

AN ANALYTICAL TECHNICAL VISION OF THE MURALS OF THE GLASS MOSAIC WALL FROM ANTIQUITY TO THE MODERN ERA AND ITS ASSOCIATION WITH ARCHITECTURE

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Abstract

Murals painting is a universal means of communication and its close connection with human civilization. The technological progress has been influenced by a variety of means and techniques, so the aesthetic and structural values have been varied and other values have emerged for the one art work Mosaic is one of the most important techniques in the field of murals painting for the variety of raw materials used and the effect of each material and my studies of glass mosaic material in murals And the most important raw materials mosaic manufactured raw material Samlti used for many centuries past or Vitreous Glass the currently used, I have studied this material since its inception and then spread until ancient times by analyzing the mural works illustrating the reasons and methods of using glass mosaic wall and the differences and similarities in the selection of technical topics old and recent and the mention of some of the early artists in the use of this material in the modern era

Research Issue: In my analytical and historical studies, the material Samlti and Vitreous Glass facilitation of its various degrees of color and distinctive qualities, illustrating the evolution of its use and forms, how to benefit and the extent of suitability and connection of this material architecture

Keywords: glass, byzantine mosaics, Islamic civilization

INTRODUCTION

The mural painting is of great importance in the society and it is a universal means of communication which is closely related to human civilization. The art of mural painting has importance. It is always connected to the heritage of people and its history and thought. It carries a cultural message in the first and aesthetic tasks. The murals are a documentary work that recollects past and present events and contemplates the future, such as Pharaonic, Greek, and Roman murals. (www.moheet.com/2009) The technological progress has had a profound effect on the mural painting where there were many different means and techniques in this field. Accordingly, aesthetic and formative values were varied and other values emerged within the artistic work, including the tangible values. The mosaic technique is one of the most important techniques in the field of mural painting for the variety of materials used and the effect Each material is different from the other in the recipient and my studies of the glass mosaic in wall murals, one of the most important mosaic

materials manufactured in the form of raw Smalti, which was used many centuries ago in the implementation of mosaics or Vitreous Glass currently used, So I studied this material since its inception and then spread to ancient times, where it became one of the most common raw materials and used in the field of murals and the study of examples of some wall murals executed glass mosaics of different times and civilizations until the twentieth century, who mentioned the names of artists on their works The mural paintings in the past did not mention the name of the designer and it was difficult to know the artist in a sample only in some rare works of the Roman era, the name of the artist is listed on the artwork and my choice of some frescoes carried out in the mural painting glass mosaic of old and recent, explaining the reasons and methods of using mural painting of glass mosaic and aspects of The difference and similarities in the selection of technical topics used by the artist in the past and modern , using the examples of some of the early artists in the use of this material in the modern era.

RESEARCH ISSUE

I studied the raw material of Smalti with distinctive properties and it is one of several different materials used in the field of mural painting because of its multiple color grades and special luster and hardness and are not affected by climatic factors, so my study of this material historical analysis and illustrates the evolution of its use and forms to get attention and knowledge and how to benefit Of which there is no limit, so I must refer to this ancient and modern-style material that is now called Vitreous Glass and the extent of relevance and correlation of this material architecture.

RESEARCH HYPOTHESIS

The research follows the comparative theoretical, historical, and analytical method of the mural glass mosaic from antiquity to modern times.

RESEARCH IMPORTANCE

Monitor and analyze one of the raw materials used in the field of mural painting Smalti and Vitreous Glass recently to show and clarify the importance of this manufactured material and its advantages of the infinite diversity of colors and the nature of material and texture and the diversity of ways to use on the surface and how to benefit from them and the impact of technological progress in showing them in various forms in the fields mural painting

RESEARCH AXIOMS

The research aims at the importance of using the possibilities of mural glass mosaic in many forms of art in mural painting, which helped the mural painting artist to express different subjects, whether religious or worldly, characterized by special qualities and to what extent it is related to the beautification of architectural structures of various types

Search

The artist of the parietal and the preference and excellence in the use of materials about others from the other is a key reason for the success and excellence of its own works of art because of the influence of the environment and culture of the place where we starch, and the choice of mural topics varies from one era to another

Hypotheses

How to make use of the diversity of the features of each material to the maximum extent in many murals.

Search limits

An analytical study of the use of mural glass mosaic since its appearance until the modern era

Search Terms

Glass

Glass is a solid, no crystalline material at a cool and liquid temperature when the high temperature is fragile and translucent and shows a glass transition when heated towards liquid composition ([www ar.wikipedia.org/wiki/glass](http://www.ar.wikipedia.org/wiki/glass))

Byzantine mosaics

The mosaics of the Byzantine period were used in the decoration of the churches, where new colors were

used and exploitation of colors multiple in the glass. The method of fixing the glass cubes at different angles was used to exploit the reflection of light, thus increasing the beauty of the artwork.

Islamic civilization

Islamic civilization is a civilization that extends between countries with a Muslim majority and are linked historically, civilizational, and social in Islam. This civilization is distinguished by a cultural specificity based on the religion, teachings, and heritage of Islam. The most common languages within this civilization are Arabic, Persian, Turkish and Malaysian. (www.en.wikipedia.org/wiki/civilization)

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- The beginning of the appearance of glass mosaic wall in the era and Roman:

The mosaic art of the Romans is an evolution of landscape photography for thousands of years. The Romans derived the idea of painting nature from their great love of landscapes that indicate the longevity of man, that is, human life and profession were photographed on the walls of his grave. The collection of wheat and hunting in the river and hunting wild chickens in the marshes and all that was accompanied in the afterlife, and this idea is derived from the ancient Egyptian arts in the Nile Valley It should be noted that the art of photography was a way to deliver a certain message and not to influence the other opinion, And with the expansion and prosperity of the Roman Empire, the central mosaic paintings were spread by artists who worked in certain workshops at a high level of quality ([www.en.wikipedia.org. wiki/](http://www.en.wikipedia.org/wiki/)), the use of mosaics in the decoration of walls and basements have origins and beginnings in terms of evolution differ from the origins and beginnings and evolution of mosaic floors, each of the two types of mosaic materials and techniques of use of these materials and each has a different heritage of the topics dealt with where in the late Roman era and the beginning of the Empire era, the decoration of the walls of the natural or industrial grottoes began to resemble the mosaics. These caves and caves were resting places. It was necessary to decorate the walls of these houses with works of art that were the first example of these recesses dates to the middle of the first century BC. The walls were used to cover volcanic rocks, pumice stone and sea shells. Gradually these natural materials were added to the materials manufactured Such as what is known as "Egyptian blue", which is a type of stained glass colored in blue and added to the use of broken glassware, In addition, the glass was manufactured in the form of colored bars in various colors, in the determination of the frames of some areas on the walls of these restrooms, but the decisive step came with the manufacture of glass Tesseræ ,Tesseræ development of natural stones or colored glass (Fig. 1). At the entrance to this cemetery is a mosaic panel bearing a text written in the name of the owner of the cemetery and his wife. Below is the image of two mythological animals standing on a musical instrument (Lyre) which is the symbol of Apollo and used in the implementation of these mosaics sea snails and stained glass bars with Tesseræ of white stone in the successor to the writing of the mythical animals were used in the implementation Tesseræ of yellow and green glass with Egyptian blue, the ores used in this phase were not related to the raw materials of the flooring. In addition to these natural materials, most of them were added to it since the early phase (mid-1st century BC). Other materials, most notably glass used in the last century AD, In the murals in the form of reusing the remnants of broken glass utensils of dishes and cups in addition to pieces of glass made specially made, and since that stage gave the artist more freedom of mosaics to deal with its themes and freedom from the surface treatment and looked The use of mosaics in other buildings away from the industrial caves, although in places related to some extent in the early beginnings when used in the decoration of fountains or public baths, and since the first century AD, the portrayal of people Tesseræ



(5)



(6)



(7)



(8)

Mosaic in Byzantine architecture became the primary medium for the expression of Christian faith in Byzantine architecture, in a style that combines the religious and worldly authorities of the emperor. The work of the Church of St. S.Vitals in Ravenna 548 CE (Fig. 7), during the reign of Justinian, A complete Byzantine artistic style begins to emerge in the close relationship between mosaic and architecture, and also in the Cathedral of Cefalu in Sicily 1148 CE (Fig. 8) The greatness of this mosaic is another important fact that the mosaic in this Byzantine architecture is not a decoration or a figurative for decoration or beauty, but it is used for psychological and religious impact in the public who frequents these places. This function of the mosaics is what transformed the graphic treatment of the realism that prevailed in the Classical eras to perfect symbolism treatment where the reality of objects and elements and the personal expression of the artist disappeared and created a distance between nature and its image in the work of art on the one hand and between the work of art.

And the recipient on the other hand and used strong colors and color contrast relations sometimes to offset the distance between the work of art and the recipient also put the mosaic artists in the size of Tesserae and how to instill in the mortar, especially Smalti golden and silver and the relationship to the fall of light on the surface of the mosaic and in total, many technical problems And the technology that resulted from the transfer of mosaics from the ground to the walls, artists and craftsmen found the necessary technical solutions

FEATURES OF MURAL GLASS MOSAIC BYZANTINE

The basic features of Byzantine mosaics from the point of view of its classical mosaic technique are ores and methods of execution. Natural stones and rocks were ideal materials for use in the flooring, which are the primary area of classical mosaic, but when the Byzantines Smalti was used extensively and distinguished in its many colors instead of stones and marble. The colors Smalti reached at the time several thousand degrees of color and the composition of this attractive material and Tesserae small overlapping multicolored and was undoubtedly a stage in the history of mosaic in terms of technical and aesthetic and added to the value of Azamalti and because in the mural mosaic it is not required that the surface be level or finely smooth, so that the purpose of this mosaic is not used. Therefore, the possibility and properties of Smalti were deliberately used when the Golden Tesserae Directly at different tilt angles to reflect the light differently than the neighboring Tesserae at different times of the day (Mohamed Salem ,2014, pp.122:127)

MURAL GLASS MOSAIC IN ISLAMIC CIVILIZATION

It is difficult for one to speak about Islamic art or the characteristics of an Islamic art style based on selected evidence of the achievements of art in the period of the beginning of the Islamic conquests or in the artistic effects dating back to the beginning of the Umayyad rule found in Damascus or what supports the reality of the achievement of Jerusalem. The great prosperity of Mosaic in the Byzantine civilization and the European middle ages is also a great success and widespread use and great diversity in the techniques and methods of implementation in the Islamic civilization Both in the Orient and in Morocco, and clearly the mosaic works in the Islamic world have been influenced, like other works of art, on the prohibition of photography in general since the early days of Islam. Hence the Muslim artist began to use the basic lines that shaped the eastern character of Islamic art, this is reflected in what was said about the prohibition of photography in the works of the Umayyads, in public places only, in the Umayyad Mosque in Damascus and the Dome of the Rock in Jerusalem, where the works of mosaics were limited to painting decorative units. Vegetation is an extension of Hellenistic and Byzantine traditions (Fig. 12,11,10,9) (Mohsen Mohammed Attia,1999, pp.7:9)



(9)



(10)



(11)



(12)

With the expansion and richness of the Islamic state and its stability, the interest in mosaic has increased to highlight the beauty of architecture and luxury buildings from palaces, baths, mosques, and others. The mosaic of the Umayyad Mosque in Damascus is one of the oldest and most beautiful examples of interest in this art since the beginning of the Islamic civilization. This mosaic was preserved as a hidden object. Under a layer of lime before being discovered by a French scientist in the 19th century. This is in addition to being made of glass resistant to rain, dust and heat which is known as Smalti, the paintings in the paintings represent the four geographical regions of Sindh, India, Sudan, and the Romans. They are free of animal and bird forms. But the decoration of the mosaic stretches over the shape of a river similar in detail to the river Barada, which penetrates the city of Damascus, showing palaces, buildings, houses, squares, arches, and trees in different colors. This painting is of great importance in the identification of the city of Damascus in the Umayyad period, as it shows the various artistic influences in the early Islamic art such as Sasanian and Byzantine influence and others the mosaic of the mosque with its architecture is one of the early Islamic art, whose spread in the east and west has a great influence on the development of art in the Islamic civilization. Also, known during the Umayyad period was the Dome of the Rock, one of the most beautiful works of Islamic art. Historians gather that the Dome of the Rock, built by the Umayyad caliph Abd al-Malik bin Marwan in the southern part of Al-Aqsa Mosque in 72 AH / 691 AD, is one of the finest and most beautiful of the Islamic architecture. We see mosaics covering the its various parts and dome, Through small lobes

and cubes of various sizes of colored glass Smalti and transparent white in the combination and intertwined with pink stones and beads shells and see the golden and silver colors, along with blue and green in different degrees and inserted in the middle of these configurations verses of the Koran from koufi font (9) (Figure 12) The Islamic emerged from a new technical standard that the elements in building the work of art in equal roles if they were simplified and simplified forms in order to achieve aesthetic goals, and thus emerged abstract formulations in Islamic art and the complexity of its development, , And the back of the role of the curved Alansabih lines in addition to the geometric elements appeared achieving the principle of homogeneity and enjoy the movement of Wobble lines in freedom and so broad the private Islamic art that the world is not a mirror that reflects the visual world, but is a world governed by the logic of Fine and careful organization Kan circles and spirals represented in the form of engineering and securitization of this distinctive style of Islamic discovered the artist's aesthetic principle that goes beyond its visual manifestation of the world and the story are listed independently and regularly for a world in which forms have taken positions depending on the justification of pure sensory beauty and not according to the justifications for simulation natural Of. (Mohsen Mohammed Attia ,1999, pp10-11)

GLASS MOSAIC IN THE MODERN ERA

The end of the 19th and early 20th centuries in Europe witnessed major shifts in artistic concepts that were almost identical to those of Renaissance Europe and the art schools that emerged since the late 19th century. It is arguably an intimate encounter between these transformations in modern artistic concepts the late nineteenth century and the nature of mosaics as a new technical intermediary by people such as August Wagner who believed that the simulation of the aesthetics of photography through the mosaic technique was a desecration of the mosaic. Wagner and two of his young colleagues in 1889 in Berlin came after many experiments For manufacturing Smalti Through the provision of raw materials Smalti and the implementation of indirect technology became an important competitor to mosaic workshops in Venice Wagner tried to gather around him a group of artists designed for the work of mosaics who recognize the peculiarity of this technique and the difference from oil painting and that has paved the way to modernize the vision and concept and handling of mosaic art during the century Twenty (Mohammed Salem ,2014,pp:175:177), One of the most important people who worked with Wagner was Jan Thorn Prikker (1868-1932) His importance in dealing with mosaics is in a modern style and understanding even when dealing with traditional religious topics in places of worship. Prikker and a group of his colleagues moved from mosaics to places of worship (Fig.13,14) (en.wikipedia.org/wiki/Johan_Thorn_Prikker). His murals were symbolic and impressionistic Boris Anrep (1883-1969) It is important to understand the nature of the mosaics and its properties that were violated during the post-Renaissance centuries. He designed his own works with some assistants (en.wikipedia.org/wiki/Boris_Anrep.) (Fig.15,16)



(13)



(14)



(15)



(16)



(17)



(18)

One of the most important of these assistants Jeanne Reynal (1903 m), which played an important role in the spread of the mosaic in the United States after enabling methods of traditional performance fought numerous experiments in the use of mosaics, one of which she was scatters minute of the glass pieces on the surface of the grout is still wet how to rely on chance and random, has become an active member and collection of expressive and abstract (www.maaber.org/issue_november10/art1.htm) (Fig. 17,18) so he returned this ancient art for the emergence of a new more modern keep pace with the times and perhaps the most prominent of what people pay to return to it is the aesthetic of this art as well as always look for innovation in ancient heritage mines ancient civilizations, art returned Mosaics for the appearance of the houses, palaces and modern markets and in swimming pools, bathrooms and in fantastic forms of huge mural paintings (Elaine M Goodwin,2003,p.33).

RAW MATERIALS USED IN MURAL GLASS MOSAIC

1- Smalti: It has been used smalti for more than 2000 years glass in workmanship to cut the basic elements of glass are silica (sand is usually mixed with) (soda or potash) and a compound called stabilizers, this mixture is added coloring materials such as chromium, copper, selenium and then is heated mixture in a process called fusion, which eliminate the gases are where in the form of bubbles, and dissolved solids this heating process may one day continue and the result is a sticky substance on the molten glass which is poured out on a flat surface in the form of a circular disk or a rectangular plate and cool in a process called steel carefully controlled and then the resulting cut plate glass cut to hand over At the Tesserae called irregular (Mohammed Salem ,2014,pp:245-246). this stained glass non-transparent which is very limited use in the mosaic flooring Alhllinstah and Romania Regular (Mohammed Salem, 2014, pp: 245-246), This stained glass, which was used very limited in the mosaic of the Hellenistic and Roman floors, and then began to be used extensively in the mosaic of the Roman walls, but the wider and distinctive use of this material is associated with the Byzantine architecture. Smalti was the most important feature of the mosaics in terms of technology. In its use due to several factors, including hardness compared to colored natural stones and their appearance, which is not comparable to other materials except gemstones also The wide range of color available to the mosaic artist, where it is said that during the Byzantine period, it was possible to produce thousands of color grades and finally the important value as an aesthetic value in any artwork, which allows the use of Smalti with its irregular surface that reflects the light falling on it in a manner that gives a lot of sparkle and vitality to the mosaics executed (Leslie Dierks ,1997,p.18)

2 - Vitreous Glass: Tesserae Many small units that are assembled with spaces for large designs for the implementation of mosaics. Tesserae's is a Greek word meaning four pillars originally used to describe small cubes of stone or glass that make up ancient mosaics that make labels suitable for any mosaic units. The ceramic tiles were marble or broken pottery and also suitable for contemporary glass mosaic (ar.construct-itself.com/mosaic-dedicated-to-the-muses-glass-mosaic) It is the most common material for the production of mosaics today and it is not affected by water and heat resistance and shocks and moreover it has a solid structure and therefore not affected by microorganisms and bacteria so it is used in swimming pools and fountains. As for colors they are multicolored, sometimes called glass mosaics. To confuse this material with Smalti, which is also a Glass Mosaic Generally, meant is the most common and popular and easy to use, made from the same raw materials Smalti initial but the main difference

comes in how to form after the smelting, which results in the end of the surface evenly and regularly and varied colors and easy to break made these reasons used in large forms and sizes of multiple dimensions of 2 cm × 2 cm and thickness of 3 millimeters, although there are larger sizes and a little smaller making them ideal for decorating Tables, floors and walls, this Vitreous Glass is the most common and available and has the advantage of being cheaper than Smalti (Joann Locktov&Doreen Mastandrea,2003,p.48)

RESULTS

Through this study, which specialized in glass mosaic in various forms from its inception in antiquity to the modern era, we find that many developments have passed the use of this material, both in terms of choice of place as in the form (1) is an old Roman cemetery and then use it more attentively as In the form of (2,1) is one of the fountains and then find that the color has a significant impact since ancient and different place as in the form (5,4,3), although this place is also a cemetery But the designs and colors are more beautiful than before, and then the interest in this material is more and more evident because of its hardness and colorfulness. As we mentioned before, it was used in religious places to tell us religious stories, including drawings of religious people of Christian stories, 7,6,5) Then comes the Islamic era and the distance from the fees of persons and start in the style of designs vary in thought and no difference in performance and the type of material that helped the artist to express what he wants of decorative units or plants or writings or landscapes as in the form of (12, 11.10.9) The modern era and out of those religious places that were most frequently used in the past and begin to use this material in public places form (15,14,13) in the modern era and the different form of raw material, but the qualities and colors did not differ and their properties but different performance when some artists of the modern era form (15.14) and different designs became more freedom in the expression of each artist and the magnitude of the feelings of his own sensations and the public that the murals glass mosaic permanent link architecture both religious architecture since ancient times to the modern architecture worldly era such as public places, permission The severity of a very special artist with a high sense of great passion for colors

RECOMMENDATIONS

- 1- Mural painting play an important and constructive role in the history of civilization because of the aesthetics and features that reflect every age
- 2- When the work of the mural painting stems from the culture and environment of the artist, each artist and his own personal characteristics reflected on the values of the artistic work.
- 3- Interest in studying the history of civilization by the mural painting artist to consolidate his work and to confirm his identity

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