

Original article

CARPET WEIGHTS "MIR FARSH" FROM MUGHAL INDIA: AN  
ARCHAEOLOGICAL, ARTISTIC AND COMPARATIVE STUDY

Thabet, H.

Islamic Arch. dept., Faculty of Archaeology, Fayoum Univ., Fayoum, Egypt.

E-mail: [htm00@fayoum.edu.eg](mailto:htm00@fayoum.edu.eg)

Received 24/12/2016

Accepted 9/5/2017

**Abstract**

The study investigates an important item that was used in the era of Mughal Emperors in India, namely "Mir Farsh" (carpet weights), regarding its name, connotations, artistic style, function, reasons for the rise, and raw materials. It also defines the effect of manufacturing materials on performing the function, dimensions of weights and modification. The architectural designs of Mughal Indian structures and the designs of carpet weights regarding their effect on the formation of carpet weights are also investigated. The effect of floral ornaments of the period on carpet weights is defined. Additionally, the study compares the patterns of this element, as applied masterpieces, and their images in the manuscripts dating back to the period concerning their similarities and differences.

**Keywords:** Weight, Carpets, Mughal, Sheeting, Mausoleum, Marble, Metals, Manuscript

**1. Introduction**

In the era of Mughal emperors of India (932-1273A.H/1526-1857A.D), decorative arts varied, creating various arts. The most significant of which was Mughal Indian carpet. It was related to other arts, including carpet weights that

were well-known applied arts in India. They strongly expressed the development of applied arts of the time. As a result, their forms, models, and manufacturing materials varied.

**2. Nominations and Connotations**

The word Mir Farsh (carpet's weight/servant) comprises two syllables; "Mir" means governor [1] and "farsh" means carpet. Thus, it means the element in charge of the carpet. "Farsh" is a word that labels carpet in Arabic. The Holy Qur'an uses "farsh" in the same way: "الْمُتَّيِّبِينَ عَلَى فُرُشٍ يُّغَابِئُهَا مِنْ اسْتَبْرَقٍ وَجَنَى الْجَنَّتَيْنِ دَانٍ" [2]. It states: [They are] reclining on beds whose linings are of silk brocade and the fruit of the two gardens is hanging low". It was used to refer to beds whose

linings are of silk brocade. Carpet is of ordinary texture. The Qur'an also mentions "and [upon] beds raised high" [3] to indicate types of beds that are high. In Arabic, "farsh" is a noun and its plural form is "furush". Its verb is "farasha". It is derived from the action itself; furnishing carpets on the ground. It is sometimes used in the form of "ferash" to mean sheeting on the ground and home furniture [4]. That is, "furush" is more common than "carpet" as it means all

items that can be spread and used on the ground whether furniture or carpet. It is categorized into three types; a. what is higher than the ground, e.g. beds and couches; b. items that could be spread on the ground, e.g. carpets and (straw) mats; and c. what is laid on the ground for resting or seating, e.g. pillows [5]. Thus, “Mir farsh” is the controller/governor of carpets, whatever their type

### 3. Artistic Styles

There were various artistic styles of this item that could be categorized into three styles: **The 1<sup>st</sup> style** was affected by the architectural structures. It was further divided into four sub-styles as follows: **(A)** a pattern that was modeled after the architectural elements. It consisted of an apex and a base like a dome. It was represented by a marble example inlaid with jewels dating back to the 11<sup>th</sup> A.H/17<sup>th</sup> A.D. It was 9.8 cm high. It consisted of a rectangular base supporting the drum of the bell or cone form on which a round peak was based. It took the form of a dome that was decorated with a group of fine floral ornaments of Lapis lazuli and agate. Another artifact was made of alabaster. It was decorated with floral ornaments of lotus and connected to a branch. Its apex was decorated with a full-blown flower from a stem holding leaves. Thus, flowers seemed to be emerging from the vase. They were bright on a gilded floor, fig. (1-a, b). A third artifact was made of enamel inlaid-copper manufacture of copper dating back to the 13<sup>th</sup> H/ 19<sup>th</sup>A.D. It was 15.2 cm high and consisted of a base with a round apex. It was decorated with fronds of white enamel on a gilded floor, fig. (1-c). **(B)** It consisted of a base and a dome. Yet, it had an octagonal base and lobbed dome. For example, a carpet weight of marble of 17 cm consisted of an octagonal base and drum on which an octagonal lobed dome was based. It dates back to the 13<sup>th</sup> A.H/19<sup>th</sup> A.D., fig. (2). **(C)** This model comprised a base and an onion dome. For example, a copper artifact was coated with enameled

is. In English, carpet weight means an item that is responsible for maintaining the carpet's balance and keeping it from flying. It is sometimes used as "carpet slave" that always serves the carpet. All the aforementioned items carry the same meaning, namely the item responsible for maintaining the carpet's balance and its relation to it.

coatings from the Deccan dates back to the 11<sup>th</sup> H/ 17<sup>th</sup> A.D. It consisted of a square base and a bill drum under an onion dome. It was decorated with zigzag ornaments covering the entire artifact. Another artifact (17×11 cm) was made of copper dating back to the 12<sup>th</sup> A.H/18<sup>th</sup> A.D. It was decorated with floral ornaments in the base, and the body was decorated with scale-like ornaments, fig. (3-a, b). Another artifact of silver from the Deccan dates back to the 13 A.H/19<sup>th</sup> A.D. It consisted of an octagonal base under another octagonal narrower one. Then, the drum was created underlying a dome that took the bell form. At the top, there was the onion apex. While the base was decorated with floral ornaments of flowers and magnificent branches, the other parts were decorated with tulip within geometric configurations of half-palm fans, in addition to zigzag decorations which decorated the highest transition part. They were all of white enameled coatings on a black floor. Another similar artifact had an octagonal base, drum, and onion dome. While the base was decorated with floral ornaments of flowers and branches, the drum and the dome were decorated with floral ornaments of dianthus which emerged from a branch; three flowers in each branch. These flowers were created within geometric configurations of medal-lions, fig. (4-a, b). Sometimes the dome was lobed similar to the model made of marble, fig. (5-a) **(D)** This pattern consists of a square base, short cylindrical drum, and conical dome. For example, the high square base of a marble artifact from Northern India during

the 12<sup>th</sup> A.H/18A.D is decorated with zigzag decorations, where the four corners are decorated with flowers. The dome is

decorated with simple geometric lines shaped with relief engraving, fig. (5-b).



Figure (1) Shows carpets weights **a.** marble, India (11 A.H/17 A.D), *Copenhagen Museum*, **b.** alabaster, India (11 A.H/17 A.D) *David collection*, **c.** enameled copper, India (13 A.H/19 A.D), *Private collection*.



Figure (2) Shows carpet weights marble, India (11 AH/ 17 AD), *David collection*.



Figure (3) Shows carpets weights **a.** Copper, India, Deccan (11A.H/17 AD), *Victoria and Albert Museum*, **b.** Copper, India, Deccan (12A.H/18A.D), *Victoria and Albert Museum*.



Figure (4) Shows carpets weights **a.** silver, India, Deccan (13A.H/19 AD), *Metropolitan Museum*, **b.** silver, India, (13A.H/19 AD), *Metropolitan Museum*



Figure (5) Shows carpet weights **a**. marble, India, (13A.H/19 AD), David collection, **b**. marble, India, North India (11A.H/17A.D).private collection.

**The 2<sup>nd</sup> style**, some patterns of this style took a floral form, e.g. a tulips flower surrounded by leaves on a square base; it resembled a leaf although it was made of metal. Thus, it might be called “tulip style” such as Mughal Indian candlesticks, known as the *tulip candlesticks*<sup>(a)</sup> [6]. An item of this pattern consisted of a rectangular base on which the apex was placed was modeled after a blown flower with leaves on both sides hanging down to the base. The European effects were crystal clear on the overall design of this item as they dominated Mughal Indian arts in the 11<sup>th</sup> A.H/17<sup>th</sup> A.D, and was the most advanced in the 13<sup>th</sup> H/19<sup>th</sup> A.D as a result of the increasing trade exchange between India and Europe that introduced many decorations that were affected by European styles, e.g. floral ornaments of flowers and large leaves [7]. For example, an artifact that dates back to the 12<sup>th</sup> A.H/18<sup>th</sup> A.D. It was 17.3 cm high and the base was 13cm.

It was made of copper studded with precious stones. Another model was 13 cm high and the base was 11.2 cm, fig. (6-a, b). Another artifact took the form of flowers but they differed from those of the previous one. That is, it was decorated with flowers similar to unblown tulip of petals surrounding the bourgeon and an onion apex based on a square base such as a model of marble that dates back to the 12<sup>th</sup> A.H/18<sup>th</sup> A.D. It was 19.5cm high. Another artifact of inlaid marble dates back to 13<sup>th</sup> A.H /19A.D. Its apex took the form of lotus’ bourgeon of three petals on a square base. Its drum took the form of petals, with a height of 23.5 cm and a base of 16 cm, fig. (7-a). Another artifact took the form of a bourgeon with closed petals. Its drum was shaped like flowers, with the lower part like the lower part of a flower that petals came out from and the base was square, fig. (7- b).

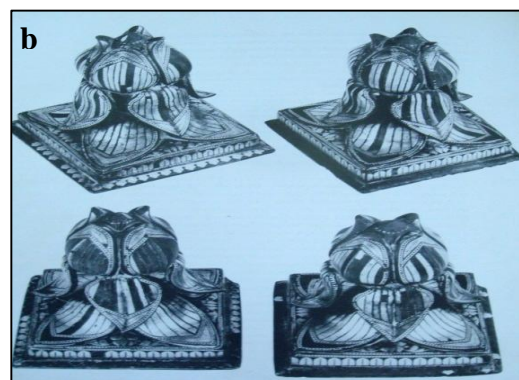


Figure (6) Shows carpet weights **a**. copper studded with Precious Stone., India, (11A.H/17A.D), a private collection (Krishan Riboud), Paris. [6], **b**. copper studded with Precious Stones., India, (11A.H/17A.D), a private collection (Krishan Riboud), Paris. [6]



Figure (8) Shows carpet weights **a.** marble, India, (12A.H/18 AD), **b.** marble, India, (13A.H/19 A.D).

**The 3<sup>rd</sup> style**, this style was a mixture of the previous ones. Although the apex looked like an onion dome, it resembled the center of a flower bourgeons surrounded by petals. The base was square and slightly higher than that of

the other models and the drum was cylindrical. For example, a model of black dates back to the 11<sup>th</sup> A.H/17A.D was 28 cm high with a base of 12.5 cm wide, fig. (8).



Figure (8) Shows carpet weights stone, India, (11A.H/17A.D), *Metropolitan Museum*

#### 4. Function and Reasons for Prevalence

Various reasons caused the introduction and spread of carpet weights in India during the reign of Mughal emperors. For example, they were related to the emergence and development of Mughal carpet. Carpet industry in India was a strong one and began to be an important and basic one in the beginning of the 10<sup>th</sup> A.H/16<sup>th</sup> A.D. when Mughal emperors were interested in establishing workshops across India [8]. They directly supervised and monitored them and assessed the artwork during and after manufacturing [9]. In their palaces, the emperors established work-shops, where weavers created thickly knotted carpets designed according to the Safavid style. Therefore, the development of carpet industry in these workshops in India

continued till the invasion of "Nader Shah Afšār (1148-1160A.H/1736-1747A.D.), when some foreign companies supervised them [10]. It is clear that the greatest period of the carpet industry in India was the 18<sup>th</sup> century when it flourished. Thus, carpet weights could be said to spread in the same period and that many of these pieces could be attributed to that period. Furthermore, using large rugs in the parties held in the gardens of the palaces at that period significantly affected the emergence of carpet weight; large rugs were used in palaces, gardens, or parties. Mughal emperors were fond of gardens that were attached to palaces or established individually [11]. Their architecture evolved to become places of pilgrimage as

the literature suggests [12]. In these gardens, concerts were held and carpets were used in flooring and ceramic landscapes where the emperor sat with the royal entourage, as depicted by the manuscripts of the Mughal Indian [13]. They also appeared in the pictorial landscapes on Mughal Indian artifacts depicting gardens, parties, and the emperor and his entourage among other scenes [14]. The great need to install the large carpet was urgent as well as using carpet weights. They were also used in flooring large courts attended by senior statesmen, elite, princes, and other nobles [15]. Contemporary sources and the curricula of Mughal Indian emperors reported that they were not limited to using the carpet in parties or palaces only, but they were also used in the external camps during wars. For example, it was mentioned that Baber used carpets in the camp near "Lucknow" [16]. Accordingly, carpet weights were necessarily used to install the carpet. Their emergence and spread might be related to the introduction of cotton sheeting that was put over the carpet. They were light cotton sheeting directly placed on top of carpet and wool. They were made of textiles that were known in the era of Mughal Indian emperors. Furthermore, they were key artifacts in their palaces [17]. They were probably used to create a cool effect because of the heat emanating from wool materials used in carpeting, especially in the hot regions and the periods of monsoon winds in India [6].

They were also used to protect the carpet from dust and air in open areas which might cause damage. Sometimes, because of the extreme heat, light cotton fabrics were used instead of wool carpets in order not to raise temperature [6]. Because they were light and might fly or shrink while walking, carpet weights were used to maintain them. In addition, the emergence of carpet weights was related to mausoleums that widely spread during the reign of Mughal Indian emperors who were interested in building them [18]. Many studies reported that mausoleums were covered with lavish carpets such as the mausoleum of Nasr elddin- Humayun (937-946A.H/1530-1539A.D; 962-963A.H/1555-1556A.D) that was covered with carpets rich in floral ornaments and inscriptions [19]. Such weights were also used to maintain and install fine green textiles that covered the Islamic mausoleums. If used in mausoleums, there were not necessarily four elements because they were arranged in one line, not in the four corners as they totally surrounded fabrics [6]. Regarding the manufacturing or importation of such items, many historians of the Islamic arts, e.g. G. *Moreshwar Dikshit*<sup>(b)</sup>, claimed that India of the 17<sup>th</sup> and 18<sup>th</sup> centuries was characterized by the advancement of such industries. In addition, most of India succeeded in achieving self-sufficiency of them [20]. These elements were produced in the royal workshops across India.

## 5. Components and dimensions of carpet weights

Concerning the composition of carpet weights and their appropriateness to perform their specific function, they can be dealt regarding the performance of each part. The base is the main part as it holds the other parts and is responsible for its balance and installation on the ground or on the surface of the mausoleum from the top. Therefore, it is always wide enough to perform its function; it is 60% wide or more compared to the

height of the item. For example, in figure 8, it is 80% wide, so the function is well performed, fig. (9-a). The base often takes the square shape as it is best suited to perform a specific function. In addition, it is sometimes polygonal, but rarely circular. Whatever its shape, it is appropriate to fulfill its function because its broad size matches its height to perform its function, fig. (9-b). The drum has a function similar to that of the dome's

drum. It supports the apex where the square, triangular, or circular base is turned into an octagonal area that supports the dome. While the drum of the first style is conical or cylindrical, it is part of the weight's apex in the second and third styles as if it is the branch that holds a flower and is covered with leaves. It is sometimes the beginning of the flower, fig. (9-c). The top, crowning the item, takes its general form. It takes various forms like the onion, lobed, or tulip-like domes, fig. (9-d). In addition, their weights are suitable to fulfill the function, where the whole item is 30 cm high in order not to hinder the movement of people, especially if they are used in the carpet on the floor, not in the mausoleums.

Another question to be raised “can the small-sized items (i.e. 9.8 cm) be used in carpets on the floor?”. These models are likely to be used in the mausoleums because they are hard to be used in floor's carpets as it would be difficult to fulfill their function, i.e. installation. In addition, because they are small, they may not be seen while walking. So, they can fall a lot. But if they are used in the mausoleums, passers-by do not hit them. Others claim that these models comprise one, two, or three items, but not four which is usual in mausoleums. They are not four because they are lined not on the four corners like the carpet.

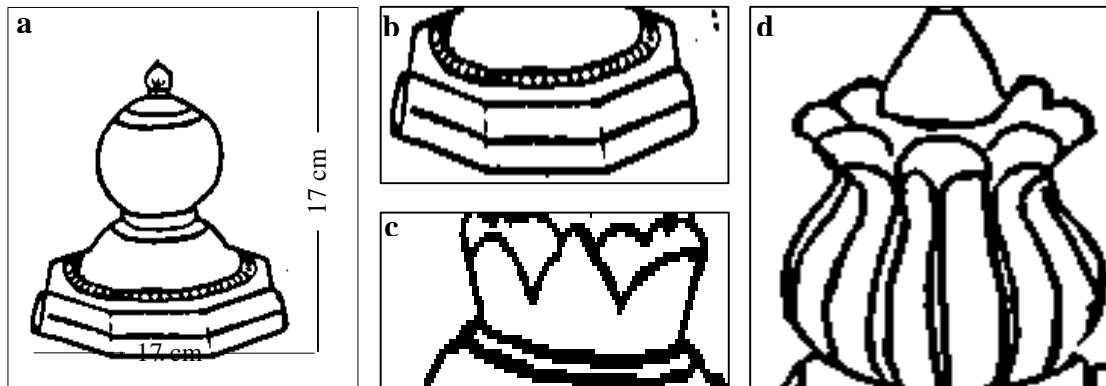


Figure (9) Shows **a.** dimensions of the base width and the height of an item, **b.** different forms of bases, **c.** different forms of the drum, **d.** different forms of the apex

## 6. Discussion

### 6.1. Manufacturing materials

Metals, whether copper, bronze, or silver, were most commonly used in the manufacture of carpet weights. Mughal Indian emperors were famous for the production of metal artifacts produced by the royal workshops to be used in the palaces of kings, nobles, and senior statesmen [21]. They held the best craftsmen in metal artifacts as each artifact was manufactured in a certain workshop, e.g. gold and silver artifacts, copper and bronze utensils, jewelry studded with precious stones, and inlaid metal artifacts [22]. The success of metals' craftsmen was attributed to their creativity and knowing the proportions of surface, form, and size of the artifacts they

decorated. Most of their products, e.g. *Narghile*, drinking glass, censer, and teapot were made of copper or bronze. Furthermore, they produced carpet weights of metals similar to the various artifacts regarding style and decorations [23]. They were mainly made of copper. Because of its susceptibility to oxidation, especially in areas with moist air or open ones, copper forms a toxic green substance [24]. Thus, it was covered with a tin coating. Enamel flux method was also applied to some models of copper because it was the second most suitable metal for Decoration after silver. It was applied for two purposes; to give the item's decorations the desired aesthetic

form and protect these weights against rust and corrosion due to exposure to the various environmental factors, fig. (1-c). Furthermore, inlaying was adopted in some models of Decoration using precious stones to make some decorations, fig. (4-a). The casting was also used to obtain the desired forms, especially in the artifacts that were modeled after flowers because they were difficult to obtain in other ways, fig. (6-a, b). Carpet weights were decorated with floral ornaments engraved on the surface of the metal. It was the general tradition of Mughal Indian metal decorations [25]. Some models of carpet weights were made of glass with a design that was often resembled these metal products and a round base [20]. They were produced

## 6.2. Decorations

Decorations were similar to those floral ones, characterizing Mughal Indian art. They consisted of flowers, burgeons, leaves, and branches that were previously made [27]. They were extensively made in carpet weights because Mughal emperors were fond of floral ornaments as they supervised the gardens of their palaces and established public ones. They also obtained different flowers, e.g. dianthus, tulip, and lotus beside leaves and branches. This was reflected in the applied arts, in general, and carpet weights, in particular. Floral ornaments on carpet weights resembled those on the Mughal Indian carpets, as they were the most prevalent decorations. They filled the space and frame of the carpet. They mostly were

by casting. They were also hard and strong to endure the external factors, not to fall, and to be decorated using engraving or grooving. The stones were of the construction materials used by Indian architects such as the Taj Mahal mausoleum in Agra that was built by Mughal emperor Shah Jahan [12]. They were also used in the manufacturing of carpet weights, as shown in, fig. (8). For examples, some models were made of marble. However, marble formation and engraving requires great skill and knowledge. Therefore, marble artifacts were the more accurate [26]. Sometimes decorations were implemented by coloring, where ornaments were drawn and painted with the different colors, fig. (5-b - 8-b).

the drawings of flowers and plant, whether from the Indian environment or transferred to the Mughal Indian [28] such as tulips and dianthus and lanceolate and semi-fans palm leaves. They were previously produced in the same style known in the Mughal Indian art, fig. (10-a, b). Additionally, some geometric decorations, e.g. oval cups or rhombus filling the floor and internally filled with various floral decorations of duplicate units of flowers and branches. This style also resembled the decorations that appeared on the Mughal Indian carpet at that time, asserting that they were transformed to that item that was related to the carpet.



Figure (10) Shows effects of the implemented decorations on the Mughal Indian carpet **a**. carpet from India (11A.H/17.A.D), **b**. decorations on the carpet weights



### 6.3. The impact of architectural structures

Generally, Indian artists were influenced by architectural structures in forming antiques. At that time, they were influenced by the architectural structures, in general, [29] and the items, in particular. Its impact appeared on "carpet weights" as this item was largely associated with architectural structures and installing the carpets that were used there or the gardens attached to them. The craftsmen attempted to implement and form this component that resembled the architectural elements such as the used domes and columns. They were also used in mausoleums, where rugs were used to cover the mausoleum. Thus, they were formed after the models' architectural elements used in mausoleums to install them, on one hand, and to form the architectural element, on the other. Some models were largely influenced such as the column bases in the Mughal Indian architectural structures, e.g. Such as the columns of the Red Fort in Delhi<sup>(c)</sup> [30] specifically in Shah Jahan hall [31]. The base

consisted of a rectangular shape that ended with a conical shape. Then, the apex that took the onion or censer form was made, fig. (11-a). Some models were affected by the forms of Indian domes, specifically the apex. The domes constructed in India were influenced by the Safavid Persian ones to some extent, but with a distinctive pattern. It is noted that they had a less onion shape with a bigger semi-circular size. In addition, some weight carpet models consisted of a square base and conical or onion like shape that characterized the domes in the Indian architecture during the reign of the Mughal emperors. This model was influenced by the top part of Indian buildings especially the apex of mausoleums like that of Sirol Khan in Deccan in 1733A.D. Carpet weights were affected by the overall composition of the domes. It consisted of a square and cylindrical base, followed by the drum that was like muqarnases and the apex, fig. (12-b).



Figure (11) Shows impact of Indian architectural elements on the formation of weight carpets **a.** carpet weights, **b.** marble columns bases, *Shah Jahan hall, Red Fort, Delhi* [30]

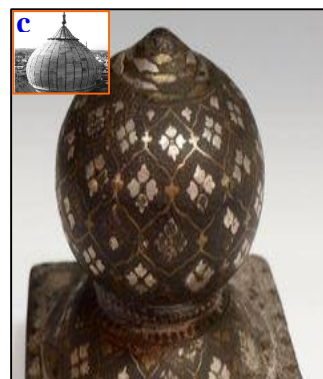


Figure (12) Shows impact of Indian architectural structures on the formation of carpet weights **a.** serol Khan Mausoleum, Deccan.1733 AD. [32], **b.** dome of the *Jama Masjid, Delhi, India*, **c.** dome of the *Jama Masjid, Delhi, India*

#### 6.4. The impact of decorative units on carpet weight's configuration

Carpet weights were affected by the floral ornaments on Mughal Indian arts, especially on the carpet as they were related to the carpet in fulfilling its function. That is, their general formation was similar to a flower that was

affected by the tulip ornaments; it was a well-known decorative unit in Mughal Indian arts, whether on the carpet or cotton fabrics covering carpet in some cases, fig. (13).

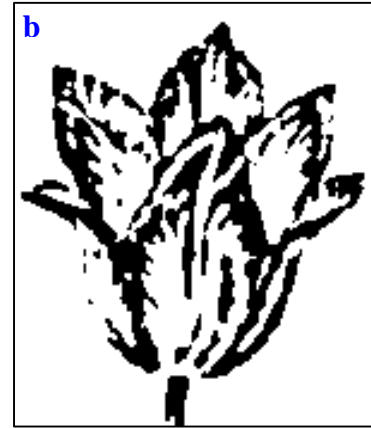


Figure (13) Shows impact of floral decorations on the formation of carpet weights **a.** carpet weights, **b.** Tulips from Mughal Indian carpet. [33]

#### 6.5. Comparison of the styles of carpet weights as applied artifacts to the manuscripts

Forms of carpet weights appeared in the Mughal Indian manuscripts such as an image of Zahir-Aldin Muhammad Baber (932-937 A.H./1526-1530 A.D.) seated at his throne, with carpet weights around the throne. They were drawn this way because the craftsman might desire to show the four elements because

if they were put in the four corners they would be difficult to show many people were standing around the emperor, fig. (14-a). In a local image, the four carpet weights of the square base and dome were placed on the four sides of the carpet, fig. (14-b).

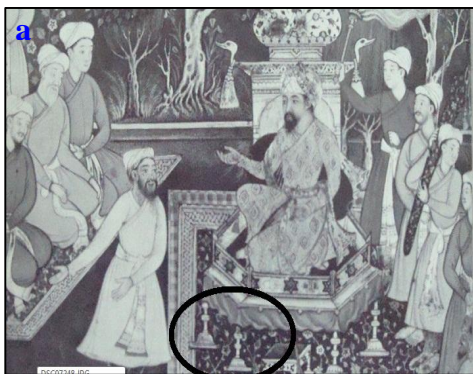


Figure (14) Shows babur in the gardenm Akbar Nama Manuscript *Bamber Gascoigne: The great Moghuls, London, 1995*, **b.** carpet weights from *Mughal India painting*[34]

### 7. Conclusions

- During the reign of Mughal emperors of India, artistic products and fine industries flourished. One of them was carpet weight that witnessed the development of such industries. Various titles were used for carpet weight. While in Persian it was *Mir farash*, in English it was *carpet weight* or *slave*. All these titles agreed that it was used to maintain their function, i.e. maintain their balance or their sheeting.

- Carpet Weights had multiple styles that can be divided into three. The first style was affected by the architectural structures with a base and a dome-like apex. It was subdivided into four patterns; a. round dome; b. lobed dome; c. onion dome; and lobed dome. The second style was influenced by floral ornaments. It was sub-divided into two patterns; blown tulip and unblown tulip. The third style was a combination of the previous ones. It combined the dome and flowers.
- Various reasons motivated the emergence of carpet weights such as the prevalence of carpet during the reign of Mughal emperor in India, flourishing of carpet industry, and emergence of large-sized rugs whether in the gardens or different architectural structures. The use of cotton sheeting over linen carpets to overcome heat or using them as an alternative to carpet also played a part. In addition, they were used in mausoleums that spread during the reign of Mughal emperors in India, where they were used to install fine green textile. They were often four weights, but sometimes they were less.
- They were often produced in India in the royal workshops. They were appropriate to fulfill their function, i.e. to install carpets. Their height didn't hinder passers-by.
- Various raw materials were used in the manufacture of carpet weights, including metal, glass, stone, and marble that were perfectly handled. craftsmen covered those made of metal with materials that protect against air. They were also influenced by the floral ornaments on Mughal Indian carpets.
- They were influenced by the architectural structures in Indian. There were artifacts similar to Mughal Indian domes and others similar to column bases. They were also affected by the floral ornaments of the time, including the common tulip. Additionally, various models were mentioned in the Mughal Indian manuscripts.

## Endnotes

- (a) Tulip candlesticks comprised two main parts, namely the column and the top part. While the column was cylindrical, the upper one was a deep utensil to keep lighting oils. However, it was not fixed. Sometimes, it was fixed upside-down, with the base as a hollow dome and the candle was fixed at the top part.
- (b) As stated by the author in History of Indian glass, 1976 A.D.
- (c) This fortress is a great model of the European influences on Indian architectural structures. Its architectural elements, e.g. columns, arches, and decorations were adapted from the European arts.

## References

- [1] Kesrai, S., (2014). *Persian -Arabic dictionary*, Arab Encyclopedia House, Lebanon.
- [2] Qur'an, LV, Verse.54.
- [3] Qur'an, LVI, verse 34.
- [4] William, H., (1935). More about Arabic terms for "rug", *Ars Islamica*, Vol.2 (1), pp: 65-86
- [5] Faris, M., (1972). *Alfurash wa alstor fi ahad alnabi carpets and curtains (curtains in the era of the Prophet PBUH)*, Eldar, Riyadh.
- [6] Zebrowski. M., (1997), *Gold, silver and bronze from Mughal India*, Laurence king, Alexandria.
- [7] Irwin. J., (1972), Art and the east India trade, *Journal of the Royal Society of Arts*, Vol. 120. (5191), pp: 448-463.
- [8] Chattopadhyaya, K., (1976), *Indian handicrafts*, Indian Book Co., New Delhi.
- [9] Sivara, C., (1970). *India "The land and people" (Indian painting)*, National book trusi, New Delhi.
- [10] Walter, A., (1970), *Oriental rugs antique and modern*, Dover publications, New York.
- [11] Pattacini, L., (1998), Mughal gardens; sources, places, representations, and prospects, *Garden History*, Vol. 26 (1), pp: 107-108.
- [12] Mohamed, N., (2011). *Drassa moqarna le rosom alamair fi almadrasa al safawia altania wa ma uasrha fi almadrasa almagulia alhidia (A*

- comparative study of construction drawings in the second Safavid painting school and its contemporary Indian Mughal school*), Ph.D., Islamic Archeology dept., Faculty of Arts, Tanta Univ., Egypt.
- [13] Dickie, J., (1985). The Mughal garden: Gateway to paradise, *Muqarnas*, Vol.3, pp: 128-137.
- [14] Zaki, H., (1940). *alfunun alirania fi alasar alislami (Iranian arts in the Islamic era)*, Dar El-Kuttab Almasriya, Egypt.
- [15] Williams, J., (1906), *History of India*, Vol. IX, The Grolier Society Publisher, London.
- [16] Kamada, Y., (2011). *Flowers on floats: The production, circulation, and reception of early modern Indian carpets*, Ph.D., Fine Arts dept, New York Univ., New York.
- [17] Barbara, B., (1991). *Islamic art*, British Museum Press, Cairo.
- [18] Erickson, R., (1984). A history of Mughal architecture: A book Review, *Leonardo*, Vol. 17. (2), p.134.
- [19] Glenn, D., (1992). *The tomb of Nasir-in Muhameed*, Ph.D. Fine Arts dept., Harvard Univ., USA.
- [20] Simon, D., (1973). A corpus of 'Mughal' glass, *Bulletin of the School of Oriental and African Studies*, Vol. 36 (1), pp: 88-96.
- [21] Rogers, M., (1998). Gold, silver and bronze from Mughal India, *The Burlington Magazine*, Vol. 140. (1145), pp: 564-565.
- [22] Fathy, S., (2013). *Rosom al funun altatmiaia fi tasauir almaktotat al hindiai*, Ph.D., Islamic Archeology dept., Faculty of Arts, Tanta Univ.
- [23] Dimand, M., (1972). *Alfunun alislamia (Islamic arts)*, translated by Ahmed Mohammed Issa, Dar Al-Maraf, Cairo.
- [25] Michell G., (2007). *The majesty of Mughal decoration "the art and architecture of Islamic India"*, Thames & Hudson, London.
- [26] Smith, A., (2001). *Martian marble*, MA, Faculty of arts and sciences, University of Alaska.
- [27] Goel, N., (2007). *Birds and animals in Indian art - the Mughal artist as a naturalist*, Exotic India Art, India.
- [28] Schurmann, U., (1979), *Oriental carpets*, Thames & Hudson, London.
- [29] Yasin, A., (2014), *Asar almonshata almamaria fi tashkil altuhaf altatbikia (The impact of architectural structures in forming the Islamic applied arts and their decoration in the period 2-8AH/6-14AD, ALmashkah*, Vol. 23, pp: 146-166.
- [30] Mitter, P., (1988). Shah Jahan and Orpheus, the pietre dure decoration and the programme of the throne in the hall of public audiences at the Red Fort of Delhi by Ebba Koch, *The Burlington Magazine*, Vol. 130 (1028), p. 865.
- [31] Koch, E., (1982). The Baluster column: A European motif in Mughal architecture and its meaning, *J. of the Warburg and Courtauld Institutes*, Vol. 45 (1982), pp: 251-262.
- [32] Michell, G. & Zebrowski, M., (1999). *Architecture and art of Deccan sultanates*, Cambridge Univ. press, UK.
- [33] Welch, S., (1987). *The Emperors, Album "Images of Mughal India"*: The Metropolitan Museum of Art, New York.
- [34] Ernst Grube, J., (1996). *The world of Islam*, Book Company, New York.