery have been reported that have geometric and even plant decorations and its shapes include bowls, plates and jars (Mahjoor & Sedighian 2009).

Rey is one of the major centers for the production of Silhouette pottery. Rey style has an almost different method of decoration and production from the other centers. The subjects used in this center for decoration can be called the motifs of riders, feast scenes and hunting, mostly designed in the pottery center (Tohidi 2006: 273). Nechir Khanlugh site is one of the most important sites of the Islamic era in the city of Rey. During the study of the pottery of this area, among the glazed pottery, the silhouette pottery in the form of narrow mouth vessels with quasi-porcelain paste can be seen and only one wide mouth piece of pottery has been observed among the surface samples (Mahjoor *et al*. 2011: 174). In the field of silhouette pottery, the outer surface of the container or vessel is covered with slip-painted technique and then the surface of a part of the slip-sainted pottery is lined with vertical grooves. After this, a layer of a clear turquoise glaze is painted on the pottery. Therefore, such pottery with two colors of black and turquoise can be seen in this area (Grube 2005: 129; Mason 2004:132). Since the twelfth century CE, it has played an important role in the history of the Islamic pottery (Fahrouri 2009: 137).

Gurgan (Jorjan): Another center for making Silhouette pottery, which has led to the discovery of a number of silhouette pottery in the excavations carried out. Silhouette pottery with the motifs of humans, animals, birds and plant were produced in this city as goods for trade and sometimes even written motifs on shadow pottery have been produced in this center. The shape of the dishes and utensils include bowls, vases and jars (Mortezaei & Kiani 2008:157).

Kashan is another center for making Silhouette pottery in which mostly human motifs specially the Mongolian face with round face and stretched eyes were the dominant motifs. The shape of dishes in Kashan was generally cups, pitcher and jars (Ettinghausen *et al*. 2003:516). Most of its writings are in the Kufic script and cursive Taliq script on the edge and sometimes in the middle of the dishes including quatrains and proverbs of the great poets. (Chit Sazian & Saadat Mir Ghadim 2014).

Sirjan: Another group of pottery identified in the area of Ghaleh Sang or the ancient city of Sirjan includes pottery under the glaze known as silhouette.

[1]Another name of this paste includes tile, faience clay paste, quartz frits, artificial paste (Mason & Tite 1994: 77)

Since the end of the twelfth century CE, especially during the 13th and 14th centuries, its production and application have been very popular in this region (Sohrabinia and Taghavi 2020: 157). Painting under the transparent glaze and the silhouette of the Ghaleh Sang located in the ancient city of Sirjan can be divided into several different groups:

A: Painting under the transparent glaze of two colors of black and cobalt-blue in white painted-pottery with quasi-porcelain paste (Amir Hajiloo 2015: 241) .

B: Painting under the transparent glaze of two colors of black and turquoise in white painted pottery with reddish Pale goldenrod clay paste

C: Painting under the black monochrome glaze with quasi-porcelain paste (Amir Hajiloo 2015 : 242).

D: Painting under the black monochrome turquoise glaze with reddish Pale goldenrod clay paste and

E: Decorating the silhouette under the turquoise glaze with quasi-porcelain paste.

Potteries of the group A, C and E were mainly produced in the first half of the 12th century CE. But the potteries of the other two groups of this area including B and D groups have a lower construction and polishing technique and only simple geometric patterns have been used in them. They may have probably been produced in several centers, one of which may have been in the old city of Sirjan (Amir Hajiloo and Sedighian 2020: 166).

Nishabur: Some researches have been done on the silhouette pottery in the northeastern part of Iran. Major research on Nishabur classifies and introduces the types of the potteries that also have some references to the silhouette pottery. The silhouette pottery with the motifs of humans, animals, birds and plant have been produced in this city. Sometimes even written motifs on the silhouette potteries have also been produced in this center. (Wilkinson 1973: 434; Wilkinson 1947: 276; Hauser & Upton 1937).

Typology and Classification of the Silhouette Pottery Wares

There is currently no specific coherent classification and typology of the forms and shapes the silhouette pottery. The archaeological studies and excavations described in the above section have led to the identification of several species of this type of pottery in the twelfth century CE. Therefore, using authentic sources, the following types and shapes and classification of the potteries were identified. According to (Table 1), the eight types of this kind of pottery including cup (beaker), stoup (flagon, ewer, pitcher, jar), bowl, vase, small crock(vat), plate, bottle and drinking cup have been identified and classified, which have also been studied according to (Table 1).

1. Cup (beaker): featured by a long and round base, concave body, smooth edge and turned outwards, usually decorated with blue color.

2. Stoup, Flagon, Ewer, Pitcher: made of glass paste, with a concave circular base, spherical body, short cylindrical neck, turned outwards, with a decorative handle and groove on the body. The handle is vertically attached to the shoulder from the side of the mouth and has the decoration of the grooved lines, the used decoration is in writing and in the form of Kufic script. This pottery is decorated with two colors of blue and black under the glaze.

3. Bottle: This bottle is decorated with a wide stripe pattern on the body and also flower and bush screws. Its body is a tall oval vessel with a short neck and a small round handle that rises directly to the mouth in the form of a ring. This form of vessel has often been used in metal-painted ones (Grube 1976: 233)

4. Bowl: It has a long, round, concave base, an elongated body that is vertical near the edge. The smooth and decorative edge used includes Islamic motifs in the form of Islamic, Khatai(heliotrope), chain flowers and leaves, and flowers and screws. This pottery has most of the species and the form of the shadow facade.

5. Carafe: It has a long, round base, a spherical body and a neck, which is divided into two parts, first in a cylindrical shape and then in a spherical shape with a smooth edge at the top. The motifs for decorating this type of pottery are mostly animal and bird. This type of pottery is decorated with two colors of blue and black under the glaze.

6. Small crock, Vat or Jar: This type of pottery with a long circular base, large spherical body, inverted edge, is decorated with two colors of blue and black under the glaze.

7. Plate: There is a suitable space for decorations due to the wide interior of the plate. These motifs include bird, plant and animal ones, but human motifs in the riding and playing mode have the largest share in decorating this type of the silhouette pottery. (Dimand 1987: 154)

8. Drinking Utensils: Almost the whole body of this

small and delicate cup has a hinged decoration at the top and vertical strips at the bottom. The edge of this dish turned outwards and the lower ring of the base has no glaze. They have been used for drinking water. (Grube 1976: 187)

Silhouette Pottery Decorations and Motifs

Patterning on pottery and its decoration achieved many advances during the Islamic period. Patterning on pottery and tiles has been one of the most important and favorite decorations of potters during all the Islamic periods. This subject was formed under the influence of culture and literature and has given beauty and special effect to this traditional Iranian art at one time, (Hamzeh Lou 2002: 138). Iranian potters have always had and used a wide range of common themes in all Iranian arts such as animal, bird, plant and human motifs. Silhouette pottery in decoration is no exception to this range of designs and possessed and benefited from all the elements that were executed and used on pottery of the Islamic period. (Mahboubi and Tandi 2016: 1169). Artists in the 12th century CE. were inspired to decorate pottery of any relief and three-dimensional figures, epic and mythical scenes and stories on different vessels including gold and silver ones and used it skillfully in their works. Many of the designs created in Silhouette pottery shows the influence of engraving and hammering motifs of the Sassanid period and a reflects a return to the mythological stories (Tandi 2016: 1170) while some other motifs reflect the religion of that time. In many designs the presence of the weaving industry is also evident (Dimand 1987: 121). The themes of decorative elements in the Islamic era can be divided into five parts: plant motifs, human and animal images, written and geometric arrays (Zaki 2009: 241). Decorative patterns on Silhouette pottery in the form of human, animal and plant motifs, geometric, written motifs and calligraphy in the form of decorative motifs that have been executed on the mentioned potteries. The potter often painted on silhouette pottery scenes of feasting, courtship, and hunting that covered the entire surface of the pottery. (Tohidi 2007: 273) There are parallel lines, flowers and plants and sometimes Persian poems below the edge and on the body of the potteries in the decorations under the glaze of the outer part of the pottery. The decoration of the interior of this type of utensils is very diverse and the potter used different designs for decoration (Karimi 1985: 35).

Plant Motifs

Plant motifs approached nature more than other styles in the Islamic era (Mohammad Hassan1998: 239). Plant designs of dishes became more delicate in the 10th to the 12th CE. and were used for decoration by filling the surface of the dish, background and margins (Ghavidel 2003: 169; Abbasian 2000: 90). But sometimes in some potteries, plant motifs can be seen without the presence of other elements and plays the main role of decoration. In these potteries, the style of 4 to 6 divisions is often used for plant decorations and sometimes these motifs are scattered throughout the dishes. Lotus leaf and bud designs are the most common motifs used in silhouette pottery which have been admirably organized (Pope *et. al*.2008: 1845). In addition to the direct influence of nature, the motifs of metal utensils and bedding of that period are also inspired in many of the motifs used in the shady pottery (Pope *et al.* 2008: 1847). Among the plant motifs used in the silhouette dishes, we can name the Khatai, Islamic, chain and flower and the Islamic designs of the vine design mostly embossed on the sides, inner and outer bodies of the dishes.

Animal Motifs

Animal motifs have been common in the Islamic period for a long time and horseback riding and hunting images have been mostly practiced based on the martial and festive stories inspired by epic and literary stories as well as religious beliefs. The motifs of birds such as Simurgh, hoopoe, lapwing, pewit, phoenix, pigeon and other birds has been inspired by the poems of poets such as Ferdowsi and Khayyam. For example, the flight of birds is a symbol of human flight (Kiani 2000: 68). The motifs of other animals such as deer, rabbit, peacock, goat, duck and other animals can be seen on the dishes of this period. These designs are very similar to the designs of the Sassanid period in terms of shape technique. Inspired by metal artists, Seljuk pottery artists designed animal shapes in such a way that, like metal utensils, they filled the surrounding of the animal patterns with other designs, including Islamic and plant motifs (Ghavidel 2003: 180) One of the common animal motifs of the Sassanid period is the motif of the animals which are running. The motif that has been used commonly on Islamic

Table 1: *Typology of Silhouette Pottery*

No	Type	Silhouette Pottery	Image Source and Design
1	(Cup (beaker		(After: Haji Tabar, Bonyad Mostazafan Museum 2016)
2	Stoup, flagon, ewer, pitcher		(After: Watson 2004)
3	Bottle Stoup, flagon, ewer, pitcher		(After: Grobe 2005:233)
4	Bowl		(After: Watson 2004)
5	Carafe		(After: Bonyad Mostazafan Museum, Authors: 2021)
6	Small crock, vat or jar		(After: Haji Tabar, Bonyad Mostazafan Museum 2016)
7	Plate		(After: Watson 2004)
8	Drinking utensils		(After: Watson 2004)

pottery in the third and fourth centuries (Changiz & Rezaloo 2011: 39). In this period, the motif of deer is another symbol of beauty, dignity and liberation (Mortezaei & Sedaghatizadeh 2012: 53). The role of the pottery in this period shows Iranian art and its special place. Another motif used in Seljuk pottery is the image of a horseman, which was transferred from the Sassanid period to the beginning of Islam by changing its shape, forms and decorations, and then in later periods it has been used on dishes (Ghavidel 2003: 178). The motif of the rotating movement of the horsemen in this period has given the dishes a cosmic, fancy and heavenly state (Ettinghausen 2008: 515) Among other animal motifs, the role of birds on the dishes of this period is more significant, especially the Silhouette pottery dishes, because it is a symbol of optimism, peace and friendship. A bird is a metaphor of soul and spirit, so the bird is often associated with divinity, eternity and the power of glory and courage (Vesal 2007: 90). One of the common animal motifs in the Sassanid period is the role of facing birds, which will become common in the later periods too.

Human Motifs

Human motifs are among the common motifs on pottery works of arts which are of great importance. Human imagery on Islamic pottery works of arts began to appear in the 10th to 12th centuries CE, but its evolution dates back to the sixth and seventh centuries, the period of the Seljuks and Anushtegin dynasty. Most of the human images used in the artistic decorations of Iran show the aspects of court and royal life (Zaki 2009). Most Seljuk potteries with human images have the Sassanid origin and in fact they are considered to be an imitation of the Sassanid vessels. In addition, many other human motifs of the 10th to the 12th CE. are inspired by the mythological stories and texts of the Persian literature (Mohammad Hassan 1984: 278), but these motifs are not abundant in Silhouette pottery and are mostly seen under the ivory glaze (Katoui Zadeh 2014). Silhouette pottery artists in human motifs mostly depicted scenes of dancing, playing and hunting (Tohidi 2011: 41) Sample of human images are seen less in this type of pottery than the other motifs. The human motifs of the Silhouette pottery in most cases are seen singly or in pairs without details and most of them show the Mongolian figures as the main motif observed in the bottom of dishes such as plates and bowls. Around the human motifs, Silhouette pottery or other motifs are usually decorated with plant and geometric motifs to fill the background.

Legendary Motifs

Mythical motifs are other common motifs in the Islamic pottery and Silhouette pottery. These motifs include sphinx, griffin and harpy. Integrated creatures have been used in almost all art periods of Iran, and in fact, the artist tries to collect several symbolic concepts in one animal by combining special features of several animals. According to the definition of Dehkhoda, Sphinx is a proper noun /name from the Latin word Sphinx and the special name of the Greek Sphinx which is an imaginary animal which is embodied in ancient Egypt and Greece with different physiques (Dehkhoda 1951:349, under the word Sphinx). In Greek mythology and art, the sphinx has been considered a malicious creature and the cause of ruin and misery. (Hosseini 2012: 49). These mythical creatures have been the symbol of the guardians of temples and government crowns (Riyazi 1996: 98). Sphinxes are often designed in the outer wall of the vessels in a row or one after the other in vertical or horizontal way more vivid from the profile perspective in Silhouette pottery (Hosseini 2012: 50).

Written Patterns

The other important elements that are manifested significantly in the Islamic art are the written motifs and calligraphy. Decorating dishes with calligraphy and writing elements was first commonly used in the early Islamic centuries using the Kufic script, then due to the tendency to simplicity and the replacement of the usual decorations of the Sassanid period by the Kufic script, it is considered as the most important factor in the decoration of the pottery and the metal utensils produced in that period (Mahboubi and Tandi 2016: 1174). The use of written motifs in the 10th to the 12th CE. reaches its peak and the Kufic script tended to be replaced by the Thuluth and Naskh scripts, two kinds of Arabic scripts. Calligraphy is inspired by religious beliefs and tendencies and is formed under the influence of literature and manifests itself in art (Abbasian 2000: 91) The calligrapher often has the themes of good prayers for the owner of the goods (Brand 2004: 86). It usually includes wishes for health, goodness and blessing, good prayers, epic

poems and mysticism, myths, advice, quatrains, etc. (Katoui Zadeh 2014: 78) The lines used in shady pottery are in the form of Kufic and cursive Naskh scripts (Fehervari 1973: 82).

Metalworking in the Seljuk Period

The special style of metalworking in Islamic Iran was seen for the first time in the 10th to 12th centuries CE. (Spuler 1990: 21). In this period, metalworking industry and art, like other techniques, have passed the path of perfection. This period, extending to all parts of Seljuk-dominated territory, provided a significant opportunity for artisans and artists to exchange ideas and interact artistically. (Ferber 1975: 94) The economic and social contexts of many large cities of this period indicated the large and notable communities of artists. Industrial regions in cities such as the Great Khorasan (Neishabour) has remained in the late fourth to sixth century AH (Tohidi 2007: 58). In general, art in the 10th to 12th centuries CE. acted in a civilized manner. The contemporary people during this period did not bring new custom arrays; however, they accepted the current state of the art and employed designers and craftsmen in their new realm (Pope 2008: 169). Metalworking in the 10th to the 12th CE. enjoyed the same grandeur and glory known as the specifications of the industrial works and metalworking in the Sassanid period and adapted themselves to the Seljuk taste and nature. (Zaki 2009: 257). Seljuk artists mostly used the images and scenes with the Sassanid origin which appeared and lasted for a long time on this period's dishes and utensils and were common in the area until the sixth century AH. (Hamzeh Lou 2002: 87) The Sassanid rules and customs of placing an animal in a round frame was still current and continuous decorative friezes with the animal motifs became more important than ever (Pope *et al.* 2008: 180) Thuribles, jugs and other metal tools such as horse leaves and saddles were all decorated with shapes of animals and birds (Ayatollah Zadeh Shirazi 1983: 170). In addition to thuribles and other utensils, the shapes and sculptures of these small animals were also used on the outer surface the umbrellas of the rulers and the handles of utensils and lanterns. (Zaki 2009: 257). In this period, Khorasan had a special excellent position and a significant priority in the field of metalworking, perhaps because of the fact that this area was the largest center for the preparation and manufacturing bronze vessels and their decoration in the forms and shapes which were in accordance with the method of the ancient Iran or the Sassanid Method in the Samanid period (818-998 CA). The major metals used, as in other post-Islamic periods, included gold, silver, copper, iron, lead, tin, and so on; however, most of the products of this era were made of bronze and brass in Islamic countries and in Iran (Razani *et al.* 2010: 56 & 57). Jewelry making has flourished in this period and most of them are made in the form of animals and birds, because the love and interest in drawing animals is one of the artistic features of this period (Nowruzi Talab *et al*. 2010: 124-115) and most of them were made for elders and princes (Razani *et al.* 2010: 57). In general, it can be said that most of the metalwork decorations of the Seljuk period, which mostly included products used for public life, especially the court, are animal and plant decorations, respectively (Razani *et al.* 2010: 126). Even the Seljuks used animal shapes to decorate their lines, and the Kufic letters were used to end in the dishes of the animals' heads (Pope 2008: 84). A mirror frame reminiscent of the story of Bahram Gur and Azada (in Shahnameh), around its outer circles, faces of hawks, foxes, peacocks can be seen (Pope 2008: 85). Harmonious animals have followed each other and their bodies have become more elongated than previous performances (Pope *et al.* 2008: 171).

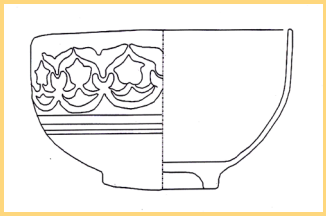
Comparison of Silhouette Pottery Designs with Seljuk Metal Work Designs

The Seljuk Turks were originally from the nomadic Turkmen tribes who migrated from the Kyrgyz regions located in the Central Asia and settled on the Iranian plateau and established a strong government ruling a wide territory including Iran, Mesopotamia, and Asia Minor. Seljuk entered Iran along with a zoology and naturalism background hidden and covered in a form of religious beliefs and focused on a type of decoration which was very active in people's mind and culture and had a strong historical, social and cultural backgrounds. This is exactly the same idea that was used in the construction of pointed tombs taken from the pointed tents of these tribes or in the blue color of the original tiles, which is somehow derived from the blue color of a kind of canary seen in the sandy desert which used to be the accommodation of these people. (Hill, 1996: 22). The decorative designs in the 10th to the 12th CE. are copies of the designs of the metal works of the Sassanid period in the 10th

and 11th centuries CE. After the potters has mastered the techniques of the alkaline glaze and glass paste, they began to make Silhouette pottery and used other art designs to decorate this type of pottery. Using the patterns of the metal utensils were considered more than other arts by the potters in this period. Based on the conducted researches and the studied on 30 samples of the shadow pottery and museum metal objects, it was found that there are similarities and differences between these two arts in terms of patterning which will be briefly discussed. There are animal, human, written, geometric and plant motifs among these repetitive motifs in the shadow pottery and the metal utensils. Animal motifs mostly include goats, deer, stags, horses, gazelles and birds. *Animal motifs* in both arts are more at the center of the designs and are sometimes arranged in a circle or in front of the image, although the image of a horse is more at the center of the design. The image of birds on the dishes of this period, especially the shady dishes, were considered to be a symbol of optimism, peace and friendship. Hence, the bird was often associated with divinity, eternity, and the power of glory and majesty. One of the common animal motifs in the Sassanid period is the image of facing birds, which is also common in the following periods, which can be clearly seen and visible in both the arts of shadow pottery and metalwork in the Seljuk period. Human motifs are more in the center of the gravity in the works of arts and most of these human beings were designed and engraved on the silhouette and metal utensils while they were playing, riding, feasting and were in the court scenes. Human images are less common in Silhouette pottery than other motifs. The human role of Silhouette pottery is often seen individually or in pairs without details and are mostly Mongolian figures as the main role in the bottom of dishes such as plates and bowls. Human motifs or other motifs in the Silhouette pottery have generally been surrounded by decorated by plant and geometric motifs to fill the background. *Written designs* Calligraphic writing often has the themes of good prayers for the owner of the goods and includes wishes for the health, goodness and blessings, good prayers, epic poems and mysticism, myths, advice, quatrains, etc. The lines used in the shady pottery and metal utensils of the 10th to the 12th CE. are in the form of Kufic and cursive Naskh scripts. Of course, these lines were mostly carved skillfully by the potters on the neck or body and inside wide dishes such as plates. *Plant designs* are mostly in the form of plant flowers, which were used in combination with other designs. Geometric patterns have been used to fill empty spaces on different dishes based on the taste of the potter or metalworker. In addition to the direct influence of nature, many of the motifs used in the Silhouette pottery are also inspired by the motifs of metal utensils and bedding of that period. Plant motifs used in silhouette dishes include designs such as Khatai(Lotus motif with buds and leaves Arabesque traceries, chain flowers and leaves)Arabesque vine design, which are mostly engraved on the neck and shoulders, inner and outer body of the dishes. The same plant designs that were used in decorating Silhouette pottery can be seen in the metal vessels of the 10th to the 12th CE. (Table 2).

Table 2: *Comparison of Silhouette Pottery Designs with the Seljuk Metal Work Designs*

No.	Type of Designs	Sample of Silhouette Pottery	Sample of Metal Container of Seljuk Period
1	Animal Motifs	 (Tehran National Museum, Authors, 2014)	 (After: Dastan *et al*. 2016) (Drawing by Authors: 2021)

		 (After: Watson 2004)	 engraved designs on the bronze pot of Harari collection (After: www.metmuseum.org)  After: Metal work vessel with the animal and plant motifs, a big Harary Tray.www.metmuseum.org
	similarities	The motifs include goats, deer, deer, birds, etc. The image of an animal in both arts is more in the center of the design and is sometimes executed in a row or face to face on metal dishes and silhouette pottery. The most important role of birds as two birds facing each other	
2	Plant Motifs	 (After: Haji Tabar 2016: 7)  wing by Authors: 2021)	 (After: Trigger, Mary 2005: 124)
	similarities	plant motifs are more in the form of plant flowers,Khatai and Islam in both arts, which are executed in combination with other motifs.	

3	Legendary	 (After: Dastan *et al*. 2016:103)  (Drawing by Authors: 2021)	 (Tehran National Museum, Authors: 2014)
similarities		The legendary images are depicted as a chain and one after the other, with the head of a strange animal, but in a metal container they are in the middle of the vessel and behind each other, and with the human head and the body of the animal.	
4	Human Motifs	 (After: Grube 2005: 236)  (Drawing by Authors: 2021)	 (After: Pope 2008: 1300)  Bronze surgical box with human, animal and plant motifs of the early 13th century CE. Madame Margaret Paul Malvin Collection

		 (Tehran National Museum, Authors: 2014)	
	similarities	The motifs of human in both arts are more in the center of gravity and engraved on dishes while they are playing, riding, etc.	
5	Writing motifs	 (After: Watson 2004)  (After: Watson 2004)	 (After: Dadvar and Zojajian 2015:81)  (Drawing by Authors: 2021)  Bronze mirror with human, animal, plant and inscription reliefs of the13th Century CE. (After: Victoria and Albert Museum No. 1065-1135)
similarities		In both arts, the writing is in Kufic script. It is engraved on pottery on the neck or body and inside the dishes and in metal dishes in a circle in the center and around it.	

Conclusion

By consolidating their power, the artists in the 10th to 12th centuries CE. paid special attention to the development and advancement of various arts and industries, including pottery and metalwork, and by supporting the art of pottery, they provided the necessary requirements and backgrounds for the innovation and invention of various related technologies. One of the new methods of pottery that had never been seen before was the decorative technique of the Silhouette pottery. There was no alternative to the decorative art of the Silhouette pottery. In both arts of pottery and metalwork during this period, the influence of old and ancient elements of Iran can be seen. It is obvious that artists were not satisfied only with these elements and used other new elements. The potters of the 10th to the 12th centuries CE. mostly used images and scenes that had Sassanid origin and lasted for a long time on the dishes. Metalworking in the 10th to the 12th centuries CE. has also the same glory and development of the industrial and metalwork in the Sassanid era. According to the research questions, based on the studies done, it was concluded that silhouette pottery was performed in two ways: peeling and painting under glaze. it was concluded that the Silhouette pottery was done in two ways: peeling and painting under glaze. Paintings with black color, blue background and turquoise created shadows of flowers, plants, animals, humans and lines which stood out as a shadow on the inner and outer surface of the pottery. It was an art and technique which has started from the 12th century CE. and has lasted for centuries. The decorative technique used in this art is known as silhouette due to the method and technique of engraving. The motifs of the silhouette pottery do not enjoy the same variety of the pottery works produced through techniques and methods such as golden glazed, Lustre (Zarrinfam), Enamel, Champleve, under glaze painting (Ghalam Meshki) and Silhouette that were simultaneously produced in this era due to the complexity of the engraving, nevertheless its motifs can be divided and classified based on the themes such as plant, human, animal, mythological, geometric and calligraphic themes. Among the themes of Silhouette pottery, plant and animal motifs have a relatively good variety and are more attractive and beautiful than the metalwork during the 10th to 12th centuries. With a brief look at the decorative culture that dominates the Silhouette pottery and metal utensils of Iran in the Middle Islamic period, the scope of the influence of the Sassanid art and its decoration dominates the entire Seljukian period and cannot be ignored. But the main point in between is the entry of the desert tribes from the northeastern regions of Iran into the land of Iran. Their lives were in the direct contact with nature. This connection inevitably makes the animals and their role in their lives very sacred, and this is quite tangible and natural. The use of animal motifs for decoration in the Islamic Iran in the Middle Ages is not only the symbol of the existence of Iranian thought, but also it shows the existence of a desert nation with such similarities. Now they play the role of patron of art in this period and are important factors involved in the increase and development of these designs compared to the periods before and after it. Silhouette pottery has been mass-produced in cities such as Kashan, Gurgan (Jorjan), Nishabur and Sirjan. This study also showed that among the themes of metalworking and pottery, plant and animal motifs had a relatively significant variety and were more attractive and beautiful. The use of animal motifs for decoration in Islamic Iran in the Middle Ages, not only indicates the existence of Iranian thought, but also indicates the existence of a newcomer ethnic group. But animal motifs are very sacred due to the arrival of the new people (Seljuk) and this is something quite tangible and natural.

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References

Abbasian, M.M. 2000. *History of Pottery and Tiles in Iran Since the Prehistorical Eras*, Tehran: Gutenberg Publications.

Amir Hajiloo, S. 2015. Exploring the Follow-Up and Readability of the Architectural Evidence of the Stone Castle of the Ancient City of Sirjan,(In Persian). *Archive of the Cultural Heritage Organization* (unpublished).

Amir Hajiloo, S. & H. Sedighian. 2020. Archaeological Study of the Pottery of the Islamic period of Ghaleh Sang Area; Old City of Syrjan ",(In Persian). *Archaeological Research,* No. 2,

Volume 10, pp. 155-180.

Allen, J.W. 2004. *Islamic Pottery* ,Translated by Mahnaz Shayestehfar, (In Persian). Tehran: Islamic Art Studies Institute Publications.

Ayatollah Zadeh Shirzadi, B. 1983. A Survey on the Art of Metalworking in the Seljuk Period, (In Persian). *Art Quarterly*, 176-191.

Basworth, Darlydran.W., Rajzkahn. & L., Hillenbrand 2001. *The Story of the Seljuks*, (In Persian). Translated by Yaghoob Azhand, Tehran: Amir Kabir Publications .

Bayhaqi, Ibn Hazel Abul Hassan Ali Ibn Zayd .1982. *History of Bayhaqi*,(In Persian)by Ahmad Bahmanyar, Tehran: Foroughi Publications.

Brand, B. 2004. *Islamic Art*;(In Persian).Translated by Mahnaz Shayestehfar, Tehran: Institute of Islamic Art Studies.

Brand, H. 2008. *Islamic Art and Architecture*. (In Persian) Translated by Ardeshir Naraghi. Tehran: Rozaneh Publications.

Caldwell, J. R. 1967. *Investigation Tal-i-Iblis Illinois State Museum Preliminary Reports*. No. 9, Springfield: III.

Cattelli, M. & L. Hambis. 1997 *The Seljuk and Kharazmi Art (History of Iranian Art Vol. 8)*;(In Persian) Translated by Yaghoob Azhand, Tehran: Didar Publications.

Changiz, S; & R. Rezaloo. 2011. Symbolic Evaluation of Neishabour Pottery Animal Motifs (The Third and Fourth Centuries AH), (In Persian)*Fine Arts Magazine*, No.47, Fall, pp.33-44 .

Chubak, H. 2012. Islamic Era - the Ancient City of Jiroft, (In Persian) .*Archaeological Studies*, Volume 4, Number 1, pp. 84-112.

Chit Sazian, A.H. & S. N. Saadat Mir Ghadim. 2014. Aesthetic Study of Kashan Pottery during the Eilkhanian Period, (In Persian).*Naghshmayeh Visual Arts*, No. 5, pp. 61-66.

Companion, G. H. 2004. *Persian Encyclopedia Vol. (1)* Tehran, Amir Kabir Publications.

Dadvar, A. & N. Zojajian. 2015. A Survey on the Effects of the Seljuk Metalwork in the Fifth Century AH on the Metalwork of the West in the Middle Ages, *Jelveh Honar*, (In Persian).No. 14, Fall and Winter, pp.79-88 .

Dastan, N. & M. Bakhshandeh. 2017. A Comparative Study of the Visual Properties of the Metal Mirrors in Iran and China with a Look at the Seljuk Period. (In Persian).*Nagareh Quarterly,* No. 42 Summer, pp 99-109 .

Dehkhoda, A. A. 1951 .*Dictionary of Dehkhoda*, (In Persian)under the supervision of Dr. Moein, Tehran: Golshan Offset Printing House.

Dimand, M. S. 2004. *A Guide to Islamic Industries*; (In Persian).Translated by Abdollah Faryar, Tehran: Elmi Farhangi Publication.

Eliadeh, M. 2002. *Myth, Dream, Mystery*, (In Persian) translated by Roya Motarjem, Tehran: Elm Publications.

Fahrouri, G. 2009 *Pottery of the Islamic World in the Tariq Rajab Museum in Kuwait*; (In Persian) Translated by Shayesteh Far, M., Tehran Islamic Art Studies .

Ferber, S. 1975. *Islam and the Medieval West*, State University of New York at Binghamton.

Fehervari, G. 1973. *Islamic Pottery: A Comprehensive Study on the Barlow collection*, London, Faber and Faber.

Ghavidel, A. 2003. A Survey on the Seljuk Pottery Patterns, (In Persian) .*Master Thesis*, Faculty of Social Sciences, Al-Zahra University.

Grube, E.J. 1976. *Islamic Pottery from the Eighth to the Fifteenth Century AH*, in the Keir collection.

Grube, E. J. 2005. *Islamic Pottery (Vol. 7 of the Khalili Collection)* . (In Persian) Translated by Farnaz Haeri, Tehran, Karang Publications.

Haji Tabar, M., 2016. Study of Medieval Silhouette pottery Motifs (Shadow Facade) of the Middle Ages; Based on the Collection of Bonyad Mostazafan Museum . (In Persian) .*National Conference on Archeology and Pottery Art,* 2016.

Hamzeh Lou, M., 2002. Patterns of Iranian pottery in the Seljuk period; (In Persian) . *the Art Book of the Month* (No. 45-46) .

Hatam, Gh. A., 2000. *Islamic Architecture of Iran during the Seljuk Period*, (in Persian)Tehran. Jahad Daneshgahi Publications .

Hauser, W. & J. M. Upton. 1937. The Iranian Expedition, 1936. The Excavation at Nishapur. *Bull. of the Metropolitan Museum of Art,* Vol. 32.

Hill, D. & G. Allege. 1996. *Islamic Architecture and Decoration*;(In Persian)Translation, Mehrdad Vahdati Daneshmand, Tehran: Scientific and Cultural Publications.

Hillenbrand, R. 1994. *The Relationship between Book Painting and Luxury Ceramics in 13th Century Iran, in the Art of the Seljuks in Iran an Anatolia, proceeding of a Symposium Held in Edinburg in 1982*, Mazda, California, 134-145

Hosseini, S.H.. 2012. Patterns of Composite Creatures in the Art of the Islamic Period of Iran; (In Persian). *Journal of Fine Arts - Visual Arts Vol. 17,* No.4, Winter 2012

Ettinghausen, R.; O. Grabar & A. Stern. 2003 . *The Art and Architecture of Islam (1)*. (In Persian). Translated by Yaghoob Azhand, Tehran: SAMT Publications

Hauser, W. & J. M. Upton, (1937), The Iranian Expedition, 1936. The Excavation at Nishapur. *Bull. of the Metropolitan Museum of Art,* Vol. 32.

Karimi, F.; & M. Y. Kiani. 1984. *The Art of Pottery*; (In Persian) Tehran: Islamic Guidance Publications.

Katoui Zadeh, Z. 2014. An Introduction on the Study of the Technique of Engraving Pear-shaped Pottery under Glaze with Silhouette Decoration (A Case Study of Pottery in the Museum of the Foundation for the Underprivileged) ;(In Persian). *M.Sc. Thesis, Azad University*, Tehran Markaz Branch .

Kiani, M. Y. 2000. *History of Pottery in Iran*, (In Persian) Tehran: Nasim Danesh Publications .

Lambton, A.K.A. 2006. *The Internal Structure of the Seljuk Empire from the History of Iran, Cambridge* , (in Persian). compiled by JA Boyle, translated by Hassan Anousheh, Tehran: Amir Kabir Publications .

Mahboubi, F. & A. Tandi. 2016. A Survey on the Analysis of Silhouette pottery Patterns in the Seljuk Era and its Importance in Iranian Culture; (In Persian).*National Conference on Archeology and the Art of Pottery,* pp. 1166-1176 .

Mahjoor, F. & H. Sedighian. 2009. A Study of Islamic pottery excavated in the Meshkin Tappeh Hill Area of Parandak in Markazi Province. (In Persian). *Payam-e Archaeologist*, No. 12, pp. 105-120.

Mahjoor, F.; M. Ebrahimi Nia & H. Sedighian. 2011. Archaeological Study of Pottery in the Islamic Period of Nechir Khanlugh Rey Archaeological Site. (In Persian), *Archaeological Studies*, No.2, Vol.3, pp.173-192.

Mason, R. 2004. *Shine Like the Sun: Luster Painted and Associated Pottery from the Medieval Middle East*, Ontario: Mazda Publishers

Mason, R & M. S. Tite. 1994. The Beginnings of Islamic Stone Paste Technology, *Archaeometry,* Vol. 36, pp: 77-91.

Mohammadi, M. & M. Shabani. 2016. Introduction and Analysis of the Pottery of the Islamic Period in Zino Abad Area of Bahar, Hamedan, (In Persian). *Iranian Archaeological Research* No. 11 pp. 135-150.

Morgan, D. 1995. *Iran in the Middle Ages*, (In Persian). translated by Farrokh Javanmardian, Tehran, Forouhar Cultural Institute .

Mortezaei, M. & M. Y. Kiani. 2008. Study and Analysis of Flourished Pottery from Archaeological Excavations in the Historical Site of Gurgan (Jorjan) during 2002-2005; (In Persian).*Gurgan (Jorjan) Historical Site,* Faculty of Literature, University of Tehran, pp. 111-129.

Mortezaei, M. & N. Sedaghatizadeh. 2012. A Survey on the Animal Motifs of Ancient Pottery in Gorgan (Gurgan (Jorjan)) in the Islamic Era, (In Persian) *Archaeological Letter,* 12, V 2, 47-63 .

Mousavi Hejazi, B. & M. Ansari. 2002. Aesthetic Analysis of Decoration in the Art of Metalworking in Iran (Islamic Period to the Mongol Invasion), (In Persian). *Art Teacher Quarterly*. Vol. 1. No. 2 pp. 65-79 .

Mousavi Haji, R.; M. M. Tavassoli ; R. Shirazi & M. Zour. 2013. Typology and Introduction of Pottery of the Islamic Period of Baluchistan,(In Persian) *Archaeological Research of Iran,* Volume 3, Number 5 .

Nowruzi Talab A.R. & M. Afrough .2010. A Survey on the Form, Decoration and Content in the Art of Metalwork during the Seljuk and Safavid Eras, (In Persian).*two scientific-research quarterly journals of Islamic art studies,* 12, 113-128 .

Nemati, M. R.; H. Sedighian & M. Ebrahimi Nia. 2010. A Survey on the Pottery of Zolf Abad Area , (In Persian). *Iranian Archeology,* No. 3.

Pope, A. 2008. *Masterpieces of Iranian Art*, (In Persian). Translated by Natel Khanlari, P., Tehran: Cultural Science Publications .

Pope, A. & Ph. Ackerman. 2008), *A Journey in Iranian Art from Prehistory to the Present*, (In Persian) .Translators, Najaf Darya Bandi et al. Tehran: Cultural Science Publications.

Ravandi, M.1999. *Social History of Iran*, (In Persian). Vol. 2. Tehran: Negah Publications.

Razani, M., H.R. Bakhshandehfard & A. Tavakoli. 2010. Seljuk Metalwork of Islamic Art with Iranian Identity, (In Persian).*Quarterly Journal of Knowledge, Restoration and Cultural Heritage,* No. 4, pp. 63-55 .

Rezaei, M. & M. Mohammadi. 2019 . Historical and Archaeological Study of the Islamic Site of Andajin, Hamadan, (In Persian) . *Archaeological Studies*, Volume 12, Number 1, Pages 139-159.

Riyazi, M. R., 1996. *Culture of Iranian Art Studies*; (In Persian). Tehran: Al-Zahra University.

Sharifi, F. & M. E. Zarei. 2020. A Survey on the Pottery of the Islamic Era in Ghorveh Plain, Kurdistan Province, (In Persian).*Parseh Archaeological Studies*, No. 15, pp. 189-211 .

Shateri, M. ; H. Laleh, & H. Chubak. 2017. Review in the Classification and Dating of Pottery Carved and Scratched in the Slip-painted Pottery (Sgraffito) in Iran, Islamic Period , (In Persian) . *Archaeological Research of Iran*, Vol. 9, No. 21, pp. 173-188.

Sherveh, A. A. 1999 *Basic Principles of Art Vol. (1)*; (In Persian). Tehran, Secrets of Knowledge, Third Edition.

Sherveh, A. A. & M. Anoosh Far .2006. *Glaze, Tile and Pottery*; (In Persian)Tehran, Javdan Kherad Publications.

Sharahi, E & H. Sedighian. 2020. Archaeological Study of Medieval Islamic Pottery in the Underground Basement of Tahigh Khomein.(In Persian).*Parseh Studies*, No. 8, pp. 141-157 .

Sohrabinia, A.& A. Taghavi. 2020. The Old City of Sirjan during the 13th-14th century CE. Considering the Historical Evidences and Pottery Findings; (In Persian).*Archaeological Studies*, Vol. 11, No. 2, pp. 158-169

Spuler, B.1990. *History of Iran in the First Centuries of Islam*, (In Persian). Translated by Maryam Mir Ahmadi, Volume II. Tehran: Scientific and Cultural Publications.

Tamadon, M. & H. Sar Poolaki. 2007. A Survey on the Application of Slip-Painted Pottery with Glider Cover in the History of Iranian Pottery ,(In Persian). *Golestan Honar,* No. 3, pp.54-70 .

Tohidi, F. 2007, *Basics, Arts: Metalworking, Painting, Pottery, Woven and Textiles*, (in Persian)Tehran: Samira Publications .

Tohidi, F. 2011 .*The Art of Pottery*; (In Persian).Tehran: SAMT Publications .

Trigger, M. 2005. *Chinese Art*; (In Persian),Translated by Farzaneh Taheri. Tehran: Academy of Arts.

Vesal, Z. 2007, Study of the Image of Birds in the Pottery Hall of the Islamic Era; (In Persian);*National Museum of Iran*, Spring 2007, No. 103-104 .

Watson, O. 2004. *Ceramic from the Islamic Lands.* Thames and Hudson Publications.

Wilkinson, C. K.1947. Fashion and Technique(in Persian)Pottery, *Bull. Of the Metropolitan Museum of Art,* N.S., 6, Pp. 99 -104.

Wilkinson, C. K.2000. *Color and Design in Iranian Pottery" In Richard Ettingshausen and Ehsan Yarshater (Editors) The Brilliant Peaks of Iranian Art*. Translated by Abdullahi, H. and Ruin Pakbaz. Tehran: Agah. 149-133.

Wilkinson, C. U. 1973. *Nishabur: Pottery of the Early Islamic Period*. The Metropolitan Museum of Art, New York.

Zaki, M. H. 2009. *History of Iranian Industries after Islam*, (In Persian).Translated by Mohammad Khalili, Tehran: Iqbal Publications .

Zarei, M. E. & M. Shabani .2019. A Survey and Analysis of Typology of Pottery from the Beginning of the Islamic Period to the End of the Safavid Dynasty in Hamedan, (In Persian).*Parseh Archaeological Studies.* 8, 109-126 .