

"Three Unpublished Pen Boxes Preserved in the Museum of the Faculty of Applied Arts –Helwan University – Egypt- Analytical Artistic Study"

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Abstract: The Pen is a mean of science, learning, and transferring science, where Allah Ta'ala explained of what is concerning of the Pen or "by the pen" in the fourth verse of Sūrat al-‘Alaq. This is like Allah's saying; "Who has taught by the pen". Ibn al-Qayyim-may Allah have mercy- said; "with pen, science is immortal and without writing, the news of some of the times is interrupted". From here, the importance of the pen and the pen boxes were specified, as well as the attention for the quality of the raw material from which pen were manufactured, likewise the variety of ornament and materials used in decoration. So, the analytical and artistic study of the three unpublished pen boxes preserved in the Museum of the faculty of Applied Arts -Helwan University will reflect and clarify the value and importance of the scientific life in Islamic Egypt.

Keywords: Pen Boxes, Raw Material, Ornament, Metalworks, Woodwork, Floral motifs, Inscriptions.

Date of Submission: 05-12-2017

Date of acceptance: 29-12-2017

I. INTRODUCTION

The pen is a mean of science, learning, and transferring science, where Allah Ta'ala described and explained of what is concerning of the Pen or by the pen in Sūrat al-‘Alaq. This is like Allah's saying; "Recite in the name of your Lord who created – Created man from a clinging substance. Recite and your Lord is the most Generous –Who taught by the pen – Taught man that which he knew not"[1]. Ibn al-Qayyim-may Allah have mercy- said; "with pen, science is immortal and without writing, the news of some of the times is interrupted"[2]. Likewise, Allah Ta'ala confirmed the value and importance of the Pen in Sūrat Al-Qalam saying;"Nun. By the pen and what they inscribe" [3]. Beside the mentioned above, Egypt witnessed a scientific evolution throughout the various Islamic eras, as well as, the desire of most Sultans and Mamluks to seek knowledge, support scientists and hold scientific councils continuously. The great scientific movement is characterized by a large number of Islamic schools and a lot of Islamic manuscripts in different sciences [4]. The scientific centers varied during the Islamic periods, starting from the Medina in the era of the Prophet Muhammad-Peace be upon him-, Damascus, Baghdad and Cordoba. This is to name a few [5]. Throughout the Islamic period the writer (Al-doadar) had a distinguished social status [6], where he enjoyed great scientific status among kings, princes, sultans and the general public at the same time [7]. From here, the importance of the pen and the pen boxes were specified and clarified, furthermore the attention for the quality of the raw material from which pen were manufactured, as well as the variety of ornament and materials used in decoration.

II. THE SIGNIFICANCE OF METALS AND WOOD IN ISLAMIC ERAS

In the life of our Muslim ancestors, the metalwork played a great role and played a similar role in the lives of our predecessors before Islam. Most of what we have of Islamic metalwork found in the rubble, in mosques or what inherited by the successor of the predecessor. Throughout ages, man has mastered the extraction of minerals from the ground, and the method of extraction from the impurities suspended, then led to the formation of new minerals of that found in nature, like bronze alloys of copper and zinc, and alloy steel of iron mixed with some other materials [8, 9], in addition to the copper does not exist in nature as a pure metal, but extracted from its ores and smelted in furnaces [10]. Particularly, copper because it is the metal used in industry of pen boxes in this study. It is worth mentioning that the copper associated with some other terms such as; El-Malachite or El-Dahang. Ibn Al-Akfani[a] defined it as a soft stone, very green, with accurate black lines. It is noticeable that it is loosened at the time of extraction from the metal and then becomes more rigid [11]. Al-

Kanadi said that the copper appears to be green, with circular and crescents shapes. It is a green and hard metal [12], the copper usually found in the form of granular or earthy fibers [13]. It is noted that copper was more acceptable to Muslims than gold and silver so it was used extensively [14]. Bronze occupies second place after copper, but we find that it was widely used in coating utensils copper tools [15]. In the Islamic eras before the Fatimid period, Egypt had no great fame in the mineral industry, where little was found before the Fatimid period, but with the beginning of the Fatimid's economic prosperity and the establishment of an independent caliphate was a cause of spreading mineral industry. Historians of Egypt in the Middle Ages described how the Fatimid palaces were full of treasures and most important of them are metal works [16]. In Egypt and Syria, the Ayyubid rulers encouraged the skilled Mosul workers to abandon their country to establish new industrial centers in Damascus, Aleppo and Cairo, thus flourished the manufacture of wares and metalworks during the Ayyubid period [17]. It may what have been produced from various types of metalworks, shapes and decorations throughout the Islamic ages, especially the Mamluk period is the best witness to the quantity and quality of this industry was 2 in Foundries Fustat and other Foundries in Egypt [18], and this was in the hands of manufacturers who came to Egypt from Mosul and then the hands of the national manufacturers [19]. Historians also note that copper manufacturers occupied high-ranking government positions, sometimes with scientific qualifications, although they were not anxious to sign their works or their artistic products [14]. The Muslim artist produced the pen boxes made of metal and decorated them with silver and gold with white enamels, sometimes inlaid them with sapphires and emeralds [20]. As for the wood, before Islam Egypt was famous for production of antiques and wooden products, as well as its fame in the shipbuilding industry. Egypt does not have good varieties of the wood [21]. So, the best wood species were imported from Lebanon such as cedar wood, as well as using of local species like acacia trees, sycamores, olives, palm trees, and others [9]. It is worth mentioning that the wood is a material that cannot withstand the effects of various weather factors, so it was often damaged [22]. However, the wood is one of the best materials that can be formed and manufactured. Where the many advantages of wood for the artist "manufacturer" because it was easy to cut, light weight and ease of transport with the possibility to repair from the damage [23]. Wood art industries were widely spread in the Islamic civilization, where woodworks were found more in the applied arts, while they were used wood on a lesser scale in religious architectural establishments [24, 20]. The combination of science and industry is also a great artistic achievement, as the combination of science, skill and precision serves the artistic product whatever its kind or source [25].

2.1. The Methods of metal industry

Based on the above, it is necessary to identify the methods of manufacturing metals and wood, where there are many methods of manufacturing minerals during the Islamic eras, as follows: A) Method of beating [26]. B) Method of moulding. C) Method of smithery and turning [27]. As for the industrial methods used in making the decorations on metalworks can be classified as follows; A) Method of engraving and incision. B) Method of perforating [15]. C) Method of inlaying [b],[28]. D) Lamination method or plating. It should be noted that some of the tools used in making decorations on metals, one of the important the chisel - hammer - stylus [c], as well as the use of bitumen in the coverage of some metal surfaces [29]. The method of inlaying will be explained because it is the method used in decorating the copper pen boxes in this study. The inlaying method of different metals reached a high level of proficiency, which was used side by side with the traditional decorative methods of incision and engraving. During the 6th century A.H, inlaying used with other metals, which gave a wonderful color effect, the inlaying used with two different metals in color [30].

2.1.1. The inlaying was poured in two ways

A) In the form of accurate chips used in decorating large and wide areas, the materials that mostly used in inlaying were copper and silver. B) In the form of thin wires used in decorating small and narrow parts of decorations. In both cases, the material inlaying poured on the carved parts on the surface of the piece [28].

2.1.2. The origin of the inlaying method

It is clear that, the ancient Egyptians knew the method of inlaying and this is evidenced by the mask of Tut-ankh-amun, one of the most important Egyptian antiquities. It is also interesting to note that, the Iranians have known the method of inlaying since the Sassanid era, they have inlaying the bronze with copper and brass [16], as well as the mineral industry which flourished in Iran during the Seljuk period. The most important centers were Khorasan and Hrah. The method of inlaying in decoration was presented by the manufacturers in Iran and then moved to Iraq [17].

2.2. The Methods of wooden industry

It should be mentioned that the methods of wooden industry during the Islamic eras were varied, as follows; A) Engraving method [31,32,33]. B) Panelling method [27]. C) The method of turning [16,8].

2.2.1. The Methods of Decorations on Wooden works

There were various methods, as follows; A) Incision method, Inlaying method [34,9]. B) Perforating method. C) Dyeing or Coloring [31], or method of Lack [16]. The method of dyeing and coloring or method of lack will be explained in details, because it is used on one of the pen boxes of study, as follows;

2.2.2. The Method of Dyeing and Coloring or Method of Lack

The method of dyeing, or later known as the lack, appeared during the Safavid and Ottoman period [8]. It is noted that using of the dyeing method or coloring or lack first appeared on the art of Islamic painting then this decorative style moved to the Islamic applied arts, especially in wood decoration [16]. This decorative technique was also used in decorating the ceiling of religious and civil buildings. The most famous colors used, red degrees, blue, green, yellow, black [31,35].

III. DESCRIPTIVE STUDY OF THE THREE UNPUBLISHED PEN BOXES

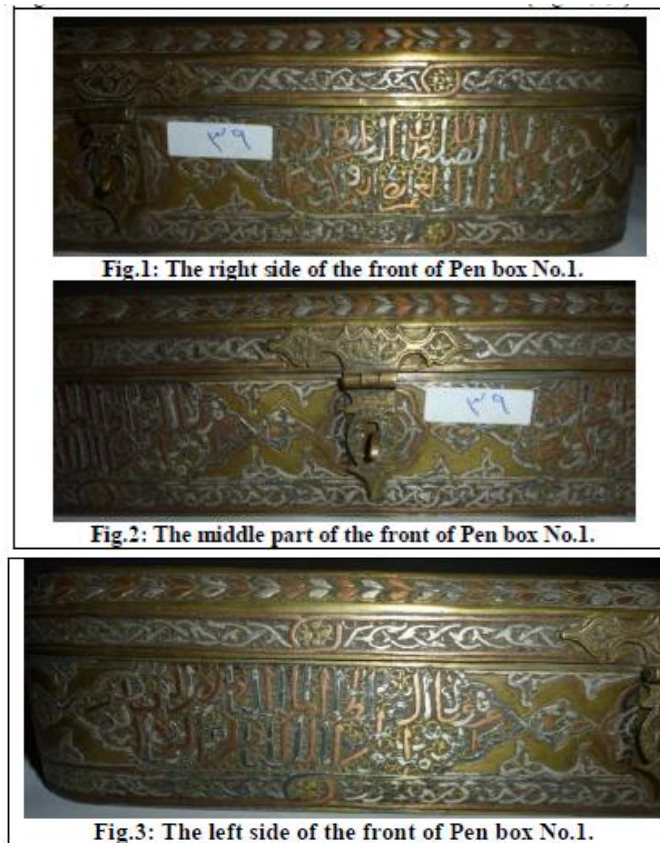
3.1. The Information of the Model No.1

- a) Type of the model: Pen box (Box for pen).
- b) Material: Brass.
- c) Dating: Mamluk period (8 th Century A.H).
- d) Place of Preservation: Museum of the Faculty of Applied Arts- Helwan University-Egypt.
- e) Model number: According to the record of the Museum of Applied Arts- Helwan University, the number is 142 / 6.
- f) Measures of the model: The length: 25 cm. The height: 7 cm. The width: 7cm.

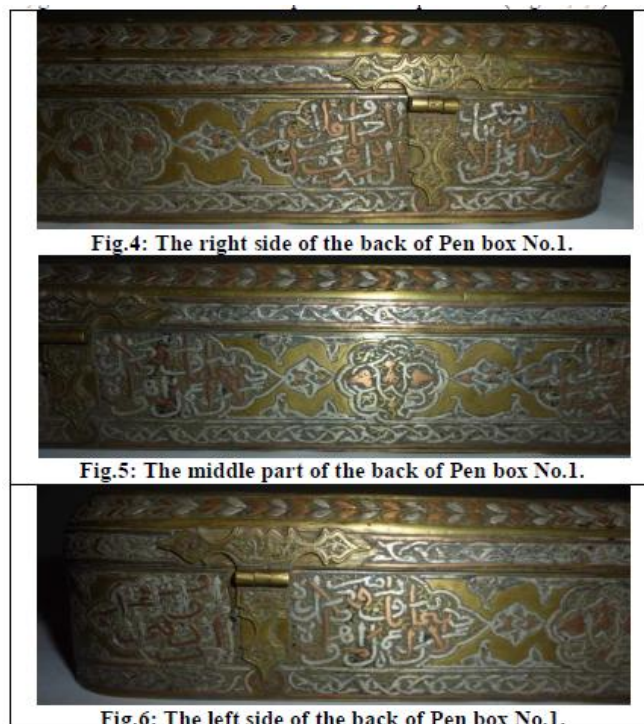


3.1.1. The General description of the Model No.1

It is characterized by geometric and floral motifs beside wonderful inscriptions of Mamluk style, the pen box is divided into a body and a cover. The body is rectangular in shape takes a semi-circular shape from both sides. The pen box contains floral motifs composed of a triple floral leaf surrounded by floral branches. These decorations contain medallions within each a multi-petals rose. The decorations have been separated with thin lines of silver and copper. In addition to the inscriptions on the body of the pen box, which is Arabic Calligraphy, the font used in writing is a Thuluth Mamluk script, and the frontal part of the body inscribed with two Area for inscriptions, in their middle, a clasp from brass, below it floral motifs beside a rose with modified by nature. The clasp is locked with a hollowed metal cover hollowed from the middle to be closed tightly. This cover is decorated with floral motifs composed of branches with trefoil floral leaves. The inscriptions found on the right side, is "great to our Sultan Al-Zafir to the religion of God King Al Amer". The left side included inscriptions says "great to our Sultan Malik al-Nasir Nasr al-Din". (Figs.1,2,3)



The decoration on the back side of the body is somewhat similar to the decoration on the front side; the difference in the inscriptions, the inscriptions on right side of the back side of the body contains the Thuluth script. "Mousa work The prince Omar.... AL-Hassan Al-Sddiq.... Unless". The left side contains script mentions; "work of.....". It should be noted that the name of the manufacturer was identified through the script as;"work of Mousa". This is in addition to using the method of inlaying to carry out the floral, geometric motifs and inscriptions on the pen box. (Figs.4,5,6)



The cover is decorated with two Bucharias decorated with geometric motifs. These items are between three roses with multiple lobes, with floral motifs modified from nature. The previous decorations are surrounding with a ribbon with floral motifs and small leaves. The pen box from inside is free of decoration, but has been subjected to bad weather conditions that have rusted parts of it. (Figs.7,8)



Fig.7: The surface and the cover of Pen box No.1.

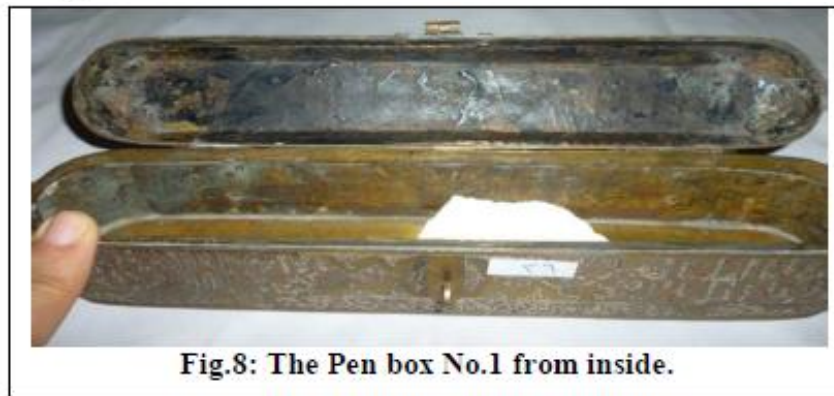


Fig.8: The Pen box No.1 from inside.

3.2. The Information of the Model No.2

- a) Type of the model: Pen box (Box for pen).
- b) Material: Brass covered with black bitumen.
- c) Dating: Fatimid period (6 th Century A.H).
- d) Place of Preservation: Museum of the Faculty of Applied Arts- Helwan University-Egypt.
- e) Model number: According to the record of the Museum of Applied Arts- Helwan University, the number is 141/3.
- f) Measures of the model: The length: 25 cm. The height: 7 cm. The width: 5 cm.



A general view of the components of Pen box No.2.

3.2.1. The General description of the Model No.2

The pen box is rectangle in shape while the edges are semi-circle. It is divided into two parts; the first part is the body, which devoted put pens. The second part is the cover, which is installed together with the body, and easily removed by gliding. It is included with human, animal, birds and floral motifs. The decorations were

enforcement with gilding on a black floor. The cover has four sides; the upper one is contain three oval shapes, on the middle part there is a scene of two princes sitting on chairs confronting each other. Each prince wears a Jellabab and a turban, with a circular table in the middle, as well as a guard or servant standing behind each prince. The human motifs are interlaced with floral motifs of branches and leaves modified by nature. The oval shapes on the edges of the upper part of the cover; the decoration inside each one has three sparrows. Each bird stands on a branch of a plant emerges from a central petal flower. The surface of the cover with surrounded by a strip of golden zigzag ornamentation likes the rest of the motifs. (Figs.9,10,11,12)



Fig.9: A general view components of the Pen box No.2.



Fig.10: The right side of the cover surface of the Pen box No.2.

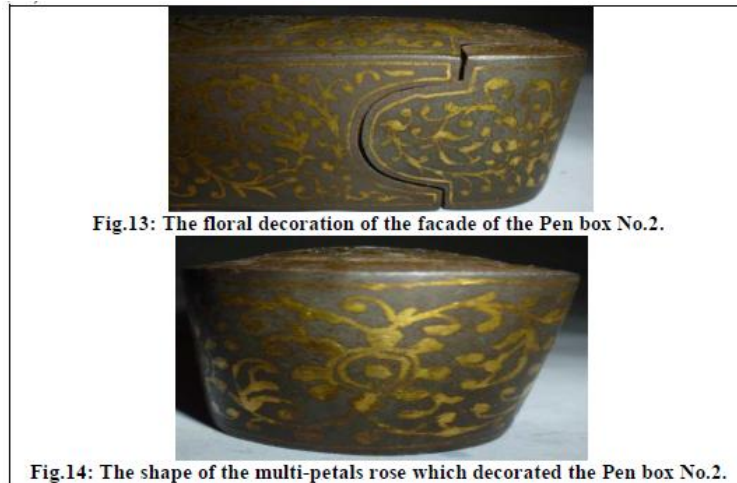


Fig.11: Details of the right side of the cover surface of the Pen box No.2.



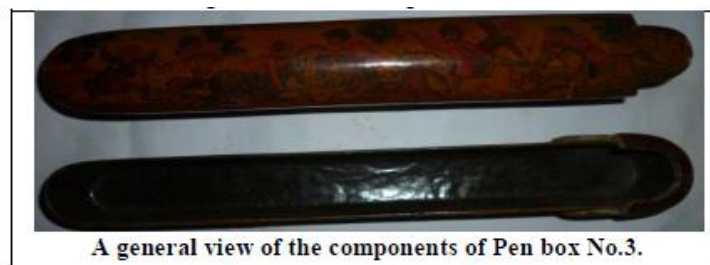
Fig.12: The middle part of the cover surface of the Pen box No.2.

The other three sides of the cover are decorated with floral motifs, which are roses come out of branches and leaves. The lower part of the cover is decorated with floral branches modified by nature. The body is of brass, as well as being free of decoration except for the right side decorated with floral gilded decorations, the decoration is a central flower of multi-petals come out of branches and leaves. (Figs.13,14)



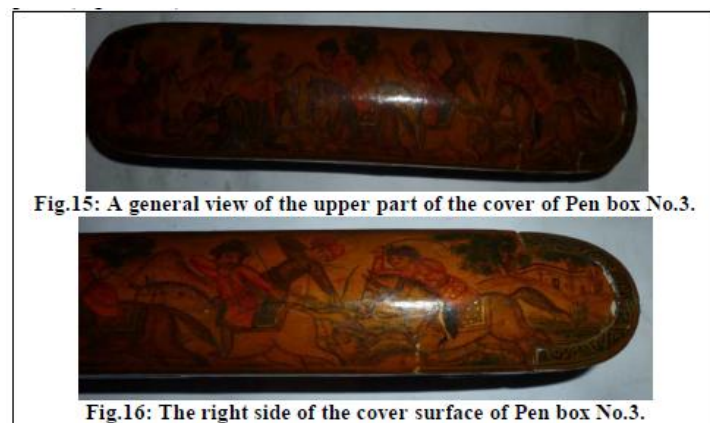
3.3. The Information of the Model No.3

- a) Type of the model: Pen box (Box for pen).
- b) Material: Wood.
- c) Dating: Kagari period.
- d) Place of Preservation: Museum of the Faculty of Applied Arts- Helwan University-Egypt.
- e) Model number: According to the record of the Museum of Applied Arts- Helwan University, the number is 141/5.
- f) Date of review: 14/1/2016.
- g) Measures of the model: The length: 25 cm. The height: 7 cm. The width: 7 cm.



3.3.1. The General description of the Model No.3

The pen box is rectangle while the edges are curved take the shape of semicircular from two sides. It consists of two parts, the body and the cover, the body is the part dedicated to put pens, which is pulled by gliding out of the cover. The pen box has a group of motifs such as, the human, animal and floral ornament. The general scene depicts a hunting scene by a group of men carrying swords and spears. The animals were gazelles, Small Cow and dogs; all drawings appeared in the movement mode. It is noted that, on the right side of the cover surface depicting three knights riding a horses, two of them carrying the spears where they face arrows to the dog, and the knight in the front is trying to approach the dog and get it. (Figs. 15,16)



As shown by the scene, the knights wearing turbans cover their head as well as the long shirts and trousers, in addition to the Azar, which wraps around the knights' waist, it is noticeable that the clothing of all knights is similar but differs in color. The centerpiece of the cover decorations consist of two knights riding horses confronting each other, between them a small gazelle. One is pointing his sword towards the gazelle and the other is trying to pick it up. The left side of the cover represents a knight riding his horse, carrying a sword in pursuit of a small gazelle. It is notably that, the color of the horses varies between white, brown and black. Concerning the background of the above mentioned figure is a landscape includes houses, trees and grass, as well as hills and plateaus. (Figs.17,18)



On the sides of the cover appeared a sketch illustrating two knights riding their horse trying to hunting a small cow while the third knight escapes with the cow. In the front of this, a Bedouin on his horse raises his left hand in an attempt to calm the situation. His facial features reflect stability and calmness. The background is a landscape of trees, grasses and hills. (Figs. 19,20,21,22)



The other side of the pen box shows a drawing of two knights riding their horse, one holding a small gazelle and the other is holding an arch and an arrow, both in a movement mode. The background is a landscape as usual. It is noticeable that, all forms on the pen box varied in the head coverings forms between turban and tartour. The base of the pen box painted by snakelike decorations around the curved edge of the pen box.(Figs.23,24).It should be noted that the body is free of decoration while covered from inside with black bitumen.



IV. ANALYTICAL STUDY OF THE THREE UNPUBLISHED PEN BOXES

4.1. The Pen box No.1

a) From the Technical point of view (Decorations)

The floral motifs on the brass pen box were varied between triple leaves and branches modified by nature as well as multi-petal roses, which known in Islamic art in Arabesque[d], [36].The Muslim artist has distinguished using floral motifs that was modified by nature, where the stems and leaves appeared incurved and sequential lines [37]. One of the features of the 8 th A.H or the 14 th Century A.D is using repetitive decorative medallions on decorative ribbons, as well as using thin ribbons on the edge of the pen box, decorated with floral motifs. In addition to the geometric motifs found on the model No 1, which known as Bucharias[e], [38], which in inside are interlocked squares. Thus, the geometric motifs are mainly composed of interlacing straight lines, regular polygons, star shapes and circles [39]. This type of decoration illuminates many of the applied arts, including the pen box of the study. The Bucharias composed of interlaced lines, in addition to the artist's use of the overlap method-overlap of straight lines together to form squares- resulting in distinctive and decorative patterns [40]. It is worth mentioning that inscriptions became one of the most important decorations used on pen boxes, especially during the Mamluk period [41], moreover through the inscriptions we could identify the era to which the pen box dates back, this is through the type of script. Besides, most often the name of Sultan and his titles or the history of the piece manufacture or the name of the manufacturer or all of the previous was written, which facilitate identifying the date of the piece accurately. The name of the manufacturer appeared on the pen box through the words that mentions; (work of Mousa).The aim of using the archaeological inscriptions on Islamic antiquities and architecture is to be a factor of preserving the history of the nations. The inscriptions which have widely spread on the Islamic architecture are the Quranic verses, especially those which suitable with the type of the piece or the building [42].In addition to writing poems, poetry or praising rulers or proverbs [43]. We can conclude that inscriptions had various purposes like religious, political, decorative or all of them [44]. The inscriptions on Islamic arts is of the constants found in the culture of Muslims, as each language especially Arabic has its own specifications in decorative form[45].The Arabic letters may symbolize something specific. In some cases, the letters are intermittent, not connected to each other, and this method of writing was meaningful to Muslims at that time [46]. The Thuluth script (the script apparent on the piece of study) is a difficult script, since the good calligrapher should being skilled in writing it, it is suitable to that decoration found on the Islamic arts [47], especially during the Mamluk period in Egypt and Syria. It should also be noted that there is confusion among researchers about the Naskh and Thuluth script. But it is clear that the script used in decorating writings on buildings and arts was the Thuluth script while the script used in the editing the Quran and various letters on paper was Naskh[48]. To conclude we deduce through the forms and types of the floral and geometric decorations, and inscriptions on the Model No.1, it dates back to the Mamluk period in Egypt.

b) From the Functional point of view (Functionally)

It is necessary to talk about the pen that was placed in the pen box, because the measures of the model No. 1 are: length 25 cm, width: 7 cm, height: 7 cm. So, the pen measures in the Islamic period especially the Mamluk period is rather small. The Pen was a prune and abraded reed. Sometimes it was made of fronds, timber or bird feathers, where pens were dipped in the ink and used in writing. Throughout the Islamic ages, writing was by reed pens side by side with using ink pens, metal feathers and others. While the pen of reeds was widely used for writing. Pen has many names but the most important was the *almazbar*[49]. For the length of the pen, Ibn Mokla said that the appropriate length of the pen, which does not exceed a span. The Sheikh of the pens industry, Imad al-Din Shirazi said that the best pens are between length and shortness and thinness and thickness [50]. This indicates that the size of the three pens of study is right and logical for the length of the pen at the time. It is noted that some of the pen boxes contains inkstand and often takes the circular shape, because if the inkstand took square or rectangle shape, the ink will accumulate in the corners of shape and will spoil [49,6]. Thus, the inkstand always took the circular shape, whether it is separated or connected to the pen box. It worthy to mention that all the pen boxes of the study are dedicated to place pens only and not associated with the inkstand, but they characterized by the traditional opening method of top, while the other pen boxes open in a way of gliding (sliding) .

4.2. The Pen box No.2

a) From the Technical point of view (Decorations)

The motifs on the pen box No.2 were varied between human, animal and floral motifs, the human motifs centered on the surface of the cover. The surface of the cover contains three oval forms, the middle shape, includes human decorations, show the celebration of the two princes who drink in a sitting and relaxing position. The celebration scenes of food and drink appeared frequently on the Fatimid applied arts in Egypt. In addition to the quality of the garments the princes and guardians represented by Turban and Jilbab, which are mediated by "Ezar", this is found on many Fatimid arts [51]. The human motifs, which mediate the surface of the cover of the pen box No.2, reflect a scene of social life and the accompanying luxury during the Fatimid period [52]. If we look at the dress of princes and guards accurately, especially the turban, it can be said that the beginning of the turban appearance as head cover was in the Abbasid period [53], which is a piece of cloth wrapping several rolls around the head [54,55]. It is also noted that the Jilbabs are stripy which refers to the princes' clothes decoration, as well as the guards or the servants' Jilbabs decoration have some strips. Moreover, it was noted that the stability of the guards or the servants and the whole scene surrounded by this Fatimid depiction of floral motifs about branches of plants modified by nature, the decorations of human and floral motifs has carried out of gold on a black floor. The oval shapes on the cover edges of the pen box No. 2, it is clear the similarity between the right and left shapes, which contain floral motifs of a central multi-petal rose with branches of leaves. There are animal motifs of three birds surrounding the central rose. The birds' details are clear like the beak, eye and wings, but in a state of stability .It is remarkable the drawings of birds were found in many Fatimid depictions, such as pottery, wood and glass, where birds were revised from nature and modified by nature. For example, birds with human head or winged animals [56,57]. It is known that Muslims hated human and animal motifs, due to the Muslims' desire to move away from images and statues that make them closer to worshipping idols. However, this prohibition was not followed among Muslims all the time, especially among the Islamic nations, whom were not of Semitic origin or whom did not have an artistic heritage and distinguished talents in the art of depiction "painting", especially on applied antiques, perhaps this is the secret in flourishing the human and animal decoration on the Fatimid artistic products in Egypt [58]. The cover reflects the idea of repetition in decoration. The repetition feature has distinguished the Islamic decorations in general and the Fatimid period in particular. The repetition feature in Islam is due to the ideological effect of repeating some Quranic verses and repetition of the Azan. Thus, the repetition for the Muslim artist is evidence of the control of the artist to draw the decorative element and adapting the subject to the refined regulation [59]. There are many ways of repeating the decorations, such as horizontal repetition as in the pen box of the study, vertical and curved repetition within a curved or wavy units or circular repetition within the whole circle which is restricted to the circle[60]. The frame of the cover of pen box No.2 was decorated with gilded zigzag decorations, which the feature of repetition is observed clearly. The sides of the pen box cover is decorated with gilded floral motifs of a multi-petals rose from which branches and stems come together with each other to connect all the roses. It is clear that, the body of the pen box is free of decoration except for a small part mentioned previously, as well as the absence of the inscriptions decoration.

b) From the Functional point of view (Functionally)

It is very similar to the functional purpose of the first pen box. It is intended for placing pens only, and does not include an inkstand. However, the functional difference is in the way of opening it. In the item No.2, the pen box is opened by pulling the body from the cover (gliding). The closing method is inserting of the body into the cover.

4.3. The Pen box No.3

a) From the Technical point of view (Decorations)

This pen box has a totally different decoration from the above mentioned ones. On it appeared a full view of the hunting landscape, besides, the many evidences that makes the piece dates back to the Qajari period in Iran. The most prominent evidence is the realistic depiction of the scene, which is one of the main elements, which characterized the Qajari school in Iran. The human motifs appear on the piece are realistic and natural, with the interest in showing the details of facial features, as well the landscape and drawing plants and trees. The artist was realistic in depicting animals, excelled in its embodiment and the emergence of its anatomical proportions. The Qajari artist was able to show the features of the animal and its sensations[61]. The fishing scenes were depicted in many manuscripts and many antiques or applied arts[62]. The men's clothing in the Qajari period consisted of a caftan with a shirt underneath and headdress, which varied between the turban, tartour and bonnet. These clothes may be somewhat similar to those of the eastern man[61]. I found the previous types of clothing on the pen box No. 3. This is in addition to the use of different colors such as yellow in coloring hills and plateaus, green for trees, black, brown and white for horses. It is noted that there are no inscriptions decorations on the pen box No.3.

b) From the Functional point of view (Functionally)

The pen box No.3 was identical totally in the general form and the content of the model No.2.

Therefore, the functional purpose of the model No.3 was in the same purpose of the model No.2, which previously mentioned.

V. RESULTS OF THE STUDY

5.1. The pen box No.1 dating back to the Mamluk period in Egypt, this is due to its geometric and floral motifs, as well as the similarity of the inscriptions decoration with the other antiques found in Egypt during the Mamluk period.

5.2. The pen box No.2 is attributed to the Fatimid period in Egypt, where the decoration of the birds, celebration and figurative scenes were common on the applied arts during the Fatimid period in Egypt.

5.3. The pen box No.3 dating back to the Qajari period in Iran, this is due to several differences from the previous ones. The most important differences are the type of clothes, fishing scenes that spread in the Iranian items and artifacts, using of colors on wood, beside the realistic in depiction.

5.4. The importance of pen and writer (Al-dwadar) during various Islamic eras, which appeared therefore sometimes called him (the clerk of secrets), then had to pay attention to his tools, which were the most important pen boxes "boxes for placing pens", this in addition to providing them with the most beautiful and accurate decorations.

5.5. Paying attention for the preservation and the restoration of these pen boxes in order to remain in a good condition within the museum, with providing a suitable museum display to show the magnificence and accuracy of decorations on them.

ENDNOTES

[a] Ibn Al-Akfani known also as;" Abdullah ibn Ibrahim bin Sad Al-Ansari Al-singari,1348 A.D." cf: Ibn al-Akfani: (Abdullah ibn Ibrahim bin Sad Al-Ansari Al-singari) "1348 A.D", (1984). The Toast of Ammunitions in The Conditions of The Jewels, The World of Books for Printing, Publishing and Distribution, Cairo, p. 12.

[b] Takffheet or Inlaying; A Persian word meaning to forge. Inlaying is a style of decorating metals using engraving decorations on the surface of the metal then filled with other materials such as silver and copper. cf: Abdul Aziz Salah Salem, (1999). Islamic Arts in the Ayyubid Period (MetalWorks), Book Center for Publishing, Part I, 1st Edition, Cairo, p.36.

[c] The stylus means the tool with which the drawings and designs are determined on the surface of the metal, and the edge must be pointed. cf: Abdel Razek Mohamed El Sayed, (2001). Metal and Enamel Works, Horus Institution for Scientific Publishing and Distribution, Cairo, p.p. 74-75-77.

[d] Arabesque: is a new artistic innovation for Arabs and Muslims. It is the origin of using floral decorations based on a leaf whose branches are overlaps with non-real waves, which is modified by nature. The origin of the spiral decorations is Arabic-Islamic concepts that due to Islamic faith, which found on the Pen box No.1. cf: Mahmoud Ibrahim Hussein, (1987). Islamic Decoration "Arabesque", Modern Printing Press, Cairo, p.p.12:15.

[e] Bucharias: A type of decorative units, are semi-circular medallions and sometimes oval with the drawn sides, where these parties end in the form of a triple leave. This type of decoration performs on stucco or wood, metal or stone, for both applied arts or architecture, especially in the Mamluk period in Egypt. cf: Mohammed Hamza Ismail Al-Haddad, (2008). Introduction to Study of Technical Terms of Islamic Architecture "in The light of Writings of Muslim Travelers and Comparing Them with Archaeological Inscriptions, Documentary and Historical Texts", Zahraa Al-Sharq Library, 3rd Edition, Cairo, p.90.

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Dr. Ghadeer Dardier Afify Khalifa ""Three Unpublished Pen Boxes Preserved in the Museum of the Faculty of Applied Arts –Helwan University – Egypt- Analytical Artistic Study"." IOSR Journal Of Humanities And Social Science (IOSR-JHSS). vol. 22 no. 12, 2017, pp. 63-75.