

ISLAMIC STYLE BOTANICAL SURFACE DECORATIONS

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Islamic Style Botanical Surface Decoration

There are many types of Islamic style engraving designs and the most important is botanical engraving designs. My studies on the Islamic inscriptions, inspired me to use the Islamic style engraving in my ceramic artwork, for example, calligraphy, geometric shapes, and botanical imagery. While researching and firing the Hood College soda, salt and propane fired kilns, I combined traditional historic Islamic engravings of calligraphy with botanical imagery, utilizing the unique reduction effects of the hybrid wood/soda cross draft kiln. The main purpose of this research is to learn how to fire in the soda/ wood kilns used in the United States of America. The use of soda and wood provides a very a distinctive effect, which works well to enhance the prominent and precise details of the Islamic engravings that I am using in my ceramic work.

Thesis statement

The artistic thoughts and ideas of early Muslims can be preserved by contemporary artists as the techniques utilized in the past are developed by new generations over time. Through my creative research, artworks with a new aesthetic touch produced by the firing of the hybrid kiln wood/soda will be added to the world of contemporary Islamic art.

Chapter 1. Introduction

Islamic art is one of the cultural arts that is full of impressive aesthetics detail and encompasses architecture, ceramics, metal forming, and engraving among others. The ceramic art created with this thesis research was developed by blending the ideas of Muslim artists from different civilizations. For example, Egyptian artists have unique designs produced by a blending of Pharaonic art and Coptic art. The Persian artists added elements that had been explored in Persian civilization as well as other Iraqi artists, Turkish artists, Moroccan artists, Syrian artists and Chinese artists. Through my art studies in the United States, I have come to know some of the most modern and often evolving ceramic techniques. In view of these intellectual movements, I decided to make a new style that enriches the current artistic movement, using Islamic art such as botanical, calligraphy, and geometric forms. This style is an amalgamation effects of the atmospheric kiln on Islamic inscriptions decorating my work producing effects of firing, texture, and color. For example, much of the work contains flowers utilizing Islamic floral patterns. The Holy Quran teaches the doctrinal religious idea, describing Paradise as a place of beauty containing rivers, fruits, and flowers of many different colors. This idea inspired me to highlight the Islamic engravings of botanicals on many different ceramic forms. The intellectual and social characteristics of the Islamic artform informs this combination of form effected by the kiln.

1.1 The Artists Philosophy

There are many differences between people of the lands of the Islamic civilizations. The differences between them are many, be it in the professional, intellectual and ideological arenas. It is my opinion that the role of the artist is to convey a message to the community through his artistic work and its formulation, such that it is accepted by the most significant number of individuals. The artist must choose the themes of timeless characters that serve humanity in regard to their manners, human values and principles referred to by the holy books, prophets, and sages. For example, being good to one's parents, tolerance, helping others, and being loving, etc.

I believe there is a unique dimension of the soul with respect to each person and that they can be emotionally affected by elements like colors, and shapes. The works I produced have a specific color palette emphasizing these feelings and contain meaning in Islamic style illustration. Botanicals for example, flower, and plant leaves, can also be depicted through the use of words in the Islamic script.

Through the intellectual fusion of civilizations and the development that has occurred between them at all levels, Islamic civilization had the one of the largest shares of beautiful cultural heritage and development that occurred at the hands of the early Muslim artists. I felt it was my duty to develop some works of art connected to Islamic art in both its cultural and intellectual content. My works of art have been decorated using botanical imagery and subsequently fired in the atmosphere kilns at Hood college.

For all the differences that exist, there are elements and styles which can be specifically attributed to the work of an artist, in a given civilization, whether in the Middle East, such as Iran or Iraq or Syria or Yemen and the civilization of Egypt and the civilizations of East Asia and Europe, there are many commonalities between the capabilities of technical artists. Each artist has a fantasy in his imagination; he is trying to bring to life. The artist's creativity allows him to disclose these fantasies through the technical work carried out in the world.

Moreover, each artist has a role, a method, and participation in his work of art. The impact to humankind in the ideas and works of artists is subject of interest to researchers and are present in existing museums that take advantage of these works of art. I believe that each artist can sense in his heart who was truly an artist by observing his or her work.

1.2 Sources and Standards of Islamic Inscriptions

The sources of Islamic inscriptions were many and had a large cultural significance. Muslim artists had several choices to turn to as sources of inspiration that served as a cornerstone for the Muslim artistic styles. These sources were: their environment, the Holy Quran, adoption from other historic civilizations, and the cultural source. Muslim artists have a catalog in which they chose to spotlight their abilities: calligraphy, colors, surface textures, rhythm, shadow, and light. And these are the standards of Islamic art. The Muslim artist was committed to abide by the standards in his or her technical work. Through work in these areas, the Muslim artist was able to create the category of engravings and became distinguished by this art. He was able to put his touch between the arts of civilizations.

1.2.1 The Source of Quran:

The Qur'anic source is vital to the aesthetics and development of Islamic art. The study of nature is an important topic within the Holy Quran. From it we can trace the development of all aesthetic phenomenon originating in the Islamic civilization. This source gave the Muslim artist a sense of aesthetic purpose in the Islamic arts. He attempted to emulate in his work the aesthetic values found in Quran. Development and prosperity of artistic thought for the Muslim man was aimed at and dependent on it being harmonious with that of aims of the Quran.

The Holy Quran referred to several aesthetic ideas, for example, rain and the descent of water from the sky, through which trees grow and produce fruits of different fruits and multicolored fruits. It also pointed to the colors of the mountains and other scenery including lines of red, white, and black.

The word "beauty" in the Holy Quran describes of Paradise, containing coral, flowers, rivers among other natural objects. Through this Quranic interpretation, the Muslim artist was able to write the Quran and decorate it in a way that would bring joy to the heart of the reader of the Holy Quran, whether in Arabic script, or multiple colors.

1.2.2 The Environmental Inspiration:

The environmental sources are vast in terms of the geographical area spanning the Islamic civilization. In the Islamic countries there are extreme deserts known for their very hot weather and the most common color seen in the environment is a beige sand like color, so the inhabitants of these areas used multiple colors to make up for the desert's lack of colors.



Figure 1. The Saudi desert.



Figure 2. The Kuwaiti desert.



Figure 3. The Kuwaiti desert in spring.

There were also coastal areas adjacent to the sea and the ocean. These coastal areas were often used as inspiration for the colors blue and white, the use of geometric drawings, and the drawing of images of fish and marine objects related to these seas. Sea waves especially had a great role in engravings and selection of shapes used in pottery.



Figure 4. The black sea in Turkey.

Also, mountainous areas, plains and valleys where there were many rivers, for example the Euphrates River, the Tigris River, the Orontes River, the Karon River, and the Jordan River that was considered holy because it was where Jesus Christ had washed. There were many rivers and lakes and these natural sources were a help to the Muslim artist in finding a kind of art that made use of leaves of plants, trees, various flowers, sea, and other sources.



Figure 5. Mountains in Turkey.

1.2.3 Other Civilizations as a Source of Inspiration:

The Islamic world has attracted several artists from various civilizations such as the Hellenic civilization that was present before the advent of Islam. Islam carried with it the valuable ideas and historical cultural heritage of neighboring civilizations, where it found those ideas harmonious with Islamic civilization and benefited Muslim artists. This is evident in inscriptions, buildings, minerals, and also the use of techniques, ways of formation, colors and so on.

The Muslim artists were able to develop from these arts and mix them with some of the elements that were mentioned in the Holy Quran and the elements mentioned in the environment with an Islamic formulation and give them a spiritual meaning.

For example:

A. Egyptian Civilization:

The Egyptian artist was born in an environment geared toward engineering and design-based arts. This is because they were inspired by the agricultural environment along the banks of the Nile river, which affected the economic, social system, and religious belief. The Egyptian artists formulated these arts objectively worthy of the place of each event in the early pharaonic age.

The Egyptian artists were able to plan temples, and tombs to build the geometric structures using the inscriptions they believed to lead man from the secular life to the eternal life. This journey might be arduous depending on the individual's faith, loyalty, and true nature. The walls of temples, cemeteries, pottery, and statues contain themes and images with concepts concerning existential questions. The Egyptian artist sought to target the feelings of people who worshiped in the temple using a full picture of the idea.



Figure 6. Jug in the shape of a woman's head. Egypt. www.metmuseum.org

The ancient Egyptians also portrayed many universal values in terms of balance and creativity in their painting and wall art. These works relied on the ideal distribution of space, lighting, and value. The lines used were regular and repeating, similar to the pages of the book. Through the tracing of these drawings, manuscripts and works of art made by Egyptian artists it was clear to us that the Egyptian artist loved the environment in which he grew up, which he referred to often, depicting natural forms such as birds, animals, and plants.

This beautiful Pharaonic art was spread through Coptic art and then Islamic art, especially since Pharaonic art was incorporated into an era of Greek and Roman art.

B. Ancient Civilization of Iraq:

This ancient civilization had a great advantage since it had rivers such as Tigris and Euphrates, as well as other civilizations that arose on bodies of water and surrounding rivers and lakes suitable for irrigation and drinking. The first one to discover the pottery wheel was Tell al-'Ubaid in Iraq and the use of clay was common in this ancient civilization where building temples of clay and houses was common as well as the manufacturing of pots.



Figure 7. Jar from the late Tell al-'Ubaid period.

- www.marefa.org

One of the concerns of the descendants of this civilization that arose in Iraq were wars and disbelief in an afterlife after death, and therefore, they did not care to build graves. They also had a great interest in building huge palaces for their kings and royalty. We note that the artists of the ancient Iraqis, whether Sumerians or Assyrians, were the first to mix man and animal through sculpture and inscriptions, it was a man's head on a body, such as the body of a horse, and a wing of a bird, also each of these different combinations unique meaning and message.



Figure 8. Assyrian sculpture.

These inscriptions were prominent from the beginning of this civilization and had been created by artists to demonstrate splendor and nobility. And it was evident that the scenes inscribed were in the form of real stories, for example actual naval battles and were not simply images from a religious orientation. Among the topics, one that was addressed was one with scenes of man catching animals in very accurate in detail, this indicates to the strength of the artist's observation to the extent that they even captured the expression on the face of the animal.

The colors used on the murals instead of the carvings in some of the sites were discovered in the era of King Sargon. They illustrated the Assyrian frescoes, and these murals contain the winged creatures repeated in a horizontal frame, sometimes in circles, also making use of geometric inscriptions. One of the significant aspects about the Assyrians was that they used colored tiles, and mosaic through glazing to fill the walls and floors of their buildings and palaces.

There are several elements used by artists, including animal designs and engravings, such as leopards, bulls, and birds. They also liked the use of lotus flower and its buds, pine nuts, fan made of palm trees, and the pearl flower of sixteen petals.

Potters played an important role in the development of the use of coloring oxides including cobalt. Because they aspired to obtain a plethora of colors used in glazing, and had discovered many colors, they used a large number of kilns, and all that had a role in the result of learning of firing which was connected to color and impact.



Figure 9. Assyrian carving.

C. Persian Civilization:

This empire includes a vast area with many geographical regions, linking East Asian and European civilizations through the Silk Road. Additionally, the area spanning the Persian civilization contained many climates and land forms such as mountains, valleys, plains, deserts, rivers, lakes, and seas.

Persian civilization was adjacent from its western side to Mesopotamia whom it clearly influenced through their cultural exchange. In this environment in which the Persian Empire dominated, Persian artists innovated by adopting and developing some of the ideas of other nations and subsequently made their mark among the sons of other civilizations. They were able to help humanity in this way. During the discovery of pots from the sixth millennium BC, archaeologists found drawings on these pots in the form of colorful geometric lines of animals and birds. The various arts of the Persians relate with their legends and have to do with characters that have religious significance, such as legends that contain figures of the Gods and the natural forces.

It is clear to keen observer of Persian art that there was a freedom of expression for the artist. Therefore, the artist was able to innovate in his artistic work.

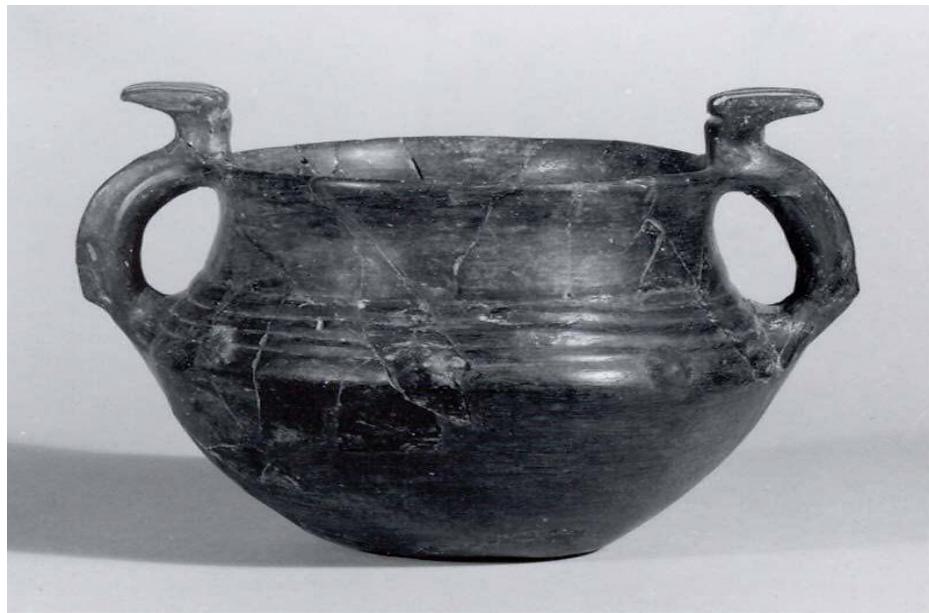


Figure 10. Bowl 9th century B.C. from Iran. www.metmuseum.org

The Iranian artists were influenced by the art of Chinese ceramics which were reaching them through the Silk Road and they continued to be influenced by them until the seventeenth century. In order to be able to compete, Iranian artists began to manufacture ceramics with high luster glazes and there were several cities specialized in the use of this glaze. They also used white clay (porcelain). An exchange began between the Persian Empire and the Chinese Empire because the Iranians had special ceramic models of their own and others they learned from other Middle Eastern civilizations. More importantly, the richness of the Middle Eastern civilizations reached us through Persian porcelain models spanning the centuries since eighth millennium BC to this day. The Iranian artists liked to develop and preserve their identity through the use of their art.

D. The Roman Civilization (Byzantines):

Through the influence of this beautiful civilization and the Western world on those in Syria, Turkey, and part of Iraq, artists from this region were able to apply their artistic skills in many areas such as architecture, sculpture, and ceramic.

The Roman architecture and art spread through Turkey and Syria because the capital of Eastern Rome was Constantinople. One of the most important reasons was the recognition by Emperor Constantine of the Christian religion as an official religion of the Byzantine Empire. Consequently, churches were built with creativity and aesthetics worthy of their status. These churches were heavily influenced by Roman palaces, that had beautiful domes. The Muslim artist borrowed this design by building these domes above mosques.



Figure 11. The Byzantine style.

https://www.google.com/search?q=byzantines+ceramics&source=lnms&tbo=isch&sa=X&ved=0ahUKEwi62fK7_ofhAhUI2FkKh-ACGkQ_AUDqB&biw=1366&bih=608#imgrc=xTcQi-X1W-9qpM:

Byzantine sculptors sculpted statues of Christ and the saints with infinite precision because they were famous for sculpting the Roman Gods and ancient legends. The Byzantine artists had a distinct style in painting, especially religious subjects. When visiting museums, we see the drawing of some figures on pottery. Also note the use of black and red.

One of the most important features of Byzantine painting is the use of faces looking forward. Especially artists who contributed to the construction of the Islamic civilization were the Byzantine artists because they came from a religious environment, and they had several styles of arts combined with a sense of Roman style using distinctive colors and strong figures.

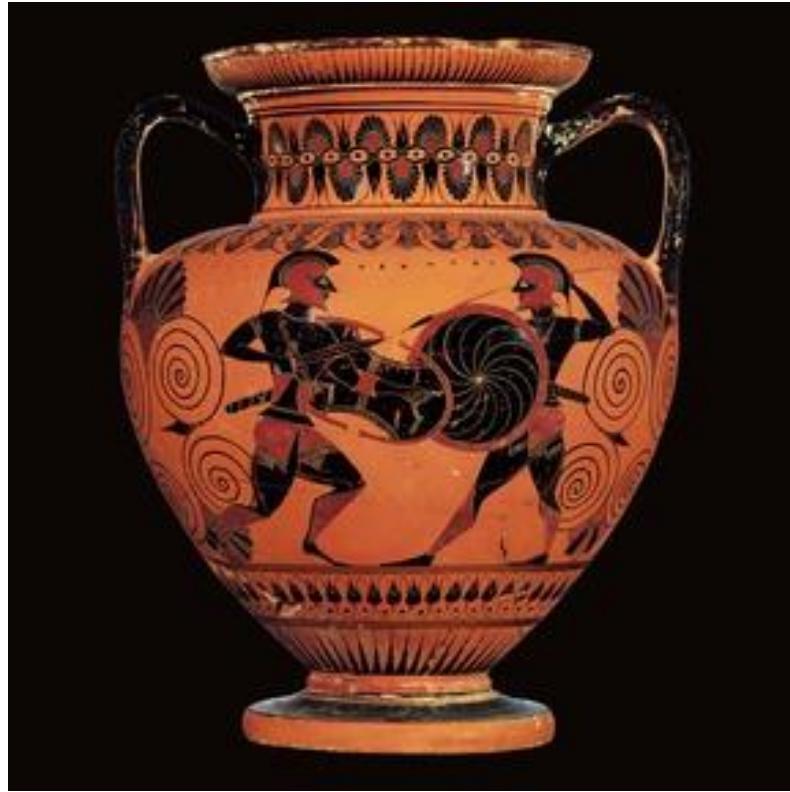


Figure 12. Roman jar.

One of the most significant times during the Islamic Civilization's existence was the period in which it adopted from other civilizations. This is one of the reasons that led to the rise of Islamic civilizations. Their work was based on development and creativity and the mixing of ideas from different artists each with their own unique styles. In my view, it is better for a person to start where others left off than to start from the beginning whether that is artistic, intellectual, cultural etc. This means building off the past rather than trying to reinvent the wheel.

In Islamic art, there were differences between the elements in terms of geometry, nature, and color diversity. It was clear that there were differences between the Islamic works of art from one age to another. This is evidence of continuous development. For example, the model of the early Islamic era, everything, whether architecture or anything else such as pottery was that glaze and extensive colors were not to be used.



Figure 13. Early Islamic period jar 9th century A.D. www.metmuseum.org

After that period, the Omayyad style was characterized by luxury. The obvious influence of the Byzantine artists through the buildings and other industries and most importantly the use of ceramics and minerals and other materials and this is because the capital was Damascus. Then the Abbasid style was also unique in terms of the engineering of the building beacons, buildings located in Spain, or sculptures and fountains.



Figure 14. The Omayyad style bowl.

We also notice the existence of the ancient Iraqi artists through the fusion of artistic thought and its impact on the works of art because the Abbasid state's capital was the city of Baghdad. Not only that many artists such as Iranian ones entered Baghdad during that time and others and were able to put forward their artistic contributions.



Figure 15. Abbasid style.

There was also the Fatimid style that I got the chance to see during my visit to museums that display many high-end works of art that used botanical engraving and writings that have meanings and also some drawings of leading figures.

And we noticed the arrangement of the colors and the frequent use of color yellow color, and the how they formed the clay so precisely and with such balance. We also noticed how Fatimid society was dominated by luxury and I believe that was one of the causes for its development and welfare.



Figure 16. The luster bowl made in Egypt 11th-12th century. www.metmuseum.org

The Safavid style of art work is seen in the construction of mosques, palaces, squares, and markets, all with a distinct artistic style. This style had a shared artistic heritage of both the Islamic civilization and the Persian civilization which it displayed in its ceramic works either pots or mosaic, using the latest methods in the world of ceramics. Porcelain, or the system of burning, or shapes or glazing. And one of the main features of the Safavid art style was the use of botanical decorations and metallic luster.



Figure 17. The pitcher made by Iranian Safavid.

1.2.4 The Cultural Source

The Islamic civilization arose in different regions with different races and origins. Each group of people had their specified cultures, and this was in all domains of life, as it pertains to eating, traditional clothes, ways of marriage or the use of colors, etc. For them, each color even had its own unique property. All these differences in culture among Muslims may highlight how Muslim artists produced several works to keep their specified cultures alive and benefit from their subjects, whether in ceramic form or drawing and so on. This is because art works are not only used in social context and for decoration, but also carry useful topics and address the feelings of human aesthetic.

There is a cultural difference, whether intellectual or in accordance with customs and traditions in all civilizations, regions, cities, villages and from one house to another. This cultural difference is in how the nations value good behavioral habits which are sometimes spontaneous and sometimes others based on the impressions of human beings in terms of their experiences in carrying out daily life. Through these cultural practices, which passed from generation to generation and inherited for generations, Muslims have quoted some cultures that are compatible with the principles of Islam.

We noticed that through the follow-up of the works of art in most civilizations, there is a spirit of development, whether at the cultural level or at all levels, because of the competitive factor in man and the love for what is best.

Also, human behavior depends on culture and the stage of a particular society's development and this is reflected in several aspects and areas such as the arts, literature, science and so on. Even if a person's culture may be incompatible with customs, religion or other cultures, he must still be informed or knowledgeable about other's way of life to benefit. Here we will shed light on the cultural source as the renaissance of the Islamic civilization in terms of the fusion of several cultures that contributed and gave a beautiful dimension to Islamic art.

1.2.5 Elements of Art in Islamic Art:

The art values in any artistic work are essential for the success of the work and giving it the full aesthetic picture. These elements are found in all works of art and are not without: font, color, surface textures, shade, light and shadow. The Muslim artist employed these standard elements in their works of art, whether those be drawings or engravings or building or the formation of ceramics or metals and so on and so on.

1- Line:

Line is one of the most significant types of Islamic art, based on the qualities that make it reflect movement and mass. A following of Islamic art shows that line has a very significant role in terms of use in the works of art, especially in Islamic decoration, in how the lines flow in different directions and take advantage of all the edges. Line was used, for example, when the inscriptions made of plant leaves and flowers. Moreover, line comes to complete the work through the stem and note that the curved lines in rotation and wandering between the botanical elements freely.

The line and the italic line were used in geometric decorations very precisely to make it clear to one's vision through the use of mathematics (making the shapes and designs very precise) and also this gave the works a sense of stability. And if we were to look to these works carefully, we would find how they were dynamic through the use of lines and this is because these geometric patterns attract attention to the inside of the space in terms of rotation.

The curved line is characterized by flexibility and agility through which the artist can move freely to fill the empty spaces and balance the work of art.



Figure 18. Calligraphy made by artist Ruhollahataeyan.

2. Color:

Color is among the things created by God and it is consequentially considered to be a natural quality or property of any given thing. It is associated with light, as color is not visible in the dark. And if we were to observe many things, we would find the thing that makes them beautiful or rather gives the object its aesthetic value is the arrangement of colors in. This is because of chromatic consistency is what stimulates the eyesight to see these beautiful things such as flowers with their various colors, the gradient of color in the sky at the beginning of the morning and at sunset, the distinction of some birds through the colors of males and females and the colors of the many fish, insects and reptiles.



Figure 19. Inside mosque, the artist used multiple colors to paint designs.

The artist can employ color in his works of art, either for its aesthetic value by portraying it as it is found, for example the color of the sea as blue or the color of blood as red. However, there is another use of color, which is symbolic in nature, such as in the coloring of a flower in black. Muslim artists used colors in many works of art through the engravings that were used on pottery and ceramics. In buildings, there were writings of the Quran in many colors. Muslims especially liked to make use of the color green, blue and gold, and they are found in abundance and there was less of red and yellow. The reason for this is that these colors are associated with natural things, such as blue indicative of water or the sky. The color green symbolizes growth because it is the color of trees and plants and it is one of the cool colors. As for the use of red and yellow it is limited to areas that are supposed to attract the attention of the spectator to the technical aspects of the work.

3. Surface Texture:

Muslim artists benefited from many different materials by adding different textures to the existing surfaces such as to the surfaces of buildings such as murals, ceramic works or metal composition, etc.

The Islamic engraving made use of both protruding and sunken textures in their artistic works to take advantage of shade and light, which gave a realistic dimension to the scenes. Surface textures complement portraits and give them the highest aesthetic value.

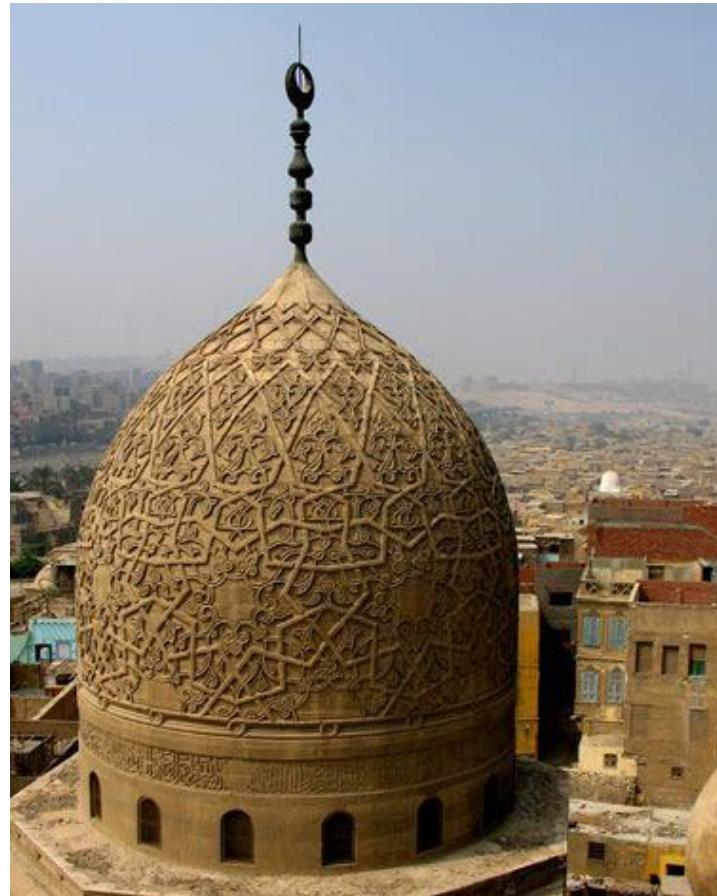


Figure 20. Mosque dome in Egypt employing a carved surface texture.

4 – Light and Shadow:

Through the use of light, colors stand out and the work, with its various forms, becomes clearly visible to the viewer with all of its colors and all of its beauty. Light especially makes clear the minor details in the shapes found in and the artist's precision. Shadow is always used in the protruding edges and high parts. It doesn't possess sharpness nor is it overpowering in the artworks but serves to give the work aesthetic glosses by making other parts of the work brighter. Also, shadow helps to embody and illustrate to the viewer the different surfaces where they would otherwise remain less visible.

1.2.6 Decorative Elements in Islamic Art:

1. Botanical Elements:

From my experiences visiting the museums and archaeological sites in Iran, Kuwait, Iraq, Egypt, Syria and the United States of America and my following of the existence of botanical in various forms in various works such as the buildings of the mosques and related to the domes, lighthouses, I have noted the presence of these botanical engraving in most of the works of art, such as ceramics, metal formations and so on.

This indicates that Muslim artists have developed the engravings upon their arrival from several quarters and regions and gave these botanical engravings an abstract color to make these Islamic works of art more distinct and are not simply identical with the works of other civilizations. With the use of curved line, the Muslim artist was to fill the spaces making branches and even adding flowers and leaves. The botanical engraving is one of the most important elements that Muslim artists have made to distinguish themselves from the rest of the works of art that preceded them from several civilizations.



Figure 21. Iznik vase with different botanical designs.

The botanicals portrayed in the works differ whether they came from plant leaves or flowers, for example, Imam Ali ibn Musa al-Radha's shrine, there are several floral engravings, often in the outer walls and minaret, which is a blue surface of cobalt with engraving that are painted in white and used in red and yellow in limited areas usually in the outer frame or in some flowers.



Figure 22. The shrine of Imam Ali ibn Musa al-Radha's.

During my visit to museums in the United States of America, I enjoyed looking at many different Islamic works, especially ceramics such as vases, plates and bowls. There are several examples in the museum of artistic artifacts from Persian, Fatimid, and Ottomans sources. Through these works of art forms, there is a cultural and intellectual exchange between people, and this is because arts are the language of understanding among civilizations.

Through the passage of time, Muslim artists could transform the botanical elements by integrating the geometric forms and giving these elements a distinctive geometric shape that shows the viewer of these works of art as Islamic works through these decorative textures.

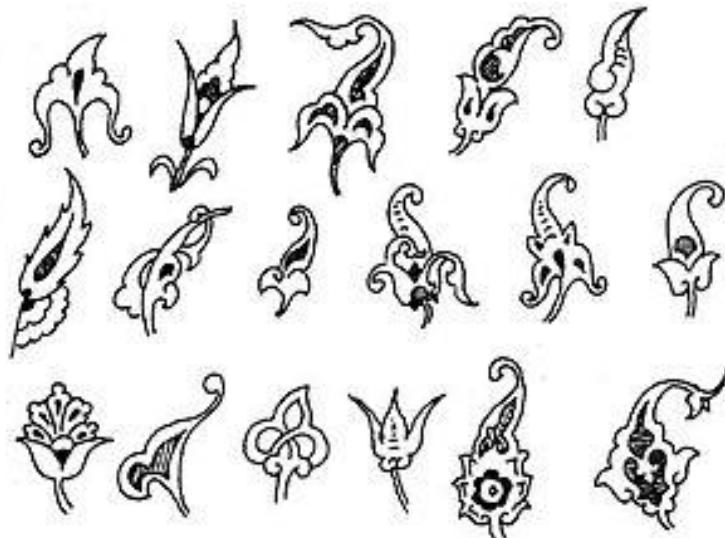


Figure 23. The botanical elements in Islamic art.

2. Geometric Elements:

Throughout the ages, people have used geometric engraving in all their forms, and we notice through visiting museums and looking at the artistic works of art that all civilizations use these geometric engraving in distinctive and aesthetic ways. The reason for the spread of geometric engraving in the works of art is due to the tendency of abstraction of Muslim artists. And their dislike of live-images (animals etc.).



Figure 24. The geometric elements in the mosque.

During my visit to many shrines, for example the shrine of Imam Ali bin Abi Talib and the shrine of Imam Hussein bin Ali in Iraq, we see the use of botanical engravings and design clearly.

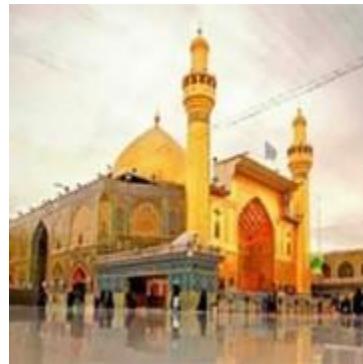


Figure 25. The shrine of Imam Ali bin Abi Talib.

The artists used engraving and designs on large areas inside of the shrine. A group of Iraqi and Egyptian potters also formed clay stellar plates

The works of the Islamic artists in the geometric engravings was a move away from the simulation of nature explicitly and to representation of abstract aesthetics such as shapes such as triangle, rectangle, square, circle and stars.

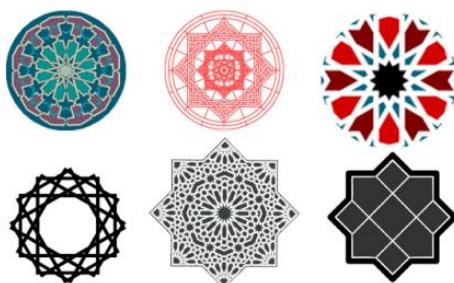


Figure 26. The geometric form used in Islamic art

3 - Calligraphy Elements:

We find that the Muslim artists were interested in the engraving in the form of writings, written engravings were found in a diversity of artworks. Muslim artists were always using written engravings in mosques, on pots, whether ceramic, or metallic, wooden doors, and platforms. Because of the aesthetic quality and flexibility of calligraphy, artists exploited it in their formative works such as Quranic verses, sermons, names of leaders or poetry.

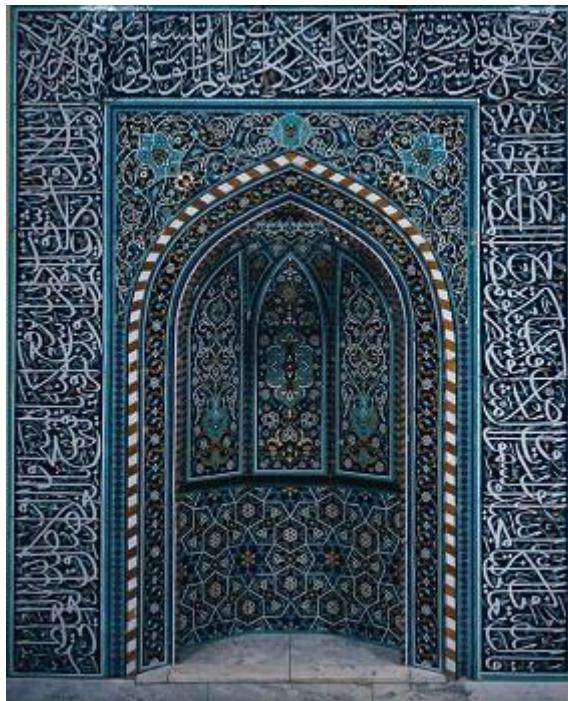


Figure 27. The calligraphy elements in the mosque.

There are several scripts adopted by Muslim artists such as Kufi, Naskh and Ruq'ah, Muslim artists even developed these scripts further. There was also Persian script known as nastaliq, the Thuluth, the Diwani, and others.

It is very important that the written elements are related to the types of Arabic calligraphy, which is the language of the Holy Quran. It is the language on which all Muslims gather and have an ideological effect that connects human with God, because it simulates one's feelings.

The beauty of the Arabic calligraphy where one finds harmony and swaying movement of its letters, each written piece having a distinctive style such as bending, fracture, and loftiness.



Figure 28. Calligraphy styles in Islamic arts.

1.3 Prior Research

1.3.1 Interview:

When I went to Kuwait, I interviewed ceramic artists and we were able to discuss several ideas and topics relating to their work in terms of the materials used or the subjects presented [in their work]. It is very important for me as a researcher in ceramics to know the needs of the artists of my country Kuwait and develop them, whether they need to learn to fire multiple kinds of kilns or mix glazing materials, and clay bodies and make use of other such combinations.

I want them to benefit from the existing civilizations surrounding them in order to find artistic thought that agrees with theirs in order to revive this ancient art. In my opinion, most of the ceramic artists are eager to develop in terms of shapes, slides, molds casting, East Asian Coil, and in particular some of them are experimenting with mixing glaze materials to get some colors but all of this is done by their own personal effort.



Figure 29. The Kuwaiti ceramic house.

There are cultural and intellectual differences between the artists in terms of performance and works of art they create, for example, I noticed these differences when I interviewed the artist Abbas Malik, he makes pieces about Kuwaiti heritage and all his pieces mimic everyday life using old traditional Kuwaiti clothing, especially those of women and children. And he is one of the most prominent and oldest ceramic artists in Kuwait. His deep love of ceramics is evident through his heavy experimentation with many kinds of oxides and materials that he adds to the glaze. This showed me to what extent potters seek to develop colors and textures.



Figure 30. Sculpture made by artist Abbas Malik.

1.3.2 Multiple Museums:

I have learned about many techniques and methods used in the formation of ceramics during my visit to the museums. Also, each museum that I went to have a plethora of ceramics pots and vases from various civilizations and ages, especially Islamic ceramics, which have a distinct of blue and white. In the National Museum of Kuwait, I had seen many different forms of pottery that belong to many civilizations and ages such as the civilization of the Tell al- Ubaid, the Roman civilization and others, some of them had handles, large sizes, and circular shaped vases. I have found that some artists used to carve their works and have also used stamps.



Figure 31. The national museum of Kuwait.

Dar al-Athar al-Islamiyah the Museum of Kuwait contains many different Islamic monuments made by Muslim artists in several cities. These ceramics especially have an important role in the discovery of civilizations. There is a collection of plates from different Islamic ages. Some of them have writings from the Holy Quran. Islamic engraving has their own special quality to them which show to the viewer that the engravings are indeed the work of Muslims. Whether those engravings are botanical, in the form of writings, or possessing of various colors, all of them are clear in their Islamiyah. They also show how these artists worked congruently with all aesthetic standards.



Figure 32. Dar al-Athar al-Islamiyah.

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I saw the flourishing of these Islamic arts through my visit to the Smithsonian Museum in Washington, DC. The trip was organized by Hood College during the course of the study. I was able to understand the difference between these distinctive works of art which have different identities in terms of their origin, language and culture. I was able to see pieces like bowls and the plates that were made in Iran during the Safavid era in the 17th century. They are characterized by turquoise blue color and the drawings of living things such as birds, deer and plants.

Some of the works were from Egypt from the Fatimid period and had colors of metallic luster and drawings of Fatimid leaders. During my trip, I saw many forms of plates and pots in general, and the inscriptions and the words all had a special impact, meaning, and civilizational importance. All these various museums in different countries all had a significant role in the recognition of the archaeological remains of ancient civilizations and seeing how one civilization started where another ended.

Chapter 2. Research to Be Performed

2.1 Goals:

The moment I decided to complete this research was after I completed my Master's Degree in Art of Ceramics at Hood College. When I went to Kuwait, I met some potters and I discussed with them the development of ceramics. Then I understood that it was important for me to complete my studies, especially in research through the Master of Fine Arts Program at Hood College under the supervision of Professor Joyce Michaud. The purpose of this message is:

1 – Ideological in its nature as it relates to my desire to spread Islamic art in a decent manner such many people accept it through its artistic content as it relates to ceramics, colors, and Islamic inscriptions that exist in the form of botanicals and some calligraphy because it affects me personally. Also, the botanical elements and plants, in general, are always agreed upon by many people, i.e. in their importance and use. Individually, botanicals exist in my daily life and during every moment, especially during the times of prayer, in the mosque and the Holy Quran. The choice of phrases shows the beauty of Arabic calligraphy in addition to my attachment to these statements, whether I choose to follow them personally or simply find them to be a source of inspiration to be appreciated.

2 - Gaining experience through atmospheric firing kilns because it was available in Hood College and learning how to build them. I want to build the same kilns in Kuwait while also further developing them because of the importance of the results and the distinctness of burning through the interaction of soda and wood, especially as I have received these results and had beautiful hues of bluish gray, orange and pink without having to use any glaze.

3 - The goal of building a burner that works on kerosene or oil is to take advantage of existing alternatives such that there are multiple sources of fuel and can burn in any circumstance.

4 - Identification of several formulas help to provide clay or modification to the clay located in Kuwait because it does not withstand the firing at high temperatures. I know this from my previous attempts at using this clay. I loaded a tile in a wood kiln when the kiln reached the 12th cone, then the tile had melted.

It is very significant for my research to serve humanity. What is more important for me is the preservation and development of this ancient Islamic art and its beautiful appearance by adding the touches of the West through the use of the kilns used in Europe and America, especially since I have mixed the Islamic style and the Western style. Moreover, I would like to convey these experiences to my country and neighboring countries so that work can be done using these kilns to receive an enormous amount of color as a result of the effective use of chemical reactions.

2.2 Mixture of Materials:

The variety of colors and the use of several different materials such as red clay, white stoneware clay, porcelain, glaze, slip, each of these materials has an effect on the artistic work of ceramics. The red stoneware clay when it reacts with gases in the atmosphere in the kiln through reduction and the use of soda and wood will turn into dark colors due to the presence of iron oxide and its color will become a brown gray color.



Figure 33. The teapot made from red stoneware fired by the wood kiln.

While using stoneware clay, its color will change into bluish gray with the addition of glaze red shino. Moreover, the result of metallic luster is because of the reduction that caused by wood carbon and soda ash gives us these effects.



Figure 34. The bowl made from stoneware clay and fired in hybrid kiln.

Porcelain is one of the materials that I began to admire for its difficulty of working with. A lot of work goes into forming it until the end of the second burn and working with it yields in rich colors, specifically orange and pink in addition to other colors when we use other glazing materials.



Figure 35. Jar made from porcelain and fired in hybrid kiln.

Kuwaiti earthenware clay has an olive color because of the material that constitutes it. Kuwaiti earthenware clay contains a percentage of salt and iron. I plan on using some of this clay in my works because it cannot tolerate high temperatures and so I will merge it with other materials after melting it.

The clay I mixed during my studies at Hood College was white porcelain clay and resembled snow and after firing in the gas kiln with soda and wood the effected became very beautiful

I used the glaze in the Hood College kiln firings.

Dresang Shino

Minspar	34.3
Austrailia Spod	29.4
Neph Sy	14.7
EPK	9.8
Soda Ash	7.8
OM4	3.9

White Salt

Ball Clay	4.8
Nepheline Syenite	71.6
Dolomite	23.6
Bentonite	4%
Zircopax	17.90%

2.3 Structural Techniques:

The method that gives excellent results was through the use of a potter's wheel. Also, I learned several techniques from attending courses at Hood College and the techniques were wedging, throwing, trimming, and firing. Designing your shapes before starting with the wheel throwing is important so that one has the right shape and is able to facilitate the process of throwing the clay on the wheel.



Figure 36. Wedging the clay on the wheel.



Figure 37 Throwing the clay to make a cylinder.

After that, I wedged the clay to make sure there was no air trapped inside and afterwards would prepare the clay and mediate the clay to facilitate the process of rotation. In addition it is important to do the opening first, and then throw the clay in both directions, preserving the rim statement, applying pressure to the clay and not using too much water as to not lose the shape that I want.

I check the dimensions and give the work some more dynamic touches to accomplish a work of art that was truly pleasing to look at. One of the techniques that I have used is to preserve thickness is by making a tool specifically to measure the thicknesses. From my experience with porcelain I found that if there are differences in thickness, there will result in cracks during the drying or firing process, especially in large plates.



Figure 38. Large plate made from porcelain and decorated with calligraphy.

The focus of my work in terms of form is practical and utilizes the simple circular nature of the platter, combined with the use of multiple decoration styles. A majority of the forms used in my work are similar to traditional Islamic forms in terms of shape with the addition of different handles.

2.4 Decoration:

The use of botanicals in decoration is represented by several types of flowers including the Marvel-of-Peru, and Narcissus in various stages of their life cycle as well as the use of some plants leaves. The selection of these flowers is attributed to their beautiful colors such as pink, red, yellow, violet and orange. As for the Narcissus it is white and in the middle of it is yellow. There is also the use of green color in the leaves of plants and brown in the stems of plants. Some Arabic phrases are written within the decoration in some ceramic works that have special meanings.



Figure 39. The Marvel-of-Peru flower.



Figure 40. The narcissus flower.

Sea shells are also used in the decoration process by gluing them to the pottery during the firing. The shells leave a trace in the texture and color of the clay as the fire and gasses pass through and around the work. The traces are left on the surface of the pottery because through the interaction with the fire and the materials used. The decoration will be using the inscriptions painted on a white cloth closer to the transparency and placed on the surface that it is intended to work then use the pen ink and follow the movement on the painting to print the inscriptions on the surface and be ready for carving. Among the works of decoration, the use of colors after carving and the first firing.

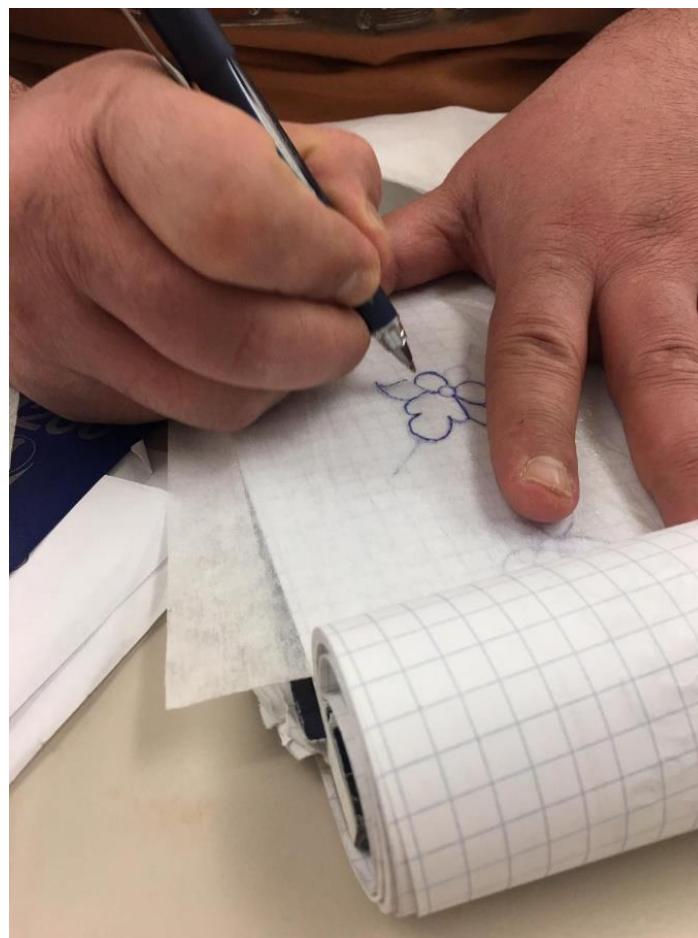


Figure 41. I drew flowers designs to use as templates on the pots.

I put flowers and plants in a suitable direction between the direction of the West and the East from where I came from. It reflects my country and my beliefs and from where these ideas developed whether from the scientific, artistic and literary dimensions. The formation and fusing of cultures and their knowledge prove that art is the language of civilizations. Each of the colors I use during glazing have a significance to them; white is the brightness and light, green is nature and vitality, and red color is the blood that runs in my veins.

2.5 Carving:

I used carving in my work as a kind of signature. The methods of carving are numerous. In some of the pottery I made, I used a method of carving to show the exterior lines of plants by using carving tools used in sculptures. Another method is to cut a slice of clay in the form of flowers or leaves of plants and then paste them on to the surface of the pots to be used, and then subsequently carving using sharp tools to show the features of flowers and leaves through light and shade, to get a two-dimensional appearance.



Figure 42. I carved the plate surface.

I also carved directly on the surface to have multiple layers and was able to then use several colors. It is my opinion that as the difficulty of the applied technique to a particular work increases, so does its material value as well as its uniqueness. For example, I could have made stamps to replace the use of directly carving into my work but preferred direct carving using special tools for carving and sculpture in order to leave a trace of myself in the work and also because it can result in more precise work with more detail, such as in the flowers and leaves, and in general the Islamic decoration, whether written and botanical engineering is full of details.

My choice of carving was also because it lasts longer than stamps and gives the work a nice texture when it is hit by light and shadow. of some parts removed the details of the shape of the decree such as flowers and leaves and identify the parties because of the presence of curves and lines.

The Islamic engravings from which I chose for my paper whether in the form of a design, or writings, or botanicals, are filled with details to show the aesthetics of Islamic art and how it affects one's feelings. I decided to use carving for its strong defined shape, especially after visiting the museums and watching many Islamic ceramic works by the ceramic artists. I carve more than half of the thickness of the surface because otherwise after firing it may crease or crack and fracture. The importance of cleaning the parts carved with brushes and sponge is so that the edges are not sharp.

2.6 Firing Theory

2.6.1 Electric Kiln:

There are several types of electric kilns available from all over the world, beginning with the manual kiln to automatic ranging and lastly digital. These kilns are electric, making them easy to install and available in most workshops. Most potters use them, especially in the first stage of bisque firing. Firing is important to harden the pottery and make it semi-glazed and mature so that during the glazing phase the pottery has less chances of melting and becoming damaged. Hood College found the best heat for bisque firing is cone 012 which is the temperature that organic materials burn out of the clay.

- How heat transfers inside the electric kilns:

- 1 The conduction and transmission of heat happens during physical contact between the pots.
- 2 The importance of the presence of air to help increase the temperature and obtain convection through the air located inside the kilns.
- 3 The existing heat coming from radiation emissions from various elements of the kiln from all directions.

You must check the clay's type and how much temperature it can handle, especially during the stage of firing glaze because there are clays that melt easily. For example, I tried firing a piece of clay in the wood kiln to cone 12 and the piece melted, the clay not being able to withstand that much heat.

Knowing about the types of glazing and its temperature resistance is also important because the glaze, if it fires at low temperature such as cone 6 and is put at a high temperature cone 10, it is susceptible to solubility.

Initial preparations for the firing process:

- Before firing in the kilns, I clean the inside of the kiln and the shelves with a vacuum and make sure that there are no impurities for glazing materials.
- Check the elements of the kilns and electrical wires to ensure that they are intact and not defective; in the event of a defect they must be repaired before starting.

Kiln Furniture: Each pottery maker needs kiln furniture. It is essential during the firing stage. the furniture consists of complete shelves or half a shelf, posts of different sizes, pillars and posts made of heat resistant materials, such as metal or porcelain.

The Bisque Load Loading the bisque isn't a complicated process, but there are some important points during the loading. Take advantage of all the space inside the kiln and fill it all the way in order to preserve heat. Make sure all the work set to fire are completely dry. Place the bottom shelf on the 1-inch pillar to help the passage and rotation of heat.

Follow the safety precautions before and during the firing because the temperature is very high and may cause serious harm in event of any mishandling.

Do not touch any of the kiln's elements because they carry high voltage.

Do not place flammable materials close to the kilns.

Do not leave the kilns without observation and attention during firing.

Do not open the kilns until making sure that its temperature is low.

There are two types of kilns. The first type of kiln is a front-loading kiln and has a front gate fixed by hinges in the side wall, which make it easy and comfortable to unload. The second type is the upper loading and has a top gate fixed by hinges on the upper side of the wall and is available in the markets. Maybe the reason for it being cheaper than front loading kilns is for its ease of assembly. Also, the materials used in front loading kilns are very expensive and are made of heavy iron steel from the outside.



Figure 43. The front-loading kiln.

2.6.2 Hybrid (Atmospheric Kiln)

In the United States of America, there are many kilns, for example, gas and soda kilns, gas and salt kilns, wood kilns, gas, soda and wood kilns. There are different types of kilns, such as down draft, cross draft, up draft. Each kiln has a different effect from the other kiln in its effect on texture and color. One of the most important kilns that got me interested in learning more about kilns is the gas kiln located in Hood College.



Figure 44. The hybrid gas and wood soda kiln.

During my study of the Master of Arts, I used a gas kiln and would load wood and soda to get carbon and through the firing of wood, as well as wood ash and soda. We got a beautiful shiny glazed effect through the interaction between elements with clay with silica and alumina Iron, Feldspar and other composites. The chemical reaction cannot be achieved by combining soda and other elements except at a high temperature and up to 2300 Fahrenheit approximately 1260 Celsius and is a cone 8.

The beginning of the salt loading experience in gas kilns was during the 12th century using glass salt, and this was in Germany and then later it also began in Britain and later America, Canada and Australia.

Potters for their love of ceramics continued to develop, experiment using several different elements to obtain high quality results. One of these developments is the use of soda in the glaze. The loading of the soda from the modern things in the kilns of the atmosphere, which gave the ceramic process a very beautiful aesthetic image. The environment has been seen by the potters with the experience of sodium carbonate loading. This technique has spread in the United States of America, and the most famous artists who developed this technique is an artist by the name of Don Reitz using wood and gas kilns.

Attention to loading in terms of leaving the appropriate spaces for the passage of the flame between the pots. The best shelving mode should not be opposite and be in a phased manner. The possibility that the flame flows between the pots gently to satisfy the heat and start the reaction and reduction. Its better either through glazing or flammable materials.

2.6.3 Kerosene:

Kerosene is a liquid derived from oil and is used in several areas such as jet fuel, some engines, heating, and kilns. Some potters in Middle Eastern countries use kerosene, such as in places like Bahrain, Iran, Egypt and Iraq. They are especially fond of bisque firing. The benefit of using kerosene is that it results in very high temperature, and therefore it turns from a liquid to a gas by evaporation.

The mechanism used is a long pipe sits at the front of the burner and in the rear a blower in the air where a thin shaft enters the first third of the main tube. The kerosene passes through the small pipeline, extending outward until it reaches the burner. Because of my research with kilns and especially because oil is highly available in my country, I was interested in learning how to build kilns and work with firing kerosene.

I am going to develop a method that gives good firing results with kerosene. The development of these kilns and burners is not easy, but I am optimistic that I can do hard work and can achieve the goal that I want. The mixing of the air with the kerosene requires precision and knowledge of how to regulate the air in terms of quantity, which goes through the burner, and may be close to the firing of natural gas. According to my research, the average kiln needs about 25 gallons of oil to release the glaze (Cone 10). The use of oil is safer than the use of gas. For example, kerosene fuel is used in airplanes.

While reading the thesis paper by Peter Rijan from March 12-1979, he mentions this point, that the higher the density of oil, the higher the thermal performance and the cost (kerosene is light, but diesel and car engine oil is much heavier).

The flame from oil fuel is clean and its carbon content is low and suitable for oxidation. In order to gain reduction and carbon, I will load small pieces of wood and soda.

Chapter 3. Process of Creating, Overview

3.1 Clay Body

While processing various types of clay such as red clay, white stoneware clay and porcelain, I made a large plate of red clay, a pitcher for water, and a large vase. I chose to write on the plate the words, “Ya Husain” because the color of the clay is close to the clay of Iraq, specifically Karbala. Additionally, I pasted the flowers and leaves of botanical to the clay with their stems and carved them to reveal their details. The pitcher I made sported a multi-layer handle, and a set of flowers is carved onto the pitcher. The circular vase is made of a circular shape and there is an engraving on it with a repetitive style.

There are flowers that repeat twice in the same direction but the second one is inverted. I made a giant plate of white stoneware clay and used a black slip through the brush and carved the name Fatima onto it. The reason I chose this name was because it was the birth of the daughter of Prophet Muhammad. Surrounding the name, I added a group of flowers and leaves of botanicals in a random way but all in one direction.

The method of carving that was used to carve onto the plate was directly onto it, all the while carefully taking into consideration the thickness. I made a teapot from the same white stoneware clay, and I adapted the style of the artist Tony Clennell. I added a flower of porcelain and carved into it to make it appear delicate. While making the pitcher I carved directly into it, and the reason I selected several white stoneware clays for this work, especially making use of high-value commercial clays was to see the results after the final firing and how much color there would be in the final product. The most beautiful porcelain is distinguished with its white color and how it reacts with burning in atmospheric kilns.

I was lucky to have the chance to work with large plates, vases, and I consider it a very great opportunity to learn many methods to preserve the shape that I want by using less water. Working slowly is important because I have previous experiments that have failed during the firing process.

I have made several different kinds of plates with different inscriptions as well as the use of clay from Kuwait, because it cannot tolerate high temperature in the kiln, and the idea behind that was to add it to the plate and have it melted on the surface of the porcelain to obtain diverse colors produced from the chemical reaction with Feldspar during the reduction.



Figure 45. Jar made from porcelain and I craved flowers.

Another reason for adding the Kuwaiti clay is because it represents my roots in the work like the very blood in my veins. Porcelain attracted me to its pure white color and became the source of inspiration in the search for a white that was strong in terms of composition and ability to handle high temperature.

I varied my work in its size and shape in order receive different results after the firing process, thereafter, placing each work in shelf suitable for it. I made crowns for the purpose of attempting decoration. I added sea shells over the crowns and then put the leaves in places where there are no botanical decorations in order to see the effect of firing. The carving process required serious care in order to not crack the pot surface. I had to stick the leaves and flowers in a proper manner by scratching the surface and putting a slip made from same clay to stick the and leaves and make it cohesive. Also, during the carving phase, it took a lot of work to make sure the details were clear, and the edges were worked on using delicate brushes.

The important thing during carving is that the surface is clean, there are no impurities left in the clay, and the edges are sharp. One of the things I do during the post-formation phase is to pick the signature location and place the seals because it helps me to load the work into the atmosphere kilns when I am using the wadding. For me, the issue is not trivial, because through previous experiments in firing, some pieces were lost because the wadding being haphazard and also, it increases the precision of the details in the work, making the work more creative in the most comprehensive manner such that it is widely accepted by others in terms of its aesthetic and its criticisms.

I considered the elements that compose a work of art, which are within the framework of the work of art and relate to the organization and arrangement of the elements of the work, for example, the selection of sites of flowers and botanical in my work. The elements of the composition used the regular repetition of the unit and we had to repeat the elements in the work of ceramics. For example, the use of botanical of the same size and type, exterior wall limits the work in terms of external composition, and I relied on it entirely and my work depended on it such that there isn't any fading. Balancing in my work is also very important. I have made use of it in my work such as in vases and the rest of the works because balance is a key part of any work of art. A good example of balance is when I used of flowers, botanical and various degrees of colors.

3.2 Glazing:

The question I always ask myself is if I do not use glaze what would I do in its place? What I learned after studying at Hood College is that I would have to run my work in the atmospheric kiln multiple times. Under the direction of my supervisor Professor Joyce Michaud, I have the passion to search for atmospheric kilns and learn what the resulting interactions between carbon of wood, soda and gas emitted from them are to the pot's reduction. And through the several times that I was able to burn works in the kilns, I was able to learn more about that.

I learned how important it is to use the draw rings to know how the burning is going and if there have been any changes in color or texture. I have been dealing with these kilns because they give very wonderful results and one is able to use many methods to load the soda and obtain a reaction with glaze and slip.

To gain a variety of colors, I used several materials and different clays to control the color gradient, resulting in both dark opaque colors and light translucent colors such as red, yellow, white, blue, green, orange, pink and brown. All these diverse colors require different techniques to obtain the desired outcome. For example, if I use the material under glaze usually the work will not withstand high temperature, and so that will be under my control, I spray a very thin layer of glazing (Dresang Shino) only on the area that has different material under glaze, and I usually use a red, yellow or a purple under glaze.



Figure 46. I Added underglaze on the jar.

I used a slip especially made by Cathy Jefferson in several places such as leaves of botanicals. I learned about these materials in my summer class about burning which featured the use of salt in the kiln and the suction of air through the bottom of the kiln. In some of the writings and flowers I used a brush to glaze the surfaces with a white glaze to make the work filled with light.

From my previous experiments I learned some important points about the use of drawings and taking care while loading the pieces into the flames such that the colors resulting from this contact and through chemical reaction from the material used, especially porcelain 257 because it contains the material feldspar.

This is the final stage in the discussion on color and texture because it is the stage that was developed by the style Islamic inscriptions and represented by botanical motifs. The latter method of using atmospheric kilns results in several new colors and uses other materials separate from the ones used in Islamic art because the method used in the Islamic decorations on the ceramics was through the use of colors directly on the surface using the color blue, red, yellow and green, such as in the ceramic works of ceramics of Iznik, and it did not make use high-temperature kilns such as the ones in Europe and America. I am enthusiastic to use other fuels such as kerosene or oil as an alternative to gas and wood. My research also includes the burning of kerosene and oil and its use in the future.

3.3 Kiln Firing Cycle:

The kiln cycle that I followed during firing is slowly raising the temperature in order to preserve the soundness of the pottery. Before preheating to 200 Fahrenheit, we use a pilot and the kiln peep holes are open with the damper in the chimney to ensure the exit of moisture and some vapors and this takes about two hours.

Next, I turn one of the burners and raise the temperature to 500 degrees Fahrenheit gradually. The color of the kiln from the inside should be black to cherry red making sure the burning of organic materials and carbonaceous materials. This takes approximately two hours.

Turn off the gas, close the damper, and close all the peep holes until the next day.

Early on the second day, start the right burner on low. The left burner is only the pilot for a quarter of an hour. Subsequently, start the other burner on low. Open burner air controller on the air standard on a quarter and starts with closing the damper to 3 inches, the target is to reach 900 Fahrenheit.

The next step is to open the burner to half to raise the temperature to 1200 degrees Fahrenheit and then increase the burner to three quarters to get the temperature to 1600 degrees Fahrenheit. Finally, open the burner in full to increase the heat and when I reach reduction I stack a small piece of wood every quarter of an hour until reaching cone 8. At this point I load the soda onto the wood pieces. There are several different ways to load soda. One of these methods is to spray the soda dissolved in water using a sprayer pressure pump through one of the holes in the kilns for stacking wood or loading soda.



Figure 47. Loading wood and soda.

The second method is to mix soda with the whiteing and stick it to the wood surface and load it into the kiln. I often use the second method to load the soda. I especially make use of draw rings inside the kiln at all levels, from seeing the color to determining the texture produced by carbon, soda, and ash.



Figure 48. Draw ring from the kiln.

When the kiln reaches the desired temperature, i.e. cone 10, I closed the gas with all the peep holes of the kiln to keep the heat decreasing slowly, and the reason for the work inside the kiln to preserve the heat, slowly bring it down. I do it like this to prevent the works from breakage and losing color.



Figure 49. Cone 10 half .

3.4 Transformation after firing:

Clay and the materials it contains such as sheets of silicon dioxide and aluminum oxide are connected to the oxygen bridges. When the clay is exposed to fire, we get an interaction during the fusion of these materials and the effect is the production of luster and colors. The important metals involved in the pottery industry are kaolinite metal because it contains silicon, aluminum oxide and feldspar metal. Oxides and carbonates found in clay play a role in the acquisition of colors after burning through reactions in the atmosphere kilns; these are metals such as iron oxides, corundum and so on.

All the colors obtained through the reduction process is due to the acquisition of electrons. During oxidation these materials will lose electrons. The use of sodium helps this process. After opening the kiln, I watched the effect on the pots by acquiring pink, orange, gray, green and brown. By looking at the work inside the kiln, it seems that the pots made of porcelain gained more colors than white stoneware and red clay due to the presence of feldspar, and higher carbon content in the white clay.

The red clay vases acquired a dark brown color because of the presence of iron oxide. As I loaded some of the cups on the firebox, it seemed to me that it gained a high percentage of carbon and tended to be a dark lead color with a high percentage of green color resulting from soda ash. I wrote my experience of firing in my notes for future experiments, specifically I wrote about what happened during the process of firing and the results I got. To avoid the mistakes or if I want a suitable effect for the vases, I have information on how to load by putting the vase in the right place.

I also know about each of the vases and the color gains depending on its position on the shelf inside the kiln. The amount of wood you will need is high in carbohydrates. The amount of wood one needs during loading is important because if the amount of wood increases, one will get a high percentage of carbon. That means there will be a grayish color, from light to dark in the final product. Soda loading has a very important effect. If it increases, it will result in a high percentage of green and dark lead.

Conversion after firing makes me enthusiastic because I get to fire the kiln many times and it's like an adventure each time. It's also a beautiful experience for me. Furthermore, it creates a lot of colors and interactions through reduction.

Chapter 4. Artworks Created by The Artist

4.1 Forms



Figure 50. The vase made of porcelain and it has wide shoulders and a long neck. I added flowers, leaves, and handles. The foot is wider than the rim.



Figure 51. I created the vase from porcelain which is a round shape with curve neck and I carved the flowers on the vase.



Figure 52. The vase made of porcelain and I carved some flowers on it. The shoulder is wide, and the neck is short. The foot is wider than the neck rim.



Figure 53. The vase made of red stoneware clay conical shape in the lower quarter of the foot Also has carved in the middle. The neck has a cylindrical shape and handle from the shoulder to the neck.



Figure 54. The vase made of red stoneware clay which is a round shape and I carved some flowers. The vase has multiple colors. The vase is wide from foot and has a spherical shape at the bottom of the larger part, and there are two handles are made of red clay.

4.2 Surface



Figure 55. I made the platter from white Stoneware 182 and engraved flowers. I used the Calligraphy to give an aesthetic texture. I inserted white salt glaze, Kathy Jefferson slip, and underglaze to the flowers.



Figure 56. The style I used on the platter is to add the calligraphy and botanicals by cutting the clay and stick it on the surface of the plate. I used the red stoneware clay, and I got this color which is similar to the blood.



Figure 57. I created the platter from porcelain and decorated by using botanicals and flowers. I used under glazed with Kathy Jefferson slip. Then I sprayed a thin layer of helmer slip on the platter.



Figure 58. I created the platter from porcelain. I carved different flowers and I insert underglaze to paint the flowers. I succeed in firing effect on the surface texture.



Figure 59. I created the teapot from white stoneware clay 182. I added a flower of porcelain on the teapot. Also, I stuck the handle of led in the form of ropes to get a dark color and the texture of the orange peel.

4.3 Firing



Figure 60. A tea bowl made of White Stoneware and red Shino glaze inside. I loaded a tea bowl on shells top the wall of the firebox. Through firing effect produced colors, for example, olive, green, gray and Light orange by reduction and reacting.



Figure 61. A tea bowl made of stoneware and red Shino glazed inside. I loaded the tea bowl on a top of the wall of the firebox. The effect I got from firing and the colors are brown, gray, red, and green through reduction of the atmosphere. The textured surface resulted in iron oxide.



Figure 62. A tea bowl made of white stoneware and painted from the inside with a light layer of dressing shino and place in the oven in the top shelf close to the firebox and gained a large amount of gray and green in the near part of the flame of fire and this is the result of Soda and ash wood. The other part has orange yellow and brown the approach of the black in the iron oxide.



Figure 63. A cup made of white stoneware coated inside by using white salt glaze and it placed in the kiln on the middle shelf close to the chimney. The colors acquired by the reddish brown with light touches of bluish gray. It is clear that the flame and refraction ratio are less in this place in the kiln.



Figure 64. The mug made of white stoneware and coated inside with yellow salt glaze and the place of loading in the kiln on the bottom shelf is close to the chimney. The texture I got light gray, dark gray and reddish brown because the place to cross ash and carbon for proximity to the chimney hole.

Chapter 5. Future Works

5.1 Future works:

I hope to continue working with everything related to ceramics such as clay, glazing, construction, firing, and kilns. I have the desire to develop the clay present in Kuwait and furthermore I would like to enhance the possibility of doing this work. I would also like to mix several different clays each suitable for suitable for different temperatures ranging from Raku and cone 6 to Cone 10. I am also interested in using different colors such as red, white, and gray beige.

I will try to mix several glazing combinations and discover different colors through my experiments, that way it can be of benefit to potters. From my experience in working with kilns and reduction, I would say the most important types of glaze for me are the ones are the crystallizing glaze, glazing of raku and old glazing by adjusting the formulas.

I am also interested in innovating methods to make it easier for potters to build using gypsum blocks and some structures made of aluminum. I want to make tools that enable throwing clay, tools for trimming, and tools to determine thickness.

The process of firing plays an active role in the creation and replication of many colors, trying to find alternative fuels, made of foods or residual oils after cooking to be recycled to take advantage in firing. The development of firing is helps in the use of oils and kerosene because firing of kerosene used consumes large amounts of fuel and requires more efficiency.

The build of the kiln makes it suitable for different types of fuel and development in the design of old kilns makes it easier to obtain high temperatures with a minimum amount of fuel consumption by controlling the chimney and burner.

My future goals are to get more involved in research and experiment. Subsequently, I would like to contribute toward the development of this work. I want to train people who want to work with clay and conduct workshops that go over the techniques of throwing, decoration and firing.



Figure 65. The vase made of porcelain with a lid and I carved botanical on the surface.



Figure 66. Hybrid kiln (gas with wood and soda firing).



Figure 67. A Jar made of porcelain with a small lid like a mosque dome, and I drew some flowers.

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