A STUDY OF MATERIALS AND TECHNIQUES FOR THE CONSERVATION OF KING FAROUK OIL PAINTING

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Abstract

This research includes a historical and artistic study of an oil painting of King Farouk in the Museum of the National Post Authority in Ataba Square, dated 1939 AD, and signed by the artist Mahmoud Saber. On the photography floor, in addition to the type of fibers used in the canvas holder. The report also deals with the most important aspects of painting damage and the factors causing it, and finally the most important stages of restoration and maintenance of the painting subject of the report.

Keywords

XRD, Pigments, Scanning Electron Microscope, Artist, Historical Study.

Historical and artistic study of the painting:

The painting under study is an oil painting on a canvas stand, inside a gilded wooden frame, at the Postal Museum in Ataba Square. It is a personal portrait of King Farouk, signed by the artist (Mahmoud Sabir), dated 1939 AD, and Fig. No. (1) Shows the oil picture the subject of the study, Fig. No. (2) Shows the artist’s signature and the date of the painting.

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The painting, the subject of the study, is an oil portrait of King Farouk, almost life-size, with a length of 165 cm and a width of 95 cm. (3), (4), explaining the oil painting the subject of the study from front and back, and the date of the painting dates back to the date written on it below the artist’s signature to 1939 AD, and this oil picture was painted three years after King Farouk assumed the throne, as May 6, 1936 AD is The official date of King Farouk’s accession to the throne of Egypt, and this picture is very similar to a photograph taken of King Farouk in 1938 AD, as in Fig. No. (5).

The picture is painted in oil colors on canvas stretched on a wooden beam, and inside a gilded wood frame with stucco decorations. The frame is topped by the royal crown, which is famous for all the frames and paintings of the Muhammad Ali family, and it is the royal emblem that the Muhammad Ali family was famous for and its shape differed Its place is from one ruler to another, where the royal crown bears the name of King Farouk in Arabic, and a crescent and five-pointed star is the royal emblem of King Farouk, as in Fig. No. (6). The artist depicted King Farouk standing in military clothes studded with medals and decorations, holding his sword sheath with his left hand, while holding a stick of honor in his right hand.
Fig. No. (5) A photograph of King Farouk taken in 1938 AD.

Fig. No. (6) Shows the crown on top of the gilded wooden frame.
Methods used for examination and analysis:

Several methods of examination and analysis were used in order to identify the anatomical structure of the plate, as well as to identify the most important manifestations of damage and the factors causing it, as follows:

*First: Methods of examination:*

*Photographic recording:*

The painting under study was photographed at this stage - the pre-restoration stage, then at the start of the restoration process with cleaning until the completion of the treatment and maintenance operations, and the painting under study was presented as an appropriate museum display. Several general snapshots were taken of the painting subject of the study, then some detailed snapshots were taken to highlight all the features and manifestations of damage and details of the painting to determine the treatment plan that will be applied to it. On it after the completion of the restoration process through all its stages, as these snapshots were taken for each part of the painting before, during and after the restoration, as these pictures are the complete record of the painting that can be used in any subsequent stages in the future, and it also shows the extent of the effort that was made by For the restoration and maintenance of this painting and to bring it to light and display it in a good manner that matches the value and history of such antiquities, and the Figs numbers (7) to (20) show the painting before the restoration.

<table>
<thead>
<tr>
<th>Fig. No. (7) Shows the painting before restoration.</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Painting" /></td>
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<th>Fig. No. (8) Shows the painting before restoration.</th>
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<td><img src="image2.png" alt="Painting" /></td>
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<th>Fig. No. (9) Shows the painting before restoration.</th>
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<tr>
<td><img src="image3.png" alt="Painting" /></td>
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</table>
Fig. No. (10) Shows the painting before restoration.

Fig. No. (11) Shows the painting before restoration.

Fig. No. (12) Shows the painting before restoration.
Fig. No. (13) Shows the painting before restoration.

Fig. No. (14) Shows the painting before restoration.

Fig. No. (15) Shows the painting before restoration.
Fig. No. (16) Showing the crown from the back before restoration.

Fig. No. (17) Showing the name and address of a shop selling art supplies.

Fig. No. (18) Showing the background of the painting before restoration.

Fig. No. (19) Shows the background of the painting before restoration.
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Fig. No. (20) Showing the background of the painting before restoration.

Ultraviolet examination:

This method depends on the penetration of the rays into the material and its penetration through the different layers, which gives the film degrees of color indicating the presence of more than one layer. This method is used to examine the shifting colors (due to a change in the absorption of some effective groups), as well as photographing the paintings. Oily to indicate the presence of different layers or cracks.

The painting under study was photographed with a UV lamp to study the layers of photography and what there may be of sub-surface layers or old restorations that are not visible to the naked eye. The results showed the existence of old restoration works represented by coloring some areas with colors in addition to applying a thick layer of varnish on the painting. In the Figs are numbers from (21) to (28).

Fig. No. (21) Shows the painting during the UV examination.

Fig. No. (22) Shows the painting during the UV examination.
<table>
<thead>
<tr>
<th>Fig. No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>23</td>
<td>Shows the painting during the UV examination.</td>
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<tr>
<td>24</td>
<td>Shows the painting during the UV examination.</td>
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<tr>
<td>25</td>
<td>Shows the painting during the UV examination.</td>
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<tr>
<td>26</td>
<td>Shows the painting during the UV examination.</td>
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</tbody>
</table>
Fig. No. (27) Shows the painting during the UV examination.

Fig. No. (28) Shows the painting during the UV examination.

**Infrared examination:**

It depends on the penetration power of the rays of the material and the extent of its penetration through the different layers, which gives the film degrees of color indicating the presence of more than one layer. This method is used to examine colors (due to a change in the absorption of some effective groups), as well as photographing oil paintings to indicate the presence of layers. The different layers or cracks, as well as to study the layers of photography and what there may be from the sub-surface layers, as well as identifying some aspects of damage within the color layer or on the background of the painting and difficult to show under normal light, or any signatures or writings that are not clear that cannot be seen with the naked eye, as well as Whether the artist drew a sketch of the painting with a pencil or not, as in the Figs numbers (29) to (35).

Fig. No. (29) Shows the painting during the IR examination.
Fig. No. (30) Shows the painting during the IR examination.

Fig. No. (31) Shows the painting during the IR examination.

Fig. No. (32) Shows the painting during the IR examination.

Fig. No. (33) Shows the painting during the IR examination.
Fig. No. (34) Shows the painting during the IR examination.

Fig. No. (35) Shows the painting during the IR examination.

Second: Methods of Analysis:

X-ray diffraction analysis:

X-ray diffraction analysis is used to identify the compounds that make up the colored materials, as well as the compounds that make up the photographic floor or the white filler that makes up the photographic floor. It was found through the results of the X-ray diffraction analysis that the artist used the ground green as a green colored material, as in Figure No. (36), while Venice red was used as a red colored material, as in Figure (37), and carbon black was used as a black colored material, as in Figure (38), and Ocher yellow was used as a yellow colored material, as in Figure (39), as shown. Through the results of the X-ray diffraction analysis of a sample from the photographic floor, the artist used zinc white as a white filler on the photographic floor, as shown in Figure (40).
Fig. No. (36) Shows the result of the analysis of a sample of green color by X-ray diffraction.

Fig. No. (37) shows the result of analyzing a sample of red color by X-ray diffraction.
Fig. No. (38) shows the result of analyzing a sample of black color by X-ray diffraction.

Fig. No. (39) shows the result of analyzing a sample of yellow color by X-ray diffraction.
Fig. No. (40) shows the result of analyzing a sample from the X-ray diffraction imaging floor.

**Gas chromatography:**

Gas chromatographic analysis is used to identify the type of oily medium used in the color layer. The results of the gas chromatographic analysis of a sample of the color layer showed that the artist used linseed oil as an oil medium in the color layer, as shown in Figure (41).

Fig. No. (41) Shows the result of analyzing a sample of the painting layer by gas chromatography.
Infrared analysis:

Infrared analysis is used to identify the type of bonding material used in the photographic floor, and it was found through the analysis of a sample from the photographic floor that the artist used animal glue as a bonding material to the photographic floor, as shown in Figure (42).

![Infrared analysis](image)

**Fig. No. (42) Shows the result of analyzing a sample from the imaging floor by infrared radiation.**

Canvas:

Through scanning electron microscopy and optical microscopy of a sample of the canvas holder, it was found that the type of fibers used in the canvas carrier is cotton, as in Fig. No. (43), and that the tissue structure of the canvas carrier is 1/1, and that the number of stroma threads per centimeter is 12, while the number of weft threads per centimeter is 13, as in Fig. No. (44).

![Canvas](image)

**Fig. No. (43) Shows the shape of the cotton canvas fibers.**
The most important aspects of deterioration and the factors causing it:

The painting under study has many manifestations of damage, illustrated by the following pictures. Through the initial examination with the naked eye of the board in the storage location, it was found that there are dark calcified dirt and dirt on most parts of the painting, especially the background of the painting, especially on the lower side, which indicates that this side has been affected humidity in earlier periods. It was also noticed that there was a large spot on the king's face and the rest of his clothes appearing longitudinally from behind the painting, and a change in the color of the varnish layer as it turned dark yellow, and this was confirmed by the ultraviolet examination, as the phenomenon of enlightenment is evident in addition to many cracks, and a water leak occurred on the background of the painting, which led to the melting of the bonding material of the photographic floor in addition to the melting of the etching layer, which led to a peeling of the color layer, and this peeling appeared as a longitudinal line to the right of the king.

It was noted the presence of discoloration and fading in some places, especially in the face area, as well as many peelings in the color layer from the preparation layer. It was also noted that there were cracks and separations in other places of the color layer, especially in the lower places of the painting, as it was found that there are cracks and crusts for many of the colored parts, Perhaps this is due to the neglect of severe Lifting, which was exposed to the painting. The UV examination of the painting also showed traces of a previous restoration (previous additions) on the painting represented by the application of a dense layer of modern varnish, and the artist’s signature was carefully examined to ensure that it was original and not forged or forged, as in the Fig. numbers (45) to (54).
<table>
<thead>
<tr>
<th>Fig. No. (45)</th>
<th>Shows the occurrence of a pale color layer on the left arm of the king.</th>
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<tbody>
<tr>
<td>Fig. No. (46)</td>
<td>Shows the occurrence of peeling in the color layer.</td>
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<tr>
<td>Fig. No. (47)</td>
<td>Shows the occurrence of cleavage and peeling of the color layer.</td>
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<td>Fig. No. (48) Shows the occurrence of an enlightenment of the varnish layer.</td>
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<tr>
<td>Fig. No. (49) Fades the dirtiness and fading of the color layer.</td>
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<tr>
<td>Fig. No. (50) Shows the occurrence of darkening of the varnish layer.</td>
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</table>
Fig. No. (51) Shows stains and smudges on a canvas background.

Fig. No. (52) Shows stains and smudges on a canvas background.

Fig. No. (53) Shows stains and smudges on a canvas background.
Results and Conclusion:

This painting was investigated using non-destructive methods. The supports of the painting is made of cotton and an Alla-prima technique is used. The artists’ work is monochrome in tone. Indian Red, Earth Green, Yellow Ochre, Carbon Black are the main pigments in this painting. The oil used in these paintings is linseed oil.

References


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