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All photographs are property of the author.

## **Paintings of the Lahore Fort: The Beginnings of Material Analysis**

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### **Introduction to the Research**

This essay seeks to investigate material and paint receiving layers of the wall paintings of the *Shahi Qila* (Lahore Fort), through detailed investigation of the remarkable premises of the Kala Burj, Mashriqi Bangla and Daulat Khaana Khaas o Aam (DKKOA) (DKKOA findings presented in Appendix 2), spanning a period of four-hundred-years. Apart from the sites of interests of this research, there are a number of other painted sites such as the Akbari Hamam, Khharak Singh Haveli, Sheesh Mahal and Masti gate, that call for documentation and research.

Despite the complex tapestry of history contained in the wall paintings of the *Shahi Qila*, they have received scant attention, especially through scientific discourse. Considering the advanced stage of archaeological science, the material comprising painted surfaces<sup>i</sup> remains largely ignored. The particularly complicated nature of the study, with numerous layers of paintings emerging as the plasters peel away, along with the lack of required technological expertise in the field of colour chemistry and multi- spectral imaging, lack of funding, as well as a lack of understanding of the historical value of the surviving artwork, may all have contributed to the oversight.

### **Antiquity of the Wall Painting Tradition and the *Shahi Qila* Complex:**



Figure 1 Arsiyab fresco, Soghd, Samarkand, Uzbekistan 700 AD.



Figure 2 Panel showing a couple in adoration and facing left, Yakatoot, Peshawer, Pakistan 300-500 AD<sup>1</sup>



Figure 3 Ajanta Fresco, Maharashtra, India. 100-500BC.

The origin of wall painting on lime plaster has ancient roots in Asia. Notable survivors of the tradition, which exemplify the role played by the Silk Route, are the Afrasiyab frescoes of 7<sup>th</sup> century Soghd (Fig1), the Kizil cave paintings of China (300-800 AD), the Ajanta murals (100BC-700AD) (Fig3)<sup>2</sup>, and referencing to Tamerlane's victory paintings at Samarkand from the Babarnama, "From Dilkusha to the Turquoise Gate, he planted an avenue of White Poplar, and in the garden itself erected a great kiosk, painted inside with pictures of his battles in

Hindustan,"<sup>3</sup>, important in the context of the artistic events that unfolded under the reign of Babar's descendants, the Mughals of South Asia, to whom the current construction of the *Shahi Qila* is attributed..

In Pakistan, the first archaeological evidence of wall painting on plaster has been found in

<sup>1</sup> Plate 10.Khan.

<sup>2</sup> [https://commons.wikimedia.org/wiki/File:A\\_mural\\_painting\\_at\\_Ajanta\\_Caves.jpg](https://commons.wikimedia.org/wiki/File:A_mural_painting_at_Ajanta_Caves.jpg). Sarah Welch.

<sup>3</sup> P78. Beveridge.



Figure 4 Map of Silk and Spice Routes. UNESCO - silk route project.

Yakatoot, Peshawer (300-500AD) (Fig 2).

The history of Lahore, connected to Peshawer through the Silk Route as well as local highways, is marked by cycles of raid and destruction, punctuated by lengthy periods of peace and prosperity during which artistic activity flourished. For centuries, the city experienced

oscillations between Turkic, Indic, and Afghan empires, finally settling under Afghan and later Mughal rule. The first buttress of baked bricks and the plastering of tombs and palaces is attributed to the Delhi Sultans<sup>ii4</sup> from the 12<sup>th</sup> and 13<sup>th</sup> centuries, however, mention of painted walls in the city or citadel does not occur before the Mughal era (except in an oral account of Mohammed Ghori<sup>5</sup>), which is not to say that it did not exist before this time.

In 1526 Babar wrested Lahore from the Sultan of Delhi, bringing along a new phase of intercultural amalgamations under the Gurkani (or Mughal) rule. Current excavation indicates that the Qila's construction originates from the time of Akbar (1556-1605) probably in 1586<sup>6</sup>, followed by architectural and ornamental interventions and additions by subsequent emperors, the Sikhs (1768-1847), the British (1847-1947) and the Pakistanis<sup>iii</sup>. As currently stands, the complex consists of a public courtyard (*Diwan-e- Aam*), official ministerial chambers (*Daulatkhana- Khaas-o- Aam*), a series of quadrangular courtyards and gardens, royal kitchens, several baths of which 5 have so far been discovered, two mosques, an artillery godown, and private (*khwabgah*), ministerial and residential chambers. The Punjab Walled Cities Authority is endeavouring to restore many more long- forgotten chambers of the *Qila*.

### History of the *Shahi Qila* Wall Paintings:

Scenes from album paintings and remnants of wall paintings present finely decorated palace walls, resplendent with advanced techniques such as *Naqqashi* (painting), mosaic tile *Kashikari*, *Ainakari* (gilded mirror work)<sup>7</sup>, *Parcheenkari* (stone inlay), and *Qalibkari* (stucco), whose histories can be traced to far reaches of the Persianate empires. The Mughals vision was cosmopolitan and ambitiously competitive, attracting skilled master craftsmen from around the world, taking pride in excellence and innovation in the arts and sciences. Pieces

<sup>4</sup> P19. Qaisar.

<sup>5</sup> P 19.Qaisar.

<sup>6</sup> P4.Peck.

<sup>7</sup> Contradicted by Dr. Nudhra Shahbaz as having been implemented during the Sikh raj.

of Chinese, Persian and European art were given considerable importance for inspiration, especially during the reigns of Akbar, Jehangir and Shah Jahan.

*Naqqashi* on the walls of palaces, mosques, tombs, temples, residences, in fact any plastered surface, was profuse. While no painted remains of wall paintings survive in Lahore from Babar's era, it is recorded that two Herati masons/ architects (*sangtaraash*) traveled with Babar, one of whom remained with the Mughal court till the reign of Akbar. Persianate master artists constituted part of Hamayun's entourage (1530-40 and 1555-56 AD) when he reclaimed his throne from Sher Shah Suri. The *naqqash* remained heads of the Mughal ateliers until the reign of Shah Jahan. Perhaps the most effective vehicle of cultural enrichment and synthesis was Akbar's policy of religio- cultural inclusion which absorbed Rasjathani artists.

Unfortunately, the Shahi Qila has undergone many interventions and many of the chambers initially constructed under Akbar no longer exist- we can only imagine their construction, ornamentation and habitation through literary evidence such as the Jesuit missionary letters which describe paintings during Akbar's reign; and the Akbarnama, which dedicates a chapter to the art of painting. The Jehangirnama, and documentation by European travelers such as Edward Terry, William Finch and the artist John Story describe paintings adorning palace walls during Jehangir's reign. Sikh period paintings form one of the last layers of paint, exhibiting a change in style and form derived from Sikh ideology, evoking a time of upheaval and the dispersion of Mughal artists to the smaller Punjab courts.

The final layer of paint, in most cases a plain whitewash or plain lime plaster, was applied by the British, who converted the *Shahi Qila* into a military quarter, barrack, and hospital. The Archaeological Survey of India (ASI) took over control in 1929, restoring some painted interventions. It is possible that renovations may have been carried out by students of the Mayo School of Art<sup>8</sup>, Lahore. Obscured layers of paintings were discovered in the mid-1970's by the Department of Archaeology Punjab<sup>9</sup>, and have been in various states of restoration since then.

### **Of Technical Origins and Material Matters:**

Quality of material and refinement of technique and image was a point of great concern to Mughal connoisseurs. The *Ain-e- Akbari* devotes a chapter to the procurement of lime and other constituents of mortar and plaster, the surface on which paint was applied, as well as pigments which were used to produce intricate and lasting imagery: "Much progress was made in the commodities required by the painters....The mixtures of colours has especially been improved. The pictures thus received a hitherto unknown finish<sup>10</sup>". Oral records from the *ustads* relate that the grinding of pigment was considered an art in itself- the best ground being those which seep from one face of the wall to the other<sup>11</sup>.

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<sup>8</sup> NCA Archives.

<sup>9</sup> Cooper 1993.

<sup>10</sup> P107. Blochmann.

<sup>11</sup> Interview with Kamil Khan Mumtaz, 2021.

The Ain-e Akbari details three major types of lime- based plaster (in local vernacular called *ahak, chuna and qala'i*):

a) lime from limestone/ gypsum/ *gach shirin* (hydrate calcium sulphate)/ slaked lime- the best quality of which was obtained from Bhera, Patiala and Gujrat. Terry Edwards refers to it as “a purer white lime than that we call Spanish<sup>12</sup>”. This category of lime was used for *qala'i*, the final layer burnished or paint receiving layer of the wall. The Ain explains mixing of *samgh* (gum) in quicklime, *sirish e kahi* (reed glue) in *gach shirin* (sweet lime/ gypsum) from Bhera, and *luk* (burnt reed flowers) mixed in quicklime and *qala'i*<sup>13</sup> for the final plaster layers.

b) lime from gravel (*kankar lime*), used for the rough base layers between masonry and painted layers

c) lime from shells or freshwater (*sadafi*), prepared in Bengal.

The descriptions and details are important in addressing the controversy surrounding the origins of *Naqqashi* on lime plaster in Mughal India. Globally, painting on lime plaster has historically been executed on wet plaster (*fresco buono*), or dry plaster (*Fresco Secco* or *Fresco Lusto*). The technique of *naqqashi* on plastered walls has been identified by most scholars as “*Fresco Secco*” despite the existence of patches of fresh plaster painting in the same areas. *Fresco Secco* is an Italian parallel technique which was evolved in western Europe and perfected during the Renaissance,<sup>iv</sup> entailing the mixing of powdered pigment with a binder, which is applied on a dry lime- based paint- receiving layer. Another identified technique is that of “*tempera*”- a generic term for pigment mixed with an adhesive fatty binder and applied onto any surface. *Fresco Buono* is a painting technique in which pigments are mixed with water and applied onto wet lime plaster. On drying, the pigment is trapped in a layer of calcinate which permanently preserves the colour. The western techniques make use of cartoon tracings before colour application. No binder is used in the paint receiving layer<sup>14</sup>. Agrawal and Wickramasinghe, in their seminal publication “*Materials and Techniques of Ancient Wall Paintings of Sri Lanka*”, have identified a third fresco technique: the Rajasthani fresco or “*Fresco Lusto*”<sup>15</sup> based on the practice as described in the *Citrasutra* of the *Vishnudharmottarapurana*<sup>16,17,18</sup> and proven to have been used through scientific investigation on the wall paintings of Sri Lanka, South India and Rajasthan. The salient feature of *Fresco Lusto* is the presence of carbohydrate (fruit gum) in slaked lime, and the polishing of the almost impervious resultant plaster with a stone to produce a glossy effect- much akin to the surface and ingredients described in the Ain and by the English traveler Terry Edwards.

Scientific reporting on Mughal period wall paintings is scant. Only one such analysis, investigating a Shah Jahani monument from Delhi<sup>19</sup> is available, and has not found the

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<sup>12</sup> P311. Foster.

<sup>13</sup> P223-224. Blochman.

<sup>14</sup> P51. Massey.

<sup>15</sup> P. 39. Agrawal/ Wickramasinghe

<sup>16</sup> P18. Nagpull 1988.

<sup>18</sup> P7, P49. Kramrisch.

<sup>19</sup> Sharma/ Singh. 2021.

presence of any organic compound in the sample of ground plaster taken so far, though chemical tests for organic elements are still underway. To the author's knowledge, in Pakistan, testing on mortar has been extensive, but no comprehensive tests have been conducted on the paint receiving layers to identify both organic and mineral constituents from the *Shahi Qila* paintings. Improved methods of scientific research have made it possible to understand in greater detail, essential constituents of painting such as pigment, binders, primer, brushwork, tools and therefore techniques and methodologies employed. Scientific investigation is complex and often requires corroboration between multiple data sets. Appendix 1 presents a comparative table of results from the three reports available on Mughal wall painting samples in Delhi and Lahore.

The matter of an indigenous fresco technique used for the Lahore *Shahi Qila* paintings is therefore left unresolved.

A variety of pigments have been used, sometimes inappropriately in relation to the surface, in painting on lime. According to art historians and scientists, malachite, lapis lazuli/ultramarine, azurite (sourced from Afghanistan and Central Asia), vermilion/ cinnabar, orpiment, gold, lead chromate, possibly indigo (although this pigment fades when applied on lime), charcoal, lamp black, bone black, various ochres (yellow, red, orange, green), celadonite, hematite, and calcium carbonate, have been utilized in the painting process in varying mixtures<sup>20</sup>. Several organic binders have been traditionally used including milk, egg, gum, size, honey and oil. The SG tests (appendix 1) correspond with this analogy, identifying fatty constituents and mineral pigments. The use of these pigments on paper and cloth, along with many other pigments such as *peori*, saffron, cow urine, madder, cochineal, amongst others, shows a highly developed understanding of the use of paint material in the Mughal ateliers. With the introduction of cheaper, synthetic colours, interventions and renovations have used new chemical blends. It is therefore possible to establish a rough time- line of activity through an analysis of the paint and painting processes, as well as preserve and conserve the paintings in the light of scientific inquiry.

## **Beginnings of a Material Analysis of the Wall Paintings of the Mashriqi Bangla and the Kala Burj in Light of Historical and Scientific Research:**

### **Site Documentation Method:**

The selected sites at the *Shahi Qila* have been photographed by the author through both DSLR colour and infrared photography, using a Nikon D800 converted DSLR camera with a 7mm IR Hoya 72R filter. The filter gives a range of 720 nm, allowing IR to pass through with the help of artificial lighting. Sports and landscape programming was used, as well as manual adjustments, in taking the photographs. 4 halogen standing lights using 1000 watts of electricity each, were employed to light up the chambers in order to photograph through the IR filter, where required.

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<sup>20</sup> Nagpull, Brijbhushan, Cooper.



## Site 1: Mashriqi Bangla



Figure 5 South-facing elevation of the Mashriqi Bangla

The Mahsriqi Bangla (Sehdara/ Sehdari) is a mysterious sandstone site, designed in the *Bangla* style<sup>v</sup>, the only remaining pavilion from a pair. It is a comparatively modest bungalow built along the north wall of the Fort, featuring 3 small, domed chambers. The current condition of the Bangla is frail. Evidence of restoration is observed judging from the condition of the walls and quality of exterior paintings. Inside, certain paintings seem not to have been touched, while others have been painted over completely with a thick layer of plaster. Dado level paintings and central panels have been vandalized and scraped off completely, as seen in Fig 4 and 5.

There is a possibility that the Bangla may be the house referred to in the third Jesuit mission's letters (1595)<sup>21</sup>, "the Jesuits lived in a large house fifteen yards from the water's edge, which they understood had once been Akbar's residence and "was under the windows of the Royal Palace" where Akbar sometimes visited and lent pictures and hangings.



Figure 6 Eastern chamber of Mashriqi Bangla, dado height.

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<sup>21</sup> P16. Peck.



*Figure 7 Eastern wall, central chamber, Mashriqi Bangla*

The Bangla features large panels of Christian saintly figures painted above dado height in the central chamber, which have been defaced. References to Christian thematic depictions on palace walls are found in the letters of Father Jeronimo Xavier, which mentions a depiction of Christ on the ceiling of one of the chambers at the Agra palace, with instructions to the royal artists by the emperor Jehangir to confer with the priests to execute the correct colour palette<sup>22</sup>. Since the Agra paintings no longer exist, the extant Lahore paintings come to be lone survivors of a lost tradition.

Cooper<sup>23</sup> has identified some of the figures found at the Bangla as St. Anthony the Abbott (Fig 13)- this figure has also been identified at Rambagh (Agra) by Ebba Koch<sup>24</sup>; St. Dorothy or St. Lucy (Fig 8) even though a female saint should perhaps be depicted wearing a habit, St. John the Evangelist (Fig 9), whose rose coloured robe has not blackened, and who wears a gold bangle with bright orange underpaint- which has also not changed hue apparently. A shade of green is also visible in the cloak. The cassocked Pope (Fig 12) leaning on books, all of which seem to have blackened, is the only figure left unscathed.<sup>vi</sup> The south- western panel depicts an outline of a bearded, long- haired, cloaked figure wearing an elegant shoe and having a ruffled sleeve, holding a circular tray with fruit, with a cloudy sky in the right corner, and two plants at the bottom corner, made clearer by IR imagery (Fig 10). Fig 11 depicts a green cloaked kneeling figure with hands joined in prayer. The arched borders of the chamber are painted in the Persian style, with pomegranate vines interspersed with birds in unique positions.

It would appear that at least one pigment has reacted and changed colour, if the cassocks worn by some of the saints and the pope were red (perhaps vermilion or cinnabar). Remnants of the backgrounds of the saintly panels contain vestiges of landscapes and foliage. Sky blue (may be azurite) and malachite green, along with lamp or bone black are some of the easily identifiable pigments. It is possible that red and yellow ochre, and

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<sup>22</sup> P128. Stronge.

<sup>23</sup> P 20. Cooper.

<sup>24</sup> P24. Cooper



orpiment have been used for the still vibrant shades of yellow, pink and maroon, and vermilion or cinnabar for the reds that have blackened. The style is an interesting mix of European subject matter and local expression. At present, no evidence of cartoon tracings is visible, although Cooper<sup>25</sup> mentions trace evidence of a black residual outline. There is also mention of a painting on a lower panel containing a sketch of a Mughal profile (possibly Shah Jahan), which is barely visible (Fig 14)<sup>26</sup>.

*Figure 8 St. Dorothy/ Lucy? South- eastern panel, Central Chamber, Mashriqi Bangla.*



*Figure 9 . St. John the Evangelist? Gold bangle on wrist has an orange underpaint.*



*Figure 10 Central chamber, southern wall. Painted panel of kneeling (saint?) holding fruit platter. Gold, black, red slipper visible. There is greater clarity in the IR image.*

<sup>25</sup> P 23. Cooper.

<sup>26</sup> Cooper 1993, Khalid 2014.

Figure 11 Kneeling figure with hands joined in prayer.



Figure 12 Cloaked figure holding Papal Cross (Pope?). Pomegranate vine with birds.



Figure 13 western panel, central chamber, Mashriqi Bangla. St Anthony the Abbott? Border panel with pomegranate vine and birds. The IR image shows a full figure. Black spots are visible in the IR, which are not present in the coloured images.



Figure 14 Sketch of turbaned profile.

The side chambers of the Bangla also contain traces of floral/ bird motifs in the sections that still contain some paint up to eye-level, whereas the higher levels have been plastered over in thick cement, plaster and white paint. Exposed areas within the superimposed plaster present glimpses of refined biomorphic motifs. A deep red ground painted with birds sitting on a green and black vine, bearing a striking resemblance to a similar scheme at the Kala Burj and the DKKOA, is still visible in the eastern chamber (fig 14).



Figure 15 Eastern chamber, Mashriqi Bangla. Biomorphic (Right). Bird on vine (Left).

It is interesting to note that a variety of techniques have been employed in painting the chambers of the Bangla. While the paint-receiving surface throughout remains lime plaster (*pucca qala'i*), the paintings of the saints and the border designs in all chambers have been executed in a more durable, glossy surfaced plaster-painting. The pigments seem to have seeped into the paint receiving layer (the topmost layer) in the figurative work, as the appearance of the surface is smooth, whereas in some other painted areas, motifs painted on top of a coloured layer are in very low relief. The dark spots visible on the Bangla paintings revealed by IR photography may indicate an experimental application of plaster. There are no such spots visible in IR photography from the Kala Burj or DKKOA.



One painting, discovered by CROMLahore, hidden for the most part behind a layer of cement, is in tempera (Fig 16). Its black background has been painted upon in an exquisite, sophisticated palette of curling Persian leaves and pomegranates. The paint flakes off easily and has a shine to it, indicating the use of varnish (fat?).



*Figure 16 Western chamber. Painted panel. Flaky painted layer hidden behind thick plaster. Detailed floral study.*

The painting on the dome of the central chamber is from the Sikh period (Fig 17). An underpainting is visible, but no research is available on it.



*Figure 17 Dome, central chamber, Mashriqi Bangla.*

## Site 2: The Kala Burj (Black Tower) (1617-31 AD):



Figure 18 Southern elevation of the Kala Burj.

The Kala Burj or Burj-e Siyah<sup>vii</sup> constructed by the fourth Mughal emperor Jehangir, rises, like the Mashriqi Bangla, along the north wall of the *Shahi Qila*. It is symmetrically balanced by the Lal Burj (Red Tower)<sup>viii</sup>.<sup>27</sup> In the words of William Finch<sup>28</sup> who describes his passage from the eastern chambers, westward:

*“From hence passing thorow a small entrie to the west, you enter another small court, where is another open*

*chounter of stone to sit in, covered with rich semianes. From hence you enter into a small gallery, at the end of which, next the river, thorow a small window the King looks forth at his dersanee to behold the fights of wilde beasts on the medow by the river. On the wall of this gallery is drawne the pictxire of the Acabar sitting in his state, and before him Sha Selim his sonne standing with a hawke on his fist, and by him Sultan Cusseroom, Sultan Pervis, Sultan Coroome, his three sonnes. At the end is a small devoncan where the King useth to sit; behind which is his lodging chamber, and before it all open into a paved court, alongst the right-hand whereof runneth a small moholl of two stories, each containing eight faire lodgings for severall women, with galleries and windowes looking to the river and to the court. All the doores of these chambers are to bee fastened on the out-side, and none within. In the gallery where the King useth to sit are drawne over-head many pictures of angels, with pictures of Banian dewes, or rather divels, intcrmixt in most ugly shape with long homes, staring eyes, shagge haire, great fangs, ugly pawes, long tailles, with such horrible difformity and deformity that I wonder the poore women are not frighted. In the midst stands a goodly gallery for the King to sit in, with such ugly pictures over-head as before. At the end are drawne many portraitures of the King in state sitting amongst his women, one holding a flaske of wine, another a napkin, a third presenting the peally [piydli, a small cup] ; behind, one punkawing [fanning : pankha], another holding his sword, another his bow and two or three arrowes etc. Before this gallery is a faire paved court, with stone gratings and windowes alongst the waters side ; at the end a faire marble jounter, convexed over-head, looking over the river beneath it a garden of pleasure ; behind, the Kings lodgings, very sumptuous, the walles and seelings all over-laid with pure gold, and round alongst the sides, about a mans height, some three foote distant, are placed faire Venice looking-glasses, three and three, each above other ; and below these, alongst the walles, are drawne many pictures of this mans ancestors, as of Acabar his father, Hamowne his grand-father, Babur his great grand-father, who first set foote into India with thirtie of his nobles, all clad like kalendars or fookeers.”*

### The Central Chamber and its Unique Value in Mughal Art:

The central chamber of the Kala Burj is the only surviving heritage site to contain the full scheme of painting from the Jehangiri atelier in the world. The general order is one which is present in many Mughal period interiors<sup>29</sup>.

The chamber presents a worldly depiction of the emperor's spiritual and earthly kingdom. The choice of colour, pattern and image are designed to imprint upon the visitor a sense of glory and wonder, achieved through a series of painted bands which ascend toward the

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<sup>27</sup> P152. Koch

<sup>28</sup> P 164. Foster.

<sup>29</sup> Nagpull.

ultimate scene of majesty at the apex of the dome (Fig 19). The opulent imagery elicits a multi- sensory reaction. Not only are the eyes bedazzled with jewel- like colours dotted with gold stars, but the sense of smell is aroused with the images of rosebush and jasmine creepers climbing up to the frieze and along the upper corners of the chamber. The brushwork shows confidence and precision<sup>ix</sup>, an authentic testimonial to some of the greatest Mughal *musavvirs*.



Figure 19 Central chamber, Kala Burj dome. Phoenixes in centre of blue sky.

At ground level, flowering bushes are still visible peeking out from the crumbling plaster. Silhouettes of figures in Mughal court attire appear next to two entrance niches, identified using infra- red photography by the author as shown in Fig 20. As the attendee passes through the western entrance of the central chamber, remnants of two Sarus cranes in mid- flight (Fig 21), Jehangir's pets,<sup>x</sup> gently fan the visitor in. Today these majestic birds are pitted, blackened and scarred.



Figure 20 Western entrance. Standing figure. Right: IR photo





*Figure 21 Left: Western entrance, bush with birds. Sarus crane above. Right: Rosebush.*

It can be assumed that the dado may very well have consisted of the same kind of pattern that still survives in the western ante-chamber and the entrance niches of the first floor: an olive-green panel (currently blackened) delicately engraved with a geometric pattern in some of which are seated painted birds (Fig 22). A similar painting is found in the western antechamber, on the eastern chamber of the Mashriqi Bangla, and in the western chamber of the DKKOA.



*Figure 22 Detail of northern entrance first floor. Painted geometric pattern on dado, with birds. Blue layer visible.*



Figure 23 Eastern wall, calligraphic frieze and landscape with buffaloes.

Just below the frieze, CROMLahore has discovered a landscape featuring animals: ibex on the north wall<sup>xi</sup>, buffaloes on the east, and *nil guy* on the south, making a verdant expanse amid the geometry and biomorphic (Fig 23). The frieze, also discovered by CROMLahore, that divides the upper and lower stories of the chamber is painted in gold, in blue *tilli-morabba* (rectangle and square pattern). As seen in (Figure 24), the southern band of the frieze is still intact and shows a pair of birds sitting in the *murabba* while the *tilli* has been filled with *nasta'liq* characters which were originally blue, but most have fallen off and now appear as white tracings. Above the frieze, a band of peacocks in full plumage dance around the bottom of the dome (Fig 25)



Figure 24 Moraba with seated birds and remnants of nastaliq.





Figure 25 Peacock, upper right corner shows a bird sitting on a flowering bush. Kala Burj dome

During this research, the calligraphy on the frieze (hitherto unnoticed and therefore undocumented) has been partially identified. The legible (popular) Persian phrase, written in *Nastaliq* script, reads “*Khaak dard-e-haan-e-afkand*” meaning “to put earth in the ear”<sup>xii</sup>. The phrase may have belonged to a *qaseeda* (ode), from the 11<sup>th</sup> century poet Asjadi<sup>xiii</sup>. However, words such as “*baadshah*” (emperor/ king) are also visible; it may be that the ode had taken a more personalised form, or the phrase was used as part of a script or chronogram (popular during Jehangir’s reign).

The upper story of the Kala Burj is divided into arched niches, in which traces of Persianate angels<sup>30</sup> are barely visible (Figure 26). Infra-red photography has successfully highlighted the presence of these hitherto obscure

figures, displaying a chamber that would have featured an entire band of arched niches of larger-than-life angels floating above eye-level. Flowering, biomorphic vines grow from the first-floor frieze toward the muqarnas above, splashing into a myriad of poetic stars, vines, flowers, birds, putta, fairies, and winged “likenesses” of men.



Figure 26 Niched recessed arches with angel figures.

A panel on the northern face still holds the image of a putta descending holding a crown, while up in the dome, fairies and putta holding various objects (some still visible, others not) ascend toward an azure blue sky in which two phoenixes, red winged and green, encircle each other. The beaks of the majestic, symbolic, mythical birds, painted abundantly in Persianate and Chinese paintings, are shrouded in a large bird’s nest that hangs from the centre of the dome like a blackened chandelier (Fig 27 and 28). Koch has identified two of the angels/ cherubs as possibly being part of the Antwerp Polyglot bible presented to

<sup>30</sup> Cooper 1993

Akbar<sup>31</sup>. A description of a pavilion in Kashmir from the Jehangirnama indicates partiality to this kind of imagery:



Figure 27 Angels descending. Biomorphhic patterns with birds in niches.

“Repairs had been ordered on the picture gallery in the garden, and it had recently been painted by the masters of the age. On the upper level was a picture of jannat-Ashyani [FJunaayun] and Fdis Majesty Arsh-Ashyani [Akbar]. Opposite they had drawn a picture of me and my brother Shah Abbas. Then there were pictures of Mirza Kamran, Mirza Muhammad-Hakim, Shah-Murad, and Sultan Danyal. On the second level they had made pictures of the amirs and intimate servants. All around the outside they had painted landscapes of the stations along the road to Kashmir in the order by which we had come. One of the poets produced this chronogram: "An assembly of Solomonic kings. On Thursday the fourth of Tir [June 16] a celebration of house- warming was held.” (P 341, Wheeler)



Figure 28 Part of the Kala Burj dome centre.

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<sup>31</sup> P 156. Koch.





Figure 29 Kala Burj central dome. Winged portraits, putta, angels, gold stars with Orioles. Biomorphic patterns. Central phoenixes covered by nest.

The European models display a play of shadow, tone and volume of form, whereas the Persian and Indic models retain the flat volume identified with traditional South Asian imagery. The vernacular line quality is maintained

in a distinctly Persian/ Indic style. Some European models have been localized by a change of costume or ornament, such as a muslin *lungi* or an earring, bracelet or anklet as seen in (Fig 30).



Figure 30 Example of local appropriation through contouring and accessories.

Several hands can be seen at work in the Kalaburj paintings, through the variation in colour application, line quality, form and stroke. Most of the floral imagery has no outline, whereas the figurative and faunal images are outlined sensitively.

### Technique and material:

Some of the central painting has been lost through the nest. The dome also shows signs of repair- possibly with cement- and an underpainting is visible in some areas where the final paint- receiving layer is damaged (Fig 31). Air pollution, as well as reaction of some pigments with the lime- base and air, has darkened the painted layer and veiled details which would

otherwise have been visible<sup>32</sup>. The chamber has been used as a storage dump for many decades, and it has therefore not been possible to climb up to the dome and investigate the paint-work closely. Infra-red images have not been particularly productive owing to the layer of soot which prevents the camera from registering details beyond the blackened surface.

The crumbling plaster at ground level shows four to six layers, a coloured ground layer as the first paint receiving layer after the brick masonry, (in different colours in different places but mostly in yellow ochre), a white layer (with painted imagery), a thin plain light blue layer, covered by another final white plaster. A layer of orange has been unveiled in a rectangular niche on the south-eastern wall of the central chamber. Most of the lower panels have been pitted to allow the final layer of plaster to adhere. No residue from cartoon tracings have been observed. Nor are the images outlined in many places. Neither is there any evidence of the intaglio technique seen at the tomb of Jehangir presumably created to preserve a master-tracing for subsequent repair work (Fig 32).



Figure 31. Kala Burj dome. Underpainting visible under final paint layer.



Figure 32. Intaglio outline, gateway to Jehangir's Tomb

The western antechamber of the Kala Burj contains painted images of birds on a black background, which, like the pomegranate band in the western chamber of the Mashriqi Bangla, are flaking off, and form a very visible, thin layer of paint above the plaster. Overall, there seem to have been a mixture of techniques applied on wet and dry fine *pucca qala'i*. A variety of brushes appear to have been used in producing the imagery. The palette consists of a spectrum of tonal variations indicating mixing of pigments. The last paint-receiving layers are glossy, indicating the use of a varnish, binder or burnishing technique. Large

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<sup>32</sup> Gulzar/. Burg.



portions of paint have fallen off, sometimes exactly within the outline of the image that had been painted as in Fig 33, indicating a dry- plaster painting technique. It is also noticeable that the red- ochre and gold pigments seem to be particularly steadfast and tenacious. Chemical tests conducted in 1993 have shown the presence of cobalt blue glass (smalt), synthetic Vermilion and green Copper Chloride, indicating either restoration or trade with the Dutch East India Company and China<sup>33</sup>.



*Figure 33. Silhouette of pheasants, western wall, central chamber, Kala Burj*

#### **Conclusions: The Material of Painted Wall Surfaces of the Kala Burj and Mashriqi Bangla:**

There is clear evolution (or sometimes disruption) in stylistic aesthetics between the Mughal (1526-1707), Sikh (1707-1847), British (1847-1947) and Pakistani periods. Where the Mughal era infused Persianate- Indic and European elements, the Sikh developed botanic and figurative imagery with symbolic colour schemes. As in all Mughal period buildings, the chambers have been plastered in the final stages of completion with fine lime plaster, smoothed to form a glossy surface as well allow the brush to flow smoothly for control over line quality.

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<sup>33</sup> P 27. Cooper.



Figure 34. Banana tree symbol from the Sikh period, Haveli Kharak Singh, Shahi Qila.

We have yet to establish what the complex, multi-toned paintings of the early 17<sup>th</sup> century dome of the Kala Burj, or the saints of the Mashriqi Bangla, are made of; what techniques of ground preparation, brushwork and varnishing were used, and, the most important of investigations: do these monuments and their paintings belong to the 17<sup>th</sup> century or are they an amalgam of older and newer constructs that have been repaired and veneered over time? Is the painting technique the indigenous fresco *Lustro*? Most importantly, is it possible to conserve these now invaluable paintings without fully investigating the material involved?

The evolution of Lahori painting is seamlessly presented by the Lahore Fort, from the early Mughal to current times. The site is unique and holds the capacity to draw major international scholarship to Lahore, while endorsing a sense of cosmopolitan identity in Lahoris at large as well as local artists and historians. Of all the Muslim emperors to rule, Akbar and Jehangir spent the most time at the *Shahi Qila* (Royal Fort), the former 12 and the latter 14 years in all. The fruits of their love-affair with Lahore and Lahori art deserves greater documentation, credit and research, as do the endeavours of the exceptional artists whose genius adorns the walls of the *Shahi Qila*.

## APPENDICES

### Appendix 1:

The following table presents a comparison in the findings of the reports:

Sample/ colour	AKTC (Sabz Burj Delhi)	AS/ RDS (Chatta Chowk Delhi)	SG/ JPB (Dai Anga Lahore)
Slightly orange		Cinnabar + Hematite + Cadmium sulfide + Clay	
Red	Iron Oxide/ Red Ochre	Cinnabar + Hematite + Cadmium sulfide + Clay	Red ocher, Gypsum, Halite
Green		Green ochre (celadonite) + Iron mica + Calcite + Quartz	Green earth, Gypsum, Halite
Slightly yellowish	Lime	Calcite	
White		Calcite	Calcite, gypsum, halite
Binders		Lauric acid, myristic acid, palmitic acid, and stearic acid, oleic acid.	
Yellow	Iron oxide/ Peeli Matti		
Gold	Gold?		

### Appendix 2:

#### **Daulat Khana Khaas O Aam (DKKOA):**



*Figure 35 North-facing elevation of the DKKOA. Akbar period, with restoration work.*

While the Fort contains many structures from each era, the oldest is attributed to the Akbar period (1586 AD). The interior of this structure is heavily painted in several layers and was in use up to the end of the Sikh period as royal chambers. Until recently, the painted layers were unclear, plastered over or blackened by dirt, pollution and darkening paint (Fig 36), especially in the outer vestibules, where the final painted layer seems to have been restored with lead or mercury rich paint, indicating a later restoration time. The paint quality is thick

and flaky. There is evidence of Sikh period figurative painting, some which has been renovated recently.



Figure 36 Archway DKKOA. Blackened paint.

The western chamber still contains some paintings from Mughal times, reminiscent of similar paintings on the gateway of Jehangir's tomb and Gulabi Bagh, as well as those at the dado of the Zenana Hamam in the Qila. There also tracings of paint on the sandstone balcony facing the Deewan-e Aam. Remnants of a painted bird are also observed in the same chamber (Fig 38), very like the paintings present in the Kala Burj western ante-chamber and Mashriqi Bangla eastern chamber.



Figure 37 Lillies and poppies, western chamber, DKKOA. Similar to motifs, material and technique in Zenana Hamam, Gulabi Bagh gateway, and Jehangir's tomb.



Figure 38 Bird in flaky paint, western chamber, DKKOA.

The series of chambers on the upper story of the two-storied building was used, as the name implies, for meetings with the emperor's courtiers during the Mughal era, and as the private quarters of the Sikh princes during the reign of Ranjit Singh (1780- 1839).

The provenance of the foundation of the building has been traced back to Emperor Akbar, although apparently very little remains of the original structure<sup>34</sup>. The rooms and galleries reveal heavy embellishment, with a number of techniques being used including gilding, *naqqashi*, *ainakari*, and *qalibkari* in bas-relief. Research on the painted layers of the DKOA is preliminary at the moment.

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<sup>34</sup> P 16. Peck.

## Bibliography

Agarwal, O.P. Wickramasinghe; Nanda Amara. Materials and Techniques of Ancient Wall Paintings of Sri Lanka. 2002. INTACH. New Delhi.

Beveridge, Annette. Baburnama. Sang-e-Meel Publications. 1987. Lahore.

Bira, Sh. Mongolian Tenggerism and Modern Globalism. A Retrospective Outlook on Globalisation. Journal of the Royal Asiatic Society. Third Series, Vol 14, No. 1. April 2004. Cambridge University Press. UK.

Cooper, Ilay. Sikhs, Saints and Shadows of Angels: some Mughal Murals in Buildings along the North Wall of Lahore Fort. 1993. South Asian Studies, 9:1, 11-28, DOI: 10.1080/02666030.1993.9628457

Ed. Foster, William. Early Travels in India 1583- 1619. OUP. England.

Ed. Gutschow, Niels; Weiler Katharina. Khalid, Kanwal. 2010. "Frescoes in the Seh-Dara at Lahore Fort, 2010. In Spirits in Transcultural Skies. 2014. Springer.

Eds. Sharma, Mahesh. Kaimal, Padma K. Stronge, Susan. Jehangir's Itinerant Masters' in Themes, Histories, Interpretations: Indian Painting Essays in Honour of B. N. Goswamy. 2013. Mapin. India.

Grewal, Jagtej Kaur. "Punjabi Painters In Nineteenth Century Lahore: Artistic Concerns And Practices." *Proceedings of the Indian History Congress 72* (2011): 1008–16.  
<http://www.jstor.org/stable/44146792>.

Gulzar, S. Burg, J.P. Preliminary investigation of late Mughal period wall paintings from historic monuments of Begumpura, Lahore. *Frontiers of Architectural Research* (2018) 7, 465–472.

<https://www.ilaycooper.com/blog/>

Khan, Nadhra Shahbaz. Ayina- Kari in the Sheesh Mahal, Lahore Fort: Issues of Attribution, Appreciation, and Interpretation.. *Artibus Asiae* Vol LXXVIII, No.2. Museum Rietberg. 2018. Zurich.

Khan, Nasim. Fresco Paintings from Yakatoot (Peshawar) Gandhāra. The International Research Institute for Advanced Buddhology, Soka University. 2016. Tokyo.

Koch, Ebba. Solomonian Angels in a Mughal Sky: The Wall Paintings of the Kala Burj at the Lahore Fort Revisited and Their Reception in Later South Asian and Qajar Art. 2015. Springer. Switzerland.

Kramrisch, Stella. The Vishnudharmottara (Part III). 1928. CUP. Calcutta.

Massey, Robert. Formulas for Painters. Watson- Guptill. 1967. NYC.

Moon, D.H; Lee, N. R; Lee, E. W. Ancient Pigments in Afrasiab Murals: Characterisation by XRD, SEM, and Raman Spectroscopy. *Minerals*. 2021, 11, 939.

Nagpull, JC. Mural Paintings in India. 1988. Gian Publishing House. Delhi.



Peck, Lucy. Lahore: The Architectural Heritage. 2015. Ferozsons. Lahore.  
Rogers, Alexander. Beveridge, Henry. Tuzuk e Jehangiri. 1909. Royal Asiatic Society. London.

Sharma A. and Singh R. (2021) Execution technique and pigment characteristics of the decorative wall from seventeenth-century CE Chatta Chowk at Red Fort Complex, New Delhi, India. *Period. Mineral.* 90, xx-xx

Sharma, A;Singh,M.R.A Review on Historical Earth Pigments Used in India's Wall Paintings. *Heritage.* 2021,4,1970–1994. [https:// doi.org/10.3390/heritage4030112](https://doi.org/10.3390/heritage4030112) xx-xx

Tr. Blochman, H. Ain-e- Akbari of Abu Fazal Allami. Baptist Mission Press. Calcutta. 1873.  
Tr. Ed. Wheeler, M. Thackston. JAHANGIRNAMA: Memoirs of Jahangir, Emperor of India. Sackler/ OUP. NY. 1999.

Trust, Royal Collection: [https://www.rct.uk/collection/452414/maharajah-ranjit-singh#:~:text=The%20painter%20Imam%20Bakhsh%20\(active,generals%20in%20Ranjit%20Singh's%20army.](https://www.rct.uk/collection/452414/maharajah-ranjit-singh#:~:text=The%20painter%20Imam%20Bakhsh%20(active,generals%20in%20Ranjit%20Singh's%20army.)

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<sup>i</sup> By which allusion is made to the painted only and not the tiled mosaic, which have been extensively studied.

<sup>ii</sup> As part of the Ghorid empire for Mohammed Ghor. After his death, Aibak broke free from Ghorid rule to establish his own empire, the capital of which was shifted to Delhi and therefore is known as the Delhi Sultanate or the Slave Dynasty.

<sup>iii</sup> Was used as a jail. Until mid- 2023, the Qila was under the authority of the Department of Archaeology Punjab, when full authority was handed over to the Walled City Authority of Lahore.

<sup>iv</sup> This is not to say that, contrary to popular thought, the technique/s used in Lahore were Italian. Wall painting on plaster and stone has ancient roots in Central and South Asia, as well as Persia.

<sup>v</sup> Refer to Saba Samee's presentation as uploaded on CROMLahore website.

<sup>vi</sup> The Mughal era function of this building is unclear. There is ample documentation showing that both Akbar and Jahangir were interested in Christianity (besides other religions). Both were impressed by the quality of European artwork (which makes them great connoisseurs and patrons with expansive global vision), and it is possible this pavilion may have been dedicated as a sanctuary for meditation for the emperor. There was a particular affinity with Mary (Mariam), and Jesus (Prophet Isa), and the idea of the immaculate conception formed a personal connection. The Mughals drew their lineage from Timur Shah, and Ghenghis Khan, who claimed to have been born through the aegis of heavenly light (Bira. 2004)

<sup>vii</sup> According to Sikh period maps in the Punjab Archives, Lahore Fort Museum and Lahore Museum.

<sup>viii</sup> The name of the bastions may have been switched or even changed (according to a 1929 map auctioned at Bonham's on 7<sup>th</sup> June 2022, the Lal Burj is referred to as the Burj-e-Safed: White Tower).

<sup>ix</sup> It is well established that artists from the Mughal ateliers worked on large wall paintings as well smaller album sizes.

<sup>x</sup> The Jehangirnama describes the lives of Jahangir's pet Sarus cranes at length.

<sup>xi</sup> With many thanks to Usman Saeed for pointing out this feature of the chamber.

<sup>xii</sup> Literally "ear" but contextually "mine", as in gold- mine.

<sup>xiii</sup> Many thanks to Murad and Taimoor Mumtaz Khan, and Dr. Jawad Hamdani for identifying and translating this piece.