

**Employing Digital Programs in Displaying and Preserving Museum  
Collectibles Applied on One of the Showcases at Kafr El-Sheikh Museum**  
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توظيف البرامج الرقمية في عرض وحفظ المقتنيات المتحفية  
تطبيقاً على أحد فاترينات العرض بمتحف كفر الشيخ

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## Abstract

The process of handling collections is one of the strategic operations that museums attach importance to preserving their cultural heritage. Preservation is a necessity and a condition for displaying collectibles in museums so that future generations can view and enjoy those collectibles. Ongoing developments in digital technology have contributed to the development of museum performances and made them more attractive. New artistic trends, such as virtual reality art have emerged and become among the most important contemporary and widespread artistic trends among artists. Hence, digital artist, uses digital software in the design of museum shows, perhaps most notably Photoshop-CorelDraw, This is to design a high-end museum display to minimize the process of handling collectibles and preserve them from some of the risks that can be exposed to them during the handling process, including, for example, human sweat, which is transmitted to collectibles by handling hands, in addition to the exposure of some collectibles to fall and break in case of wrong handling of the antiquities. It also reduces the cost of materials used in the display of collectibles by settling on the ideal presentation method through computer programs before implementing the actual display with the showcases. This is the desired goal to achieve the extent to which the Conservation Center conforms to the standards of museum architecture, which in turn are based on four main pillars: designing and building museum architecture according to a special technique and furnishing it with furniture suitable for display and good preventive preservation.

**Keywords:** Museum Display; Handling; Museum Collectibles; Preserving; Digital programs.

## الملخص:

تعتبر عملية تناول المقتنيات من العمليات الاستراتيجية التي توليها المتاحف أهمية للحفاظ على تراثها الثقافي، فالحفظ ضرورة وشرط من شروط عرض المقتنيات بالمتاحف، وحتى يتسنى للأجيال القادمة الإطلاع على تلك المقتنيات والاستمتاع بها. ولقد ساهمت التطورات المستمرة للتكنولوجيا الرقمية في تطوير العروض المتحفية وجعلها أكثر جاذبية، حيث ظهرت اتجاهات فنية جديدة مثل فن الواقع الافتراضي وأصبحت من أهم الاتجاهات الفنية المعاصرة والأوسع انتشاراً بين الفنانين، ومن هنا يظهر مصطلح الفنان الرقمي وهو الذي يستخدم البرامج الرقمية في تصميم العروض المتحفية، ولعل أبرزها برنامجي فوتوشوب Photoshop وكورل درو Corel Draw، وذلك لتصميم عرض متحف راقى والتقليل من عملية التناول للمقتنيات، والحفاظ

عليها من بعض المخاطر التي يمكن أن تتعرض لها أثناء عملية التناول ومنها على سبيل المثال العرق الأدمي والذي ينتقل للمقتنيات عن طريق التناول بالأيدي بالإضافة إلى تعرض بعض المقتنيات للسقوط والكسر في حالة التناول الخاطيء للأثر، كذلك

أيضاً تقليل التكلفة للمواد والخامات المستخدمة في عرض المقتنيات حيث الاستقرار على طريقة العرض المثالية عن طريق برامج الحاسوب قبل تنفيذ العرض الفعلي بفاترينة العرض. تلك هي الغاية المرجوة لتحقيق مدى تطابق وسط الحفظ مع معايير العمارة المتحفية القائمة بدورها على أربع دعائم رئيسية وهي تصميم وبناء عمارة المتحف وفق تقنية خاصة، وتأثيرها بأثاث ملائم للعرض والحفظ الوقائي الجيد.

**الكلمات الدالة:** العرض المتحفي، التناول، المقتنيات المتحفية، الحفظ، البرامج الرقمية.

## **1. INTRODUCTION**

The preservation of museum collectibles begins with their correct handling. When you move the collectibles, it increases the rate of damage. Regrettably, much effort has been made by the restoration specialist in the maintenance and restoration of the collectibles to preserve them, which may extend for many years, and then in moments the artifact is broken as a result of the erroneous handling during the museum display process, highlighting the importance of addressing the preservation and displaying of museum collectibles. The research aims to use digital software to reduce the handling of collectibles during the museum display process and to safeguard the integrity of such collectibles using the Corel Draw and Photoshop programs that specialize in the field of two-dimensional designs. These programs enrich the aesthetic and formative dimensions of the design field. They can also be used to edit images, imagine how collectibles are displayed within the showcase, and easily adjust the place of handling from one place to another by clicking a button, unlike what happens in the case of applications. When the handling is displayed directly inside the showcase, the handling must sometimes need the help of someone to deal with it in case the handling is heavy or, in the case of an amendment to the rules, its offer may not be commensurate with the new place to which it is to be transferred. Therefore, it is better to make a preliminary impression using digital software. This is done by photocopying the collectibles allocated for the display with a showcase, taking into account the dimensions and stability of the arrangement and the optimal display within the showcase, and then this is applied on the ground with the showcase inside the museum. This saves time wasted during the display process as well as raw materials used in the display, such as plexiglass holders and wooden or marble bases.

## **2. Handling Process**

The process of handling means holding the artifact, changing its place, or moving it, even for a short distance. The process of good handling of archaeological collectibles is an essential element among the preventive maintenance elements that are carried out for artifacts, which require careful and thoughtful handling to preserve them and to avoid any other damage that may result from the wrong handling process. Before starting to deal

## Employing Digital Programs in Displaying and Preserving Museum Collectibles Applied on One of the Showcases at Kafr El-Sheikh Museum

directly with archaeological collectibles, whether for restoration and maintenance, museum display, storage, or transportation operations, a very important process comes, which is dealing with the artifact, whether inside museums or in excavations, which must be done

With great care and a great degree of attention, care, and caution<sup>1</sup>. The handler, with his different job roles, should be well versed in the correct handling process, scientific bases, and international standards followed in handling artifacts to avoid any damage during these operations. The improper handling of archaeological collectibles causes a lot of damage to them<sup>2</sup>.

### **2-1. The risks of handling collectibles**

Most of the damage to the artifacts is due to the process of erroneous handling, and the artifacts are more at risk and damaged when handling and transportation are repeated. In addition to the human sweat through the glands in the deep layer of the skin, known as the dermis, the sweat glands are available throughout the body but are more present in the forehead and palms of the hands. Sweat in the body is essentially water, but it also contains salts and other chemicals, such as ammonia, urea, lactic acid, chloride, sodium, potassium, calcium, and magnesium <sup>3</sup>(Fig: 1).



**Fig 1:** Wrong handling of archaeological collectibles, causing damage to them  
**Fig 1** about UNESCO, Brochure on the protection of cultural heritage, No. 5”  
circulation of collections of stored objects”,2010,p 33.

<sup>1</sup> PERRIN, K., et al., "A Standard and Guide to Best Practice for Archaeological Archiving in Europe", EAC Guidelines1, 2015, p. 36.

<sup>2</sup> Garside, P., and Hanson, L., "A Systematic Approach to Selecting Inexpensive Conservation Storage Solutions", Technical Note, Journal of Conservation and Museum Studies Vol.9,2011, p.14.

<sup>3</sup> <https://altibbi.com/1576800> (Accessed 3-11-2022).

## **2-2. Safe handling of Museum collectibles**

The method of handling collectibles varies according to the type of relic material and its condition, as handling organic relics is completely different from handling inorganic relics, and we find that the proper handling of artifacts is necessary to protect artifacts and prolong their lives, and the handling procedures followed with small pieces require special handling and knowledge. For example, metal antiques are prone to corrosion and rust as a result of handling them without wearing a glove<sup>4</sup>, while large-sized Therefore, before starting to handle any collectibles, the following should be taken into account:

- The need to conduct practical training for those dealing with antiquities to provide them with the expertise that qualifies them to conduct the process of dealing with archaeological Holdings scientifically correctly.
- The need to use the appropriate equipment for the process of handling artifacts, taking into account ensuring that they are in good condition to ensure the success of the handling process<sup>5</sup>.
- Develop a plan for all tasks related to the handling process. Planning is a necessary and important procedure for the artifacts that will be handled or moved to a specific place. The planning process includes the condition, number, and nature of the artifacts, the new place of transportation, the route of transportation, and the surrounding weather conditions.
- Develop regulations that provide for the risks and occupational health and safety of those responsible for handling operations<sup>6</sup>.
- Carry collectibles with both hands and do not carry any trace with one hand, even if it is small, and avoid carrying the trace from weak places such as the nozzle or handles, which may look in good condition but it is weak and prone to separation<sup>7</sup>.
- When handling archaeological collectibles, especially paper and documents, as well as fragile plant collectibles, care should be taken to use hard holders, such as cardboard, during the transportation process. To avoid loss or displacement of parts of the collection during the transportation process, it is preferable to cover the collection with solid supports such as cardboard (Fig: 2-3).

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<sup>4</sup> Crété, E., et al., 2016, "Endangered Heritage Emergency Evacuation of Heritage Collections", Pack Objects, UNESCO and ICCROM, 2016, p. 30.

<sup>5</sup> The Care and Handling of Art Objects: Practices in The Metropolitan Museum of Art (revised edition, 2019), pp 12-13.

<sup>6</sup> Museum Handbook, NPS (National Park Service), "Handling, Packing, and Shipping", Chapter 6, 1999, pp. 32.

<sup>7</sup> Nova Scotia Museum, "Collections Management Procedures Manual", 2016, pp. 33-34.

## **Employing Digital Programs in Displaying and Preserving Museum Collectibles Applied on One of the Showcases at Kafr El-Sheikh Museum.**

- You must not use force to move the object or part of it to take a certain position, whether by pushing or pulling<sup>8</sup>.
- It is always better to handle fragile collectibles that are prone to breaking inside boxes of a suitable size for the size of the transported collectibles while using shockproof insulating materials to avoid vibrations and friction<sup>9</sup>.
- When handling collectibles with sharp edges or corners, if possible, it is preferable to wrap those parts with suitable packaging materials, such as pieces of fabric or paper to avoid injuries or loss of parts of the collectibles<sup>10</sup>.



Fig 2: Correct handling of collectibles

Fig 3: Using solid holders to take one of the paper art collectibles

Fig 2-3 about (UNESCO and ICROM brochure, heritage in danger, 2017, p. 31:30)

### **3. The use of digital computer programs in the display of some collectibles in the Museum of Kafr El-Sheikh**

The current era is witnessing a boom in technological innovations associated with the employment of computer graphic programs, which are specialized in the field of digital design, through the computer producing complex designs in a relatively easy way with accuracy and control, which is difficult to produce by hand, so we have to know that the computer has shortened the time of suffering in the handicraft, human thought with its great ability has become this human store of human energy in a specific form inside this device, which may seem complicated to the unaware, and it is a facilitation tool for Man and enables him to save his muscular energies, and here the mind becomes the boundary between one human and another human. Among these programs is what helps in engineering planning, what helps to compile, and what is associated with modern technical

<sup>8</sup> Rowlison, E. B., "Rules for handling works of art", Leicester Readers in Museum Studies" 1994, p. 223.

<sup>9</sup> Anderson, M., et al., "Handling, Transportation, Storage and Display", recollections Caring for Collections across Australia, 2004.

<sup>10</sup> Said, A., Scientific bases of preliminary restoration, packaging and transportation of stone monuments applied to selected models, master thesis, Faculty of Archaeology, Fayoum University, 2021, P.32.

machines that execute once you press a button. The software is multiple of them, for example:

	<b>The Digital Program</b>	<b>Tasks of The Digital Program</b>
1	<b>PHOTOSHOP</b>	It is a graphics program for creating digital images, adding colors, and imagining the final shape before the execution process <sup>11</sup> .
2	<b>CORELDRAW</b>	It is a program through which we can prepare documents starting from simple drawings to complex two-dimensional drawings, and it is possible to draw lines that can be executed by laser machines <sup>12</sup> .
3	<b>ART CAM</b>	It is one of the digital programs that prepare designs for handling by digital machines such as Laser machines and CNC router <sup>13</sup> .
4	<b>AUTOCAD</b>	It is a computer-assisted drawing and design program that supports the creation of 2D and 3D graphics and performs the engineering processing of images and shapes <sup>14</sup> .
5	<b>Illustrator</b>	It is a program for designing diagrams and illustrations and includes a wide range of advanced drawing tools that contribute to saving time when creating drawings <sup>15</sup> .
6	<b>3D MAX</b>	It is the best three-dimensional engineering design software. It also has many possibilities In movements, illuminations, shadows, cladding materials, ores, cameras, effects work, exhibition design, and virtual environments produced by Autodesk <sup>16</sup> .

"Hologram technology can also be used to display some important artifacts in the museum, either during their travel for an external exhibition or while undergoing restoration. An example of this is when the Heritage Documentation Center displayed a three-dimensional

<sup>11</sup> <https://www.learngrafic.me/2022/06/what-is-photoshop.html> (Accessed 3-7-2023).

<sup>12</sup> <https://e3arabi.com/engineering/AC-coreldraw> (Accessed 3-7-2023).

<sup>13</sup> Abdelbasset, M., "Modern technological techniques and their impact on wooden works and their utilization in the development of contemporary wooden cutters" (Applied Study), Journal of Quality Education Research, Mansoura University, No. 75, 2023, p. 148.

<sup>14</sup> <https://ongineering.com/ar/articles/detailed-explanation-of-autocad> (Accessed 3-7-2023).

<sup>15</sup> <https://www.computerhope.com/jargon/a/adobe-illustrator.html> (Accessed 3-7-2023).

<sup>16</sup> Mohamed, H., "The Role of Graphics Programs in the Activation of Virtual Reality and Realize Designs for Printing", First International Conference of the Faculty of Qualitative Education - Alexandria University, Sustainable development in qualitative education (12 – 13) November 2014.

## **Employing Digital Programs in Displaying and Preserving Museum Collectibles Applied on One of the Showcases at Kafr El-Sheikh Museum**

image (hologram) placed in the original mask's location in the Egyptian Museum hall after it was transported to the restoration laboratory<sup>17</sup> (Fig 4).



Fig 4: Using hologram technology to display the mask of Tutankhamun

Fig 4 about [https://www.cultnat.org/IT\\_TechnologyDetails?id=15](https://www.cultnat.org/IT_TechnologyDetails?id=15) (Accessed 2-11-2023).

### **3-1. Advantages of Using Digital Software in the Museum Display**

- Raising the skill level of employees by excluding human errors resulting from the wrong handling of collectibles.
- Optimal exploitation of the materials used in the museum display, such as plexiglass, wooden bases, and marble.
- Organizing the planning process at all stages, from the preparation of the showcases to industrial lighting represented in LED lamps to the preparation of explanatory cards for the displayed collectibles.
- Quick and easy response to the requirements of the visitor to the museum, providing a museum brochure and explainer panels.
- Raise the level of technical and high precision in display<sup>18</sup>. Two programs have been used to develop and display the collectibles of the Kafr Sheikh Museum as follows:

#### **A. PHOTOSHOP**

It is a graphics program for creating and modifying bitmaps produced by Adobe, considered the most famous software for editing graphics and modifying digital photography. It is considered one of the most powerful programs for editing, manufacturing, and processing images because of its advanced features, such as image composition and coloring to improve and beautify them [1]. Photoshop is the most powerful image processing software using computers based on Windows and Mac and despite the great competition among photo

<sup>17</sup> Roshdy, A., "Techniques of museum display", literary square for publishing and distribution, first edition, 2023, p. 164.

<sup>18</sup> Thabet, k., et al., "The effectiveness of using CorelDraw to learn fashion design skills for Medina Technical College trainees, Scientific Journal of Qualitative Education Sciences, vol. 5, No. 5, June 2017, p. 406:457

processing software, Photoshop is at the forefront of it, has taken the top of it, and does not compete with any other software in this area<sup>19</sup>.



Fig 5: PHOTOSHOP interface CS6 used to set up the museum display.

### **Advantages of Photoshop Technical Software**

- Output complex designs accurately and easily, saving time and effort.
- Increases the mental capacity of the designer, as it helps in making endless formulations and solutions in the construction of a single work<sup>20</sup>.
- Superior and limitless capabilities in image processing, through color change, lighting, or contrast, are also used to develop RAW photo files and produce images from them.
- Add graphic elements to digital images such as text, graphics, or three-dimensional elements<sup>21</sup>.
- The possibility of changing images without any difficulties and very realistically.
- The ability of the designer to enter images and build a work of art that gives it its touch and personality.
- Merge photos with other photos, control cut parts, and place them with other parts.
- Color correction, Increase the brightness and sharpness or increase the Opacity to obtain the desired degree.

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<sup>19</sup> Abdelhameed, H., Computer “to activate the innovative process in the teaching of decorative designs, research in art education and the arts Vol I, first issue, June, Faculty of art education, Helwan University, 2000.

<sup>20</sup> Beshir. A., "Effectiveness of a computer program in developing design and decoration skills of secondary students in Khartoum State", Journal of Humanities, vol. 21, No. 2, 2020, p. 73:89.

<sup>21</sup> Said. M., Studying the effectiveness of editing raw digital camera files between Adobe Light room and Adobe Photoshop. “International design Journal vol. 12, No. 3 (2022): 275 - 283.



## Employing Digital Programs in Displaying and Preserving Museum Collectibles Applied on One of the Showcases at Kafr El-Sheikh Museum

- Embodying the designer's imagination, creativity, and design skills to display them online or to display them using slideshow programs or by printing them. All these capabilities make this program indispensable in the design of museum displays<sup>22</sup>.

### B. Corel Draw

It is one of the applied digital software in the field of painting and design of museums and is capable of creating artworks through a method based on the creation of curves, lines, and various forms. It also possesses an enormous collection of ready-made drawings in the form of ClipArt that can be processed, edited, dismantled, and assembled. Perhaps the most important feature of the Corel Draw program is its ability to produce curves, especially through the Bezier tool<sup>23</sup>, the program can free objects such as Ellipse, Rectangle boxes, Polygon, and Text from their situations. It becomes editable and variable curves thus possessing many tools and commands that meet the needs of artists and museum designers in drawing and planning such as zoom, miniature, rotation, moving with kinds of single and binary packaging, and achieving transparency with linear, diagonal, conical or square style color grades with the possibility of collecting, dismantling, sewing, cutting parts and controlling the thickness of the outer lines<sup>24</sup>.

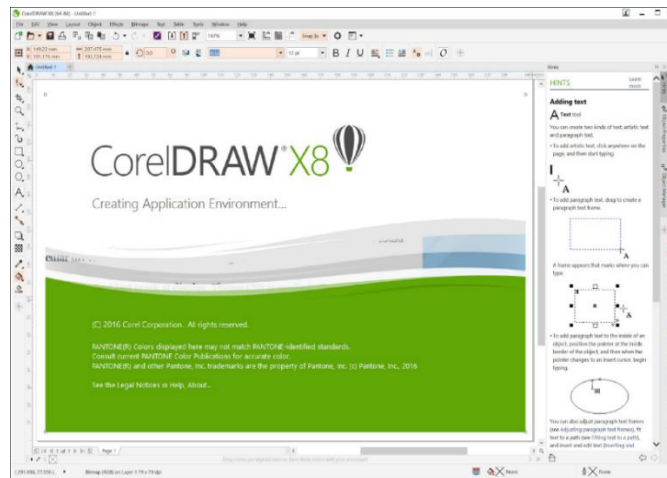


Fig 6: Corel Draw X8 software interface

<sup>22</sup> Dawood. A., & Shalaan. N., " Pilot entrance to the application of Photoshop for Saudi Heritage Units in the Interior Design of Saudi House", Research in Qualitative Education, No. 27, 2016, p. 46:67.

<sup>23</sup> Abdul Mutalib, M., & Ebaid, A., "Digital Art New Self-Vision in the Production of Experimental Design Schemes for Mural Art Program (Corel Draw) " Enmodja, Journal of the Arts of Kufa-Koufa University, No. 39, 2019, p. 284:304.

<sup>24</sup> Altman, R., "Complete Guide Corel Draw 8", Localization and Translation Center in Beirut, 1998, pp. 12-17.

#### **4. Use PHOTOSHOP to Display Museum Collectibles**

Adobe Photoshop is one of the most important programs affecting artwork, adding a lot of improvements and influences and creating new trends in art. As a result, many serious and meaningful attempts have emerged to tap into his potential in the museum show<sup>25</sup>. Photoshop has been classified as a leading photo-editing program. Whether by changing colors or changing the background. We can Photoshop do many actions and effects on the artwork, such as adding, deleting, or merging, which will change the features of the image Photoshop provides a wonderful and distinctive characteristic of the ability to manipulate constructive variables such as the movement direction, type, modulation, position changes, changing density, the optical weight of elements, seam and overlay relationships, implemented as follows:

- One of the showcases was dedicated to displaying the museum's Islamic Collectibles, which are some gold coins (168 dinars) with different names for Egypt's sovereignty in the Mamluk al-Jarqsi era, Al-Ashraf Persbay (825 - 841 AH)(1422- 1437 AD), Sultan Dahir Abu Sa'id Jaqmiq (842–857 AH)(1438- 1453 AD), Sultan King Honourable Inal (857-865 AH)(1453- 1461 AD) Sultan Dahir Khusfad (865-872 AH)(1461- 1467 AD), the sovereign King Qaitbay (872–901 AH)(1467- 1496 AD), as well as some glass complaints camouflaged with red enamel, yellow, blue, and white, as well as some ceramic pots (24 small dishes), from ceramics decorated with an olive green metallic luster, belong to the Abbasid era, as well as two pieces of Islamic fabric.
- Raise the dimensions of the upper glass part of the showcase dedicated to the display of collectibles.
- The showcase for the display of collectibles in the same dimensions (length, width, and thickness), using Photoshop software, is done to make more than one scenario for the display of such collectibles and stability on the optimal display of such collectibles. The Photoshop software is designed as follows:
  - **Ceramic Dishes:** A three-layer staircase has been settled to display 24 metallic-glamorous cognitive dishes so that every eight dishes are displayed on one of these layers. As shown in figure 7.
  - **Glass lamps:** More than one conception has been made to display them, either by hanging them on a lethargic ceiling, or by displaying them on wooden bases clad in linen fabric, as illustrated in figures 8 and 9, and the use of the display on wooden bases has been preferred on the method of hanging on a showcase ceiling, because they are safer and safer to keep on those glass lamps easy to break.

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<sup>25</sup> Al-Sharida, M.,& Al-Shabol, M., "The effectiveness of employing the Adobe Photoshop program in developing the technical tasting skills of the basic tenth grade students in the subject of technical education and motivating them towards learning artistic education", master's thesis. Jordan Amman University 2018.

## Employing Digital Programs in Displaying and Preserving Museum Collectibles Applied on One of the Showcases at Kafr El-Sheikh Museum

- **Fabric:** The fabric has been strengthened on a stand of linen fabric wood. Linen fabric has been selected for its advantages over some other fabrics. Linen is one of the most resistant fibers to environmental changes such as fluctuations in the level of moisture, and therefore linen does not result in any contraction or stretching that can cause curling or dampening of the archaeological fabric<sup>26</sup>.
- **Coins:** The innovative method of the museum display, called the sandwich, was made by displaying those coins in a coin diagonal layer that mediated two layers of transparent plexiglass, using laser drilling.

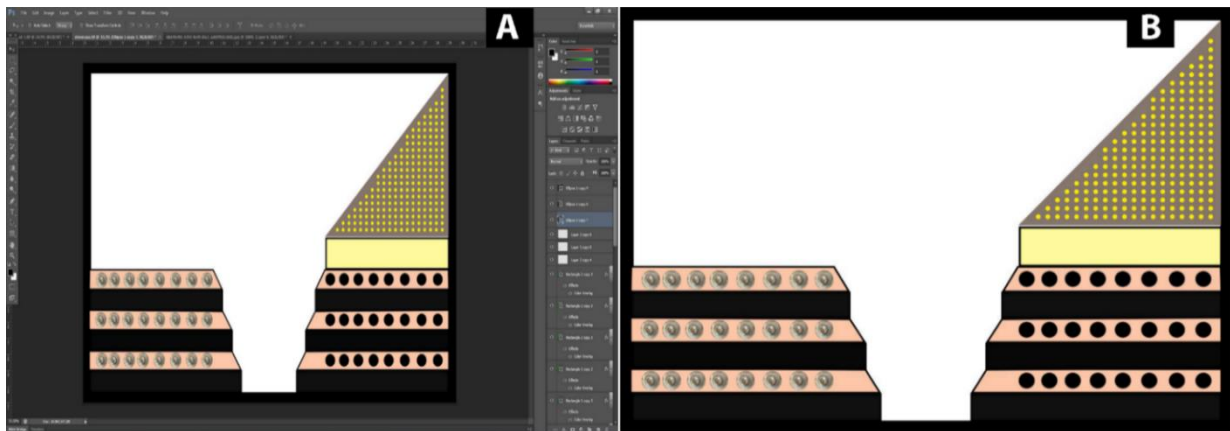


Fig 7: Photoshop illustration showing how ceramic dishes Coins are displayed inside the museum's showcase (researcher design)

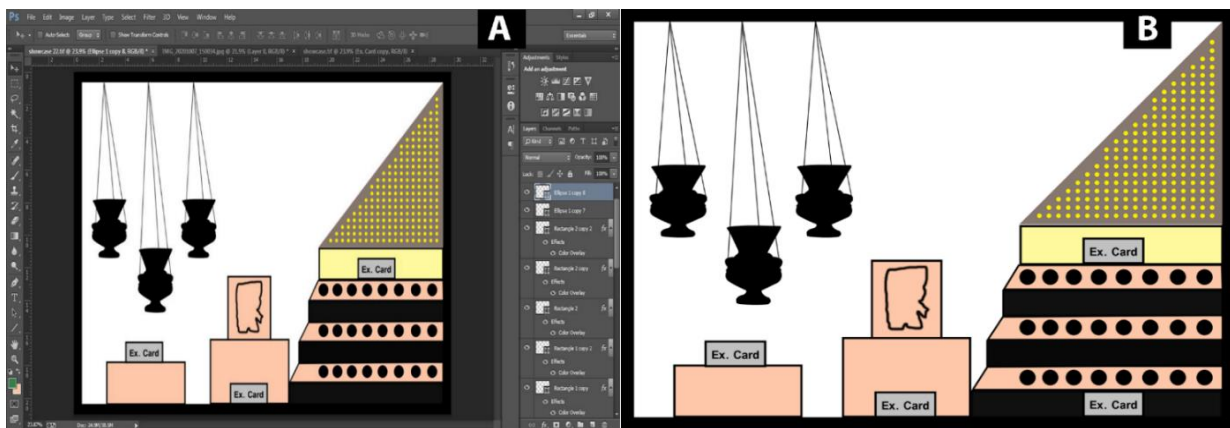


Fig 8: First visualization of glass complaint display by suspending the Showcase ceiling (researcher design)

<sup>26</sup> Marouf. M., "Measurement of the degree of chromatography of background linen cloth pigments used in the restoration of archaeological textiles", Journal of the Faculty of Arts, University of Sohag, No. 27, 2004, pp. 78-108.

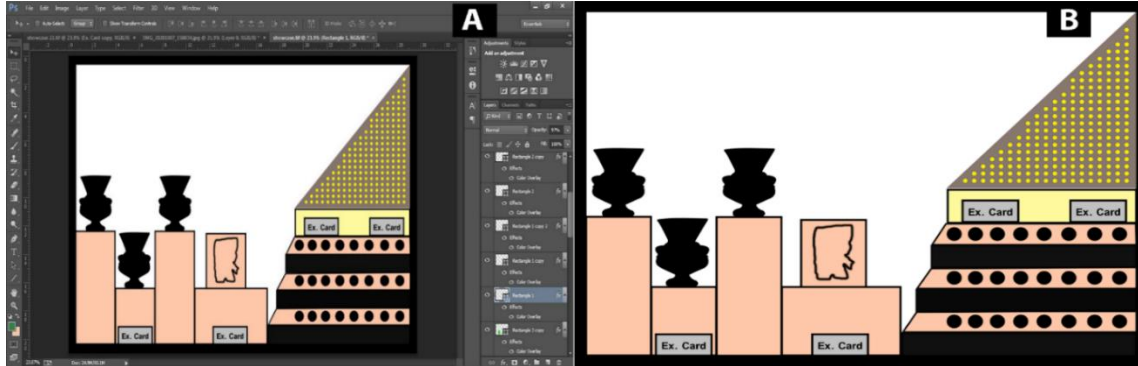


Fig 9: The second perception of glass lamps for displaying them on wooden bases clad in linen which has been implemented (researcher design)

### **5. Use of Laser Discharge technology in gold coin display**

The past decades have witnessed modern technologies including laser technology and its superior precision. Many use Laser beam has many features that make them usable in several areas, including the display of collectibles in museums, an artistic way to delete design units, which can be done by deleting the shapes to be used in decorating the surface and leaving the floor, and also the floor can be discharged and leaving the shapes<sup>27</sup>.

#### **5.1 Laser Drilling Machine**

It is a machine based on digital technology using lasers in design according to a stable system and combined with the latest digital software such as AutoCAD, and CorelDraw, to plan different graphics and designs, and its link to software directly related to production. To display USB data, swap, and send instant data to accomplish tasks, from computer resources, more appropriately contributes greatly to improving the productivity of the art of sculpture and drilling used, and the most important feature of the laser machine is the high precision in drilling and engraving designs, saving time and effort, thanks to this technology<sup>28</sup>. The laser machine consists of the following:

1. Crystal material produced for lasers.
2. Laser Power Pump Electric Power Stimulate the effective medium to issue optical waves.
3. Power reflector reflects high-performance light (mirror).
4. Tube outlet: It is a beam output lens and is a level concave lens.
5. Laser beam laser beam outside (laser output).

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<sup>27</sup> Atia. W., "Innovating decorative designs using laser technology to raise the aesthetic value of children's clothing in middle childhood "- Master's thesis - Faculty of Home Economics - University of Menoufia - 2018.

<sup>28</sup> Bakr. O., " Aesthetics of Laser Drilling "- Journal of Humanities and Economics - Sudan University of Science and Technology - Sudan - Volume 13 - Issue 2 - November 2012.

### **5-2. Use of Laser Drilling Machine in Display of Archaeological Coins**

- Insert the original image drawn with Photoshop, to convert the image from dot to diagram (Outline) via Corel Draw. (Figure 9).
- Export the image to the laser machine via the opening (dialog box) of the laser machine software on the computer and then to the laser machine program and the mode of sending shapes to the machine, machine control, and laser beam point mode.
- Choose the head speed for the machine so that it does not exceed (20 M/Sec).
- Choose the right depth to comply with the thickness of the material (Plexi Glass) which is 2.5 mm.
- Select the power used to fit the depth of the engraved surface, which is 40%. The maximum power of the laser used is 70% watts.
- After drilling is done for one of the three layers dedicated to the display of gold coins, two layers are cut in the same size and from the same substance (Plexiglas), one above the engraved coin and the other below, so this method is called sandwich, and these two layers also prevent the movement of coins or fall forward or below. As shown in figure No. (10:11).

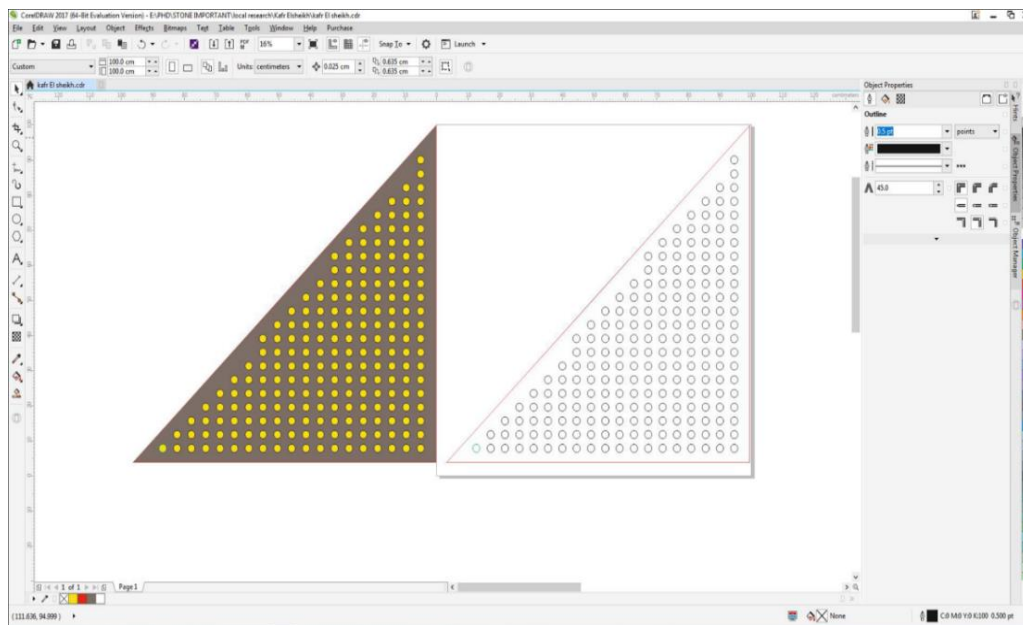


Fig 10: Outline via the Corel Draw program, which is used to drill on Plexiglas with a laser machine (researcher design)

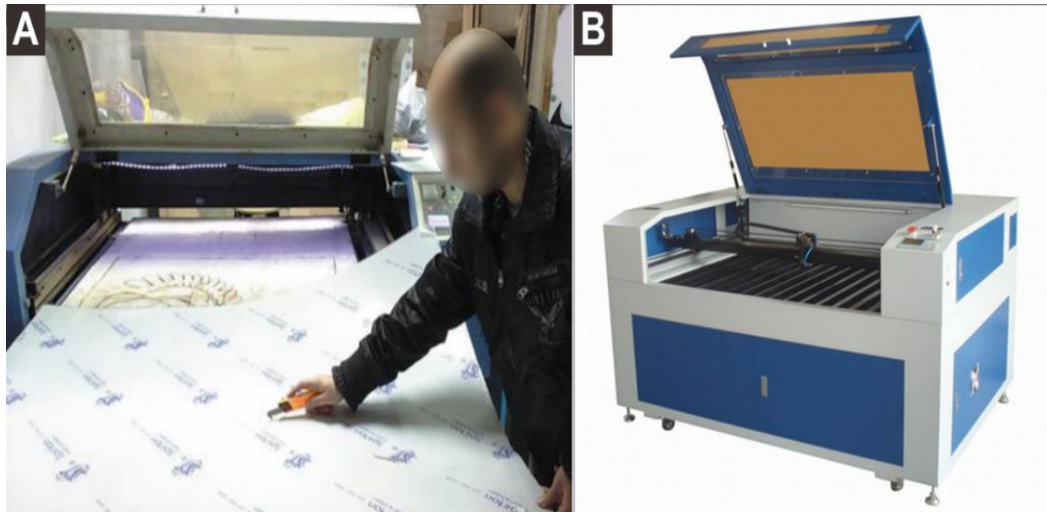


Fig 11: Laser machine used in drilling on Plexiglas Used to display gold coins

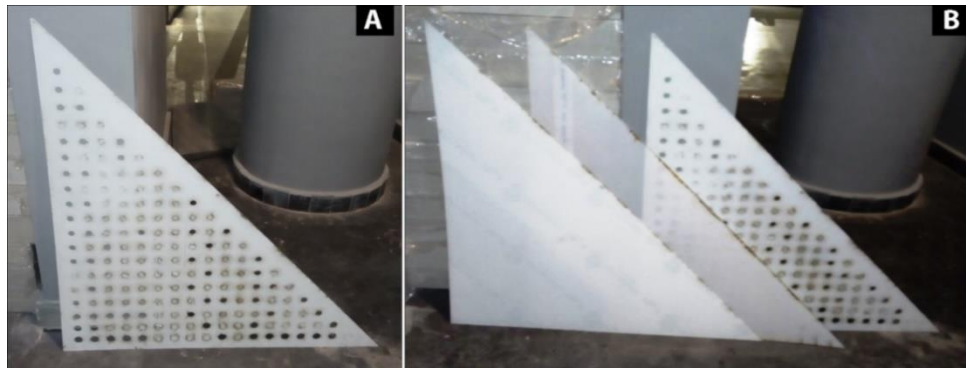


Fig 12: Plexiglas for displaying gold coins, after drilling with a laser machine

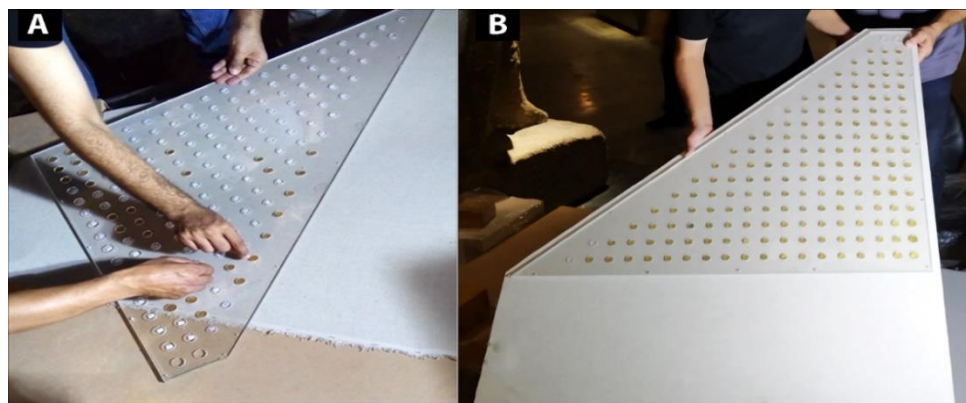


Fig 13: Method of displaying gold coins on a Plexiglas holder drilled with a laser machine

## Employing Digital Programs in Displaying and Preserving Museum Collectibles Applied on One of the Showcases at Kafr El-Sheikh Museum



Fig 14: The final form of the showcase of the museum (Kafr el-Sheikh), after displaying all the collectibles in it

### **Conclusion**

Through theoretical and practical studies included in the research to clarify the role of digital computer programs in the display and preservation of some museum collectibles in general and the Kafr el-Sheikh Museum in particular, the research has reached some conclusions:

- The process of handling collectibles should be limited during the display process because many collectibles are damaged by falling and breaking or by human sweat present in the hand holding the collectibles.
- Digital computer software has shortened the time of suffering in the craft. The computer has become an easy tool for humans to save their muscle energy. It has become indispensable in the design of museum presentations, including the use of Photoshop to create digital images, add colors, and imagine the final form of collectibles before they are displayed inside the showcase, as well as using Corel Draw to prepare linear drawings and designs that can be carried out with laser machines, as the use of lasers can add unmistakable aesthetic values to the drawing parts and excavated designs.

### **Recommendations**

In light of the research findings, the researcher recommends the following:

- Using laser technology in our artistic and applied community to develop and design museum displays in our Egyptian museums, especially regional museums.

- The laser technology must be included in all the tools and equipment used in the museum display, as it is an indispensable tool in the designer's hand to implement his vision, as well as the designs that are difficult to execute manually.
- Developing computer teaching programs as an independent field in pre-university education is necessary to change the concept of the quality and capabilities of advanced students applying to colleges of archaeology and fine arts, as an important condition in benefiting from the use of image and graphics processing programs to enhance students' skills in higher education to pave the way for keeping up with curriculum changes and developments in specialized colleges.

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## **Employing Digital Programs in Displaying and Preserving Museum Collectibles Applied on One of the Showcases at Kafr El-Sheikh Museum**

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