

A CRITICAL ANALYSIS OF INLAY DESIGNS IN THE MUGHAL MONUMENTS OF AGRA

A THESIS

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Candidate's Declaration

I hereby certify that the work which is being presented in the thesis entitled “**A CRITICAL ANALYSIS OF INLAY DESIGNS IN THE MUGHAL MONUMENTS OF AGRA**” in partial fulfilment of the requirements for the award of the Degree of Doctor of Philosophy and submitted to the Department of Humanities and Social Sciences of the Indian Institute of Technology Roorkee, Roorkee is an authentic record of my own work carried from January 2006 to June 2010 under the supervision of Dr. Ila Gupta, Associate Professor, Department of Architecture and Planning, and Dr. P. Jha, Professor, Department of Humanities and Social Sciences, Indian Institute of Technology Roorkee, Roorkee.

The matter presented in this thesis has not been submitted by me for the award of any other degree of this or any other institute.

(**POOJA SHARMA**)

This is to certify that the above statement made by the candidate is correct to the best of our knowledge.

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ABSTRACT

Indian artisanship, one of the most creative and richest traditions in the world, blossomed rapidly during the reign of the Mughal dynasty (1526 to 1707 A.D.). Design concepts during this dynasty added a new chapter, known as inlay work to Indian architecture. The astonishing beauty of Mughal inlay is an evidence to the artistic capability, creativity and ceaseless efforts of artisans and patronage of the Mughal rulers.

In the present thesis, a critical study of inlay designs in five well known Mughal monuments of Agra was examined in detail. Comparisons with contemporary inlay work were also presented. The study was divided into five chapters in which primary data (e.g., identification of inlay motifs, design functionality, purpose and placement of design) and secondary data (e.g., origin and development of inlay art, factors responsible for inlay designs, aesthetic philosophy, and influence of other arts) were utilized to accomplish the goal.

In the first chapter, the study introduced the Mughal inlay art and its historical background. The early example of this art was found in the Chaumukhi Jain Temple (1438 A.D.) at Ranpur and Ashrafi Mahal and Tower of Victory at Mandu, respectively.. Investigations of facts relevant to this art indicated that the visit of Jahangir and his wife (Nur Jahan) to Mandu, was the turning point in the refinement of the style in inlay work that is evident in the tomb of Itmad-ud-Daulah. To sum up, in Jahangir period, a remarkable change was evident in the Mughal inlay art, and was developed rapidly in his period and not during the period of Shah Jahan.

In the second chapter, a comprehensive review of literature on various aspects of the Mughal inlay art was documented. Outcome of this review established that many eminent scholars have made praise-worthy contributions regarding origin and development of Mughal Inlay art. However, critical analysis of inlay design elements with respect to their placement,

Indian *rasas* and comparisons with contemporary inlay was hardly touched upon.

Monuments built at Agra by three Mughal emperors-- Akbar, Jahangir, and Shah Jahan were thoroughly reviewed in the third chapter. This period saw a more fruitful amalgamation of the Indian, Iranian, Persian and Chinese artistic, intellectual, and imaginative traditions. However, the preferences of designs were changed with respect to different emperor's social conditions, cultural inspirations, and aesthetics. The religious and secular qualities of Akbar; Jahangir's appreciation of nature and Persian traditions; Shah Jahan's love for flora and Islamic art - all were visualized through motifs depicted in their regime. Overall, the dynamic role of the medieval period in the Indian art and architecture as well as Hindu astrology inspired the Mughal rulers.

Fourth chapter highlighted the intricacies of inlay designs. In Jahangir's buildings, more sober colours have been used whereas Shah Jahan's buildings a rich polychromatic colour scheme was evident. The artisans used a variety of design schemes with great perfection and efficiency. The artisans were conscious of colour symbolism. This chapter also identified predominant *rasas* (aesthetics pleasure or *anandanubhuti*) in the Mughal inlay designs, i.e., *adbhuta*, *veera*, *shringar*, *shanta*, *karuna* and *raudra rasas*. The importance of design elements with respect to their placement was also discussed in this chapter.

In the fifth chapter, comparisons with contemporary inlay designs were presented. Contemporary designers are known for featuring bold modern colours, abstract shapes, and unique designs. But the demand for Mughal inlay designs is still visible. With the advent of various modes of communication, inlay designs have experienced a change from symbolic to decorative in contemporary buildings.

In conclusion, the Mughal inlay art was developed indigenously and bloomed during the period of Jahangir with wide range of floral designs, arabesque, geometrical, and auspicious motifs. In summary, inlay designs demonstrated the Mughal emperors' personality, taste and interest, and

incorporated the fusion of traditions and cultural aspects of Persian, Hindu, Islamic and Chinese in their respective era. Artistic presentation of inlay designs with unity, harmony and colour symbolism evoked *rasas* and *bhavas* –which had left a long-lasting impression on the present world of designers, artisans and viewers.

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INTRODUCTION

1.1 BACKGROUND

“Art is not stone, brick, words, or tricks of trade; it is above all the reflection of the artist’s soul, the visible expression of the forces which drive him” (Godard, 1965, 254-255). Architecture is the mother of the arts of sculpture, painting and the allied decorative arts, and is a continuous evolution (Nath, 1976). The decorative art in architecture of any country or region is a thorough reflection of its culture. It naturally speaks of the aesthetic standard of the people, their taste, interests, mode of living, the manners, and customs, etc. The monuments within a country or region preserve the most faithful, authentic, aesthetic standard and artistic capabilities of their builders, and it is the reason why a study of art in architecture of any country or region is of vital importance.

1.1.1 MUGHAL ART AND ARCHITECTURE

Indian artisanship is one of the most creative and richest traditions in the world, which flowered during the reign of the Mughal dynasty (Map 1.1), adding a new chapter to Indian architecture. ‘Mughal’ here refers to the name of the dynasty that ruled India from 1526 to 1707 A.D. (Table 1.1), during which the Mughal architecture transcended itself from weak to robust style. The Mughal monuments were directly influenced by the Central Asian, Persian, Sultanate, and Hindu constructions; that in turn had influences of Sassanian, Sogdian, Byzantine, Zoroastrian and early Islamic traditions (Dani and Masson, 1992). With the change of rulers in the Mughal dynasty, the decorative techniques saw a transition, and each Mughal ruler brought a new trend of motifs in architectural decoration, reflecting the social characteristic of that period. Nath (1976) observed the changes in the decorative designs in the Mughal monuments during the reign of different Mughal rulers Babur’s buildings reflect

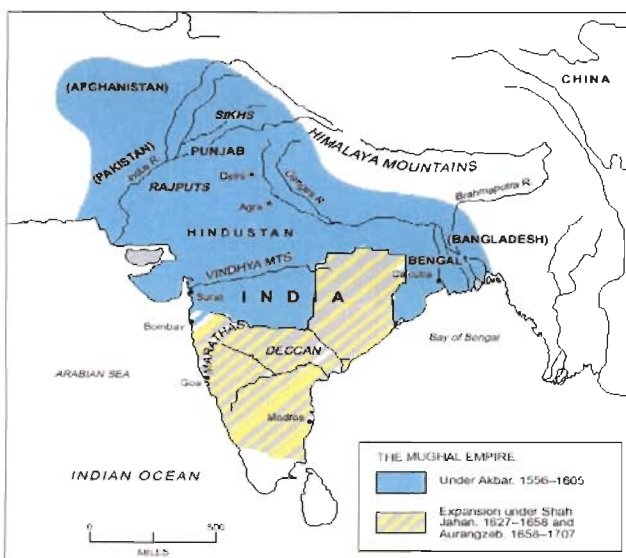
the Central Asian influence, whereas Humayun introduced Iranian (Safavid) trend through a group of expert painters. In the architecture of Akbar's period, Hindu and Muslim characteristics were exquisitely composed on the red sand stone surface with the inclusion of Khurasani, Transoxian, Sultanate, Malwan and Gujrati elements in construction, as well as in decoration (Asher, 1992). These trends continued up to Akbar's period and started to dissolve later. Shahjahan's buildings were well-planned, organized, and showed maturity in style, and were exquisite in decorative details that raised the standards of the Mughal architecture. However, the trend started to decline during Aurangzeb's time (Koch, 1991).

The Mughals gave a new ornamentation and outlook to the medieval architecture of India. The Hindu architecture blends sculpture and carving for decoration. The Mughals, because of their love for colour and new trends for ornamentation, adopted new methods of embellishment. The Mughal architecture is a mixture of the Islamic architecture of Central Asia and Hindu architecture of India. The development of the Muslim architecture during 1526-1707 AD is rightly called the Indo-Islamic architecture (Brown, 1975). Muslim added arches, domes and minarets to the indigenous architecture. The Hindu style of decoration was borrowed by Muslims to decorate the surface and *chhajjas*, *stambha*, pillars, *madala* (bracket), *jharokhas* (projecting balcony), whereas *toranas* were used on a large scale, which is typical in the traditional system of Hindu architecture (Brown, 1975). Stone was the chief building material during the medieval period due to its easy availability in India. Stone carving in various types of relief work is the associated form of ornamentation. The Mughal constructed excellent mausoleums, mosques, tombs, forts, gardens and cities during their regime, and were great patrons of the decorative arts. In addition to the construction of beautiful monuments, the Mughal made use of different kind of designs that played an important role in providing aesthetic beauty to the monuments. The art of stucco, relief, *jali* work, mosaic and marble inlay were beautifully presented in the Mughal monuments. Beauty

is one of the essential requisites of any architecture, and inlay art is the distinctive ornamentation from which pleasing effect can be acquired. Inlay design, geometric, arabesque, and calligraphy, were intermixed with *swastika*, *satkonas*, and other auspicious symbols.

Table No. 1.1 The period of the great Mughal emperors

Name of the Emperors	Period (A.D.)	
	From	To
Babur	1526	1530
Humayun	1530	1540
Interregnum	1540	1555
Humayun	1555	1556
Akbar	1556	1605
Jahangir	1605	1627
Shah Jahan	1627	1658
Aurangzeb	1658	1707



Map 1.1 The Mughal empire in India (1556-1707 A.D.)

1.2 MUGHAL INLAY ART

The marble inlay--*Pachchikari* or *Parchinkari*-- is one of the most beautiful and popular forms of the Indian Mughal art. This art is not an isolated phenomenon and might have travelled over long distances before its arrival in India and also before being adopted by the Mughals. Inlay, technically known as *pietra dura* (Italian for "hard stone"), is the marble inlaid with designs in precious or semi-precious stonework (such as onyx, jasper, carnelian, etc.) cut into thin slices and neatly embedded in sockets prepared in the marble (Smith, 1969, 175). The Mughal inlay art was developed from Humayun's Old Fort, Delhi in 1535 (Nath, 2004, 19). The Mughal period (1556-1658 A.D.) showed its continuous development, and Indian architecture was decorated with fabulous inlay work with the arrival of the Mughals. The inlay work in these Mughal monuments can be seen in the evolutionary process. With regard to architectural decorations, the wide variety of decorative inlay art was unique in the Mughal monuments. It was not only because of the change in the style of ornamentation but also the emphasis being laid on inlay rather than on carving during the Mughal period (Nath, 1976, 15). The architecture of Akbar's period was mainly in red sandstone. His buildings, the Red Fort at Agra and Fatehpur Sikiri, were wholly Indian in style. The inlay art can be seen in the Buland Darwaza, Jami Maszid (Fatehpur Sikiri) and in the Jahangiri Mahal, Delhi Gate (Agra Red Fort). In these buildings of Akbar, mainly geometrical inlay designs were applied, and it should be noted that it was the beginning phase of the development of inlay work during the Mughals. After the death of Akbar in 1605 A.D., his son, Prince Salim, ascended the throne and assumed the title of Jahangir (r.1605-1627 A.D.), "Seizer of the World." His able wife, Nur Jahan, assisted him in his artistic desire. The mausoleum of Akbar at Sikandra, outside of Agra, represents a major turning point in the Mughal history as the successors of Akbar have adopted the sandstone compositions into opulent marble masterpieces. This monument was decorated with a variety of inlay designs.

Arabesque inlay design was also introduced in Jahangir's building. Jahangir was the central figure in the development of the Mughal garden. During his regime, the tomb of Itmad-ud-Daulah was constructed, which may be regarded as the connecting link between the style of Akbar and Shah Jahan. This tomb is a "jewelled casket" rising on the banks of the Yamuna, an example of the transition from red sandstone to marble. Buildings of Jahangir were changed not only in their architectural style but also in the method of decoration. The tomb of Itmad-ud-Daulah is made of traditional red sandstone as well as of white marble. The white marble is inlaid with coloured marble garnished with semi-precious and precious stones. This tomb was the first structure in India in which white marble replaced red sandstone as the ground for polychrome *pietra dura* inlay (Blair and Bloom, 1994). In Jahangir's buildings new themes were added, such as wine vessels, flower vases, dishes, fruits and cypress trees. Shah Jahan, the successor of Jahangir, was much impressed by his father's excellent architectural taste and took an active part in the many impressive architectural projects of his reign. In the Taj Mahal, Shah Jahan modified the designs as suggested by the designers. The inlay art was at its peak in this monument. In addition to this monument, Shah Jahan constructed Muthamman Burj (Shah Burj, 1631-40 A.D.), Diwan-I-Am, Diwan-I-Khas of Agra Red Fort, the Taj Mahal (1631-1652 A.D.) at Agra; Red Fort and Palaces at Delhi (1639-1648 A.D.), all known for their marvelous inlay works. Shah Jahan also commissioned his famous peacock throne at Diwan-I-Am at Delhi Red Fort after transferring the capital to Delhi in 1648 A.D. (Gascoigne, 1971, 186-187).

The Mughal architecture was essentially a secular art and gave new life to Indian inlay art. This architecture represented the age to which Mughal rulers belong and reflected the personality of the builders. The selected inlay designs represented the symbolic as well as a substantial aesthetic character. The aim and purpose of the inlay art in the Mughal architecture were to convey their ideas, feelings, messages and lessons through the symbols and motifs. This art

was presented with the sense of aesthetics to make the surroundings more pleasing and harmonious.

1.2.1 The origin and development of the Mughal inlay art

Inlay work or *pietra dura*, particularly on marble, already mentioned in previous section generates a lot of debate with respect to its origin. Some believe inlay work on marble to be typically Italian in origin and some contend it to be of Indian origin (Nath, 2004). The most accepted version, though, is that the art form is Italian in origin but the accomplished Indian artisans adapted the work to their needs and gave it an indigenous touch. Indian artisans used the technique to carve out traditional Indian motifs, that is today the crown of Indian art. Inlay work on precious stones began in the workshops of Florence in Italy during the end of the sixteenth century. According to Major Cole, the earliest example of *pietra dura* was Gol Moandal Jagmandir palace (1623 A.D.) at Udaipur, built for Prince Khurram (Emperor Shahjahan) (Smith, 1969, 175). In 1621-27, Nur Jahan, wife of Jehangir, built the tomb for her father, Itmad-ud-Daulah, that had the same inlay work of precious and semi-precious stones with different motifs (such as floral, cypress tree, creeper, wine vessels, bird, fruits, flower vases), and an amazing variety of geometrical and arabesque designs. The similar *pietra dura* technique can be seen abundantly in the Taj Mahal, and in the palaces of Agra and Delhi Red Fort during Shah Jahan period. According to Smith, Shah Jahan might have learnt the presence of this art while residing in the Jagmandir palace at Udaipur (Smith, 1969, 175).

Ebba Koch strongly supported that *pietre dure* is of Italian origin with European influence. She suggested, "The Italian *pietra dure* panels are embedded in a white marble surface..." (Koch, 2001, 91) and reiterated further that European forms are integrated and transformed in the Mughal court art. However, Nath argued that the Orpheus plaques, as mentioned in Bishop Heber travelogue (Nath, 2004, 5), that are the solitary example of Florentine *pietra dura*, were imported ready made and placed in the throne- balcony of the Diwan-I-Am

of the Red Fort, Delhi between 1707 (after the death of Aurangzeb) and 1824. Nath further emphasized that the presence of inlay work in Mughal monuments (Table 1.2) is indigenous and, moreover, developed form of mosaic, which has been further divided into two styles. The first style of inlay work was different geometrical shapes of stones of varied colours assembled and arranged in such a way to form a pattern on a plaster surface or on a stone slab. The second style was the inlaid art in which thin pieces of semi-precious stones were laid in sockets, specially prepared in a sandstone or marble slab (Nath, 1970, 29). The early examples of inlay has been found in the Chaumukhi Jain temple (1438 A.D.) at Ranpur, the Qila –i-Kuhna mosque (1533-40 A.D.), the Old Fort (Delhi), and Humyun tomb (A.D. 1558-70 A.D.) in Delhi (Tod, 1920, 337; Smith, 1998, 21; Nath, 1970, 29-30 and 1976, 96). The buildings of Akbar - Delhi Gate of Agra Red Fort (1566 A.D.), the western facade of Jahangiri Mahal (Fig. 1.1) at Jami Maszid, and Buland Darwaja (1565-70 A.D.) at Fatehpur Sikiri exhibit similar style (i.e., inlay on red sandstone). During Jahangir reign, Akbar's tomb (1605-12 A.D.) was refurbished with refined designs (Fig. 1.2, 1.3) whereas a stage of perfection was reached for the tombs of Salim Chisti and Itmad-ud-Daulah (1627 A.D.) (Fig.1.4). According to Smith (1901, 20), the Itmad-ud-Daulah tomb had mosaics in coloured marbles and inlaid work, but after Jahangir's period the mosaic ornamentation changed entirely to inlaid decoration.

According to Nath (1976), the earliest examples of inlaying with rare stones were evident at Mandu at the mausoleum in the Ashrafi Mahal (1450 A.D.) and also at the Tower of Victory, both constructed during the first half of the fifteenth century (Brown, 1975, 66). The Mahmud's Madrasa of the Heavenly Vault (Asharfi Mahal), now largely in ruins, originally included a domed mausoleum and a seven-storey tower (Fig. 1.5). The city of Mandu was the fifteenth century capital of the erstwhile Sultanate of Malwa that provided a glimpse of the Mughal ritual in a non-Mughal city. Malwa's independence came to an end in 1531 when it was conquered first by the Sultan of neighboring Gujarat and later in the same year, by the second Mughal emperor, Humayun.

From 1564, Mandu remained a permanent part of Mughal India (Brand, 1991, 8). Mughal emperors had a great interest to spend a good part of every year outside their capitals. The day- to- day event of Jahangir's stay during seven and half months at Mandu was described in detail in the *Memoires of Jahangir*. This record was supplemented by Sir Thomas Roe (Ambassador of Queen Elizabeth) who travelled with Jahangir to Mandu. On 6th March, 1617, Jahangir with his ladies arrived at Mandu (stayed at Nilkanth summer house) after a leisurely journey of four months from Ajmer (Gascoigne, 1971, 155-156; Burn, 1971, 165). The magnificent buildings of the Malwa King at Mandu drew Jahangir's admiration (Burn, 1971, 165). Jahangir visited the beautiful Friday mosque, a superbly simple and dignified building from the early fifteenth century (Gascoigne, 1971, 156).

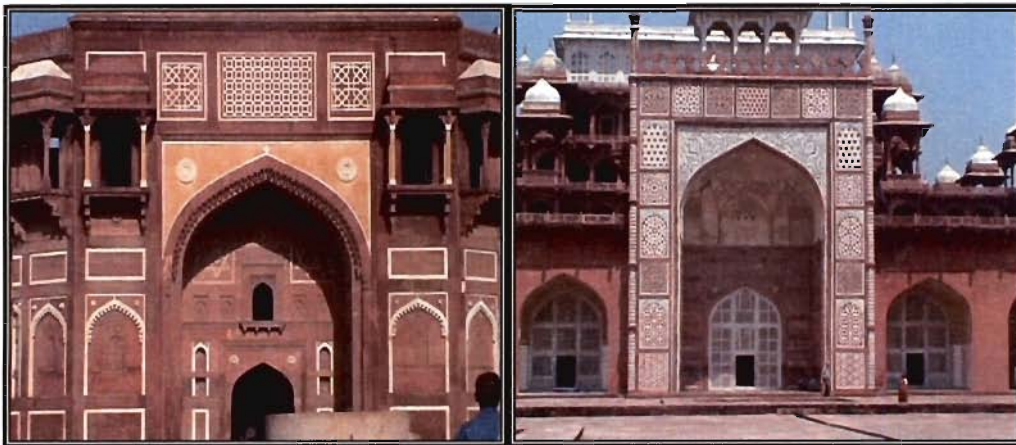


Fig. 1.1

Fig. 1.2

Fig. 1.1 Inlay, western façade, Jahangiri Mahal, Agra Red Fort

Fig. 1.2 Inlay, central portal, Akbar's tomb, Sikandra (Agra)

With a remarkable eye for excellence in design and execution in the arts and crafts, Jahangir encouraged talent of artisans and promoted merit without discrimination. Jahangir had a taste for the finer things in life— from beautifully designed artifacts to the enjoyment and appreciation of cultural activities. In his memoirs, Jagangir expressed his desire to construct royal accommodation in all cities (Beveridge, 2006, 364). It might be that when Jahangir visited Mandu, the

fascinating inlay work of that place impressed him as the continuous refinement of inlay work can be seen in the buildings of Jahangir. This phenomenon was evident in Akbar tomb to Salim Chisti tomb, and ultimately a remarkable change in the tomb of Itmad-ud-Daulah as well. It may as well be possible that there could have been interaction between Mandu's artisans and Jahangir's architect. It was noted that Jahangir had sent Abdu-I-Karim, the architect, to look after the repair of the buildings built by the old rulers at Mandu (Beveridge, 2006, 364). It is predictable that Abdu-I-Karim would have come in contact with the local artisans of Mandu, and their artisans would have shared their techniques. Another possibility is that Nur Jahan, the wife of Jahangir, would have been fascinated by the inlay work of Mandu. As explained in the *Memoirs of Jahangir*, "I went out to hunt them with my ladies. When the tiger came in sight Nur Jahan Begam submitted that if I would order her she herself would kill the tigers with her gun" (Beveridge, 2006, 375). Nur Jahan saw all the places of Mandu, as described in the *Memoires of Jahangir*. "I mounted with the ladies in order to go round and see the courts and buildings on the Shakkar tank, founded by former rulers of Mandu" (Beveridge, 2006, 384). It is expected, therefore, that Nur Jahan was inspired by the inlay work and applied the same in her father's tomb with much more sophistication.



Fig. 1.3

Fig. 1.3 Arabesque, spandrels, Akbar's tomb, Sikandra (Agra)



Fig. 1.4

Fig. 1.4 Inlay, exterior, Itmad-ud- Daulah tomb, (Agra)

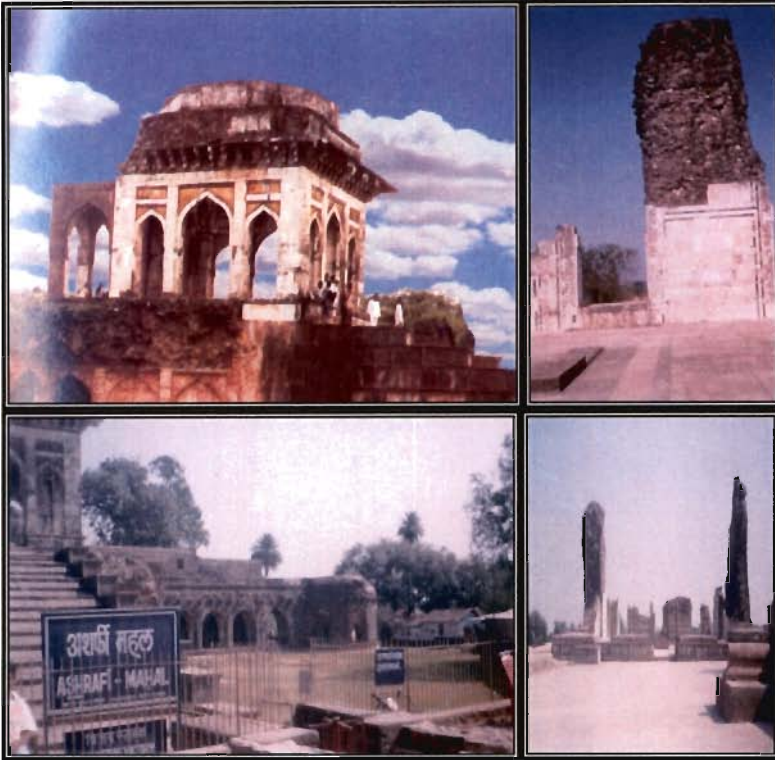


Fig. 1.5 Ashrafi Mahal and Tower of Victory, Mandu (M.P.)



Fig. 1.6

Fig. 1.7

Fig. 1.6 Inlay, Muthamman Burj, Agra Red Fort

Fig. 1.7 Inlay, exterior, Taj Mahal (Agra)



Fig. 1.8

Fig. 1.8 Inlay, gateways, Taj Mahal

Fig. 1.9

Fig. 1.9 Inlay, main entrance, Taj Mahal, (Agra)

To recapitulate the present discussion, the following three major points should be noted. First, when Jahangir visited Mandu, the fascinating inlay work of Mandu impressed him, and this is evident from the continuous refinement of inlay work that can be seen in his buildings i.e., from the Akbar's tomb to Salim Chisti's tomb to remarkable change in the tomb of Itmad-ud- Daulah (Sharma *et.al* 2008b). Second, there is a possibility that there was an interaction between Mandu's artisans and Jahangir's architects. Third, the other possibility can be that Nur Jahan, the wife of Jahangir, got impressed by the inlay work of Mandu as well during her visit along with her husband (Sharma *et.al* 2008). As a result, she applied the same art-work in her father's tomb, however with much more refined manner. In summary, during Jahangir period, a remarkable change can be seen in the Mughal inlay art, which symbolizes not as an indigenous Indian art but also developed rapidly in the period of Jahangir, and not during that of Shah Jahan.

In the period of Shah Jahan, the Muthamman Burj (Figure 1.6), Diwan-I-Am, Diwan-I-Khas of Agra Red Fort, Taj Mahal (1631-1652 A.D.) (Figures 1.7, 1.8 and 1.9) and Red Fort at Delhi (1639-1648), were the examples of most refined and perfect stage for inlay art. Since 1630, inlay art-work appeared in the buildings as well as on small objects as decorative panels, with bird and flower

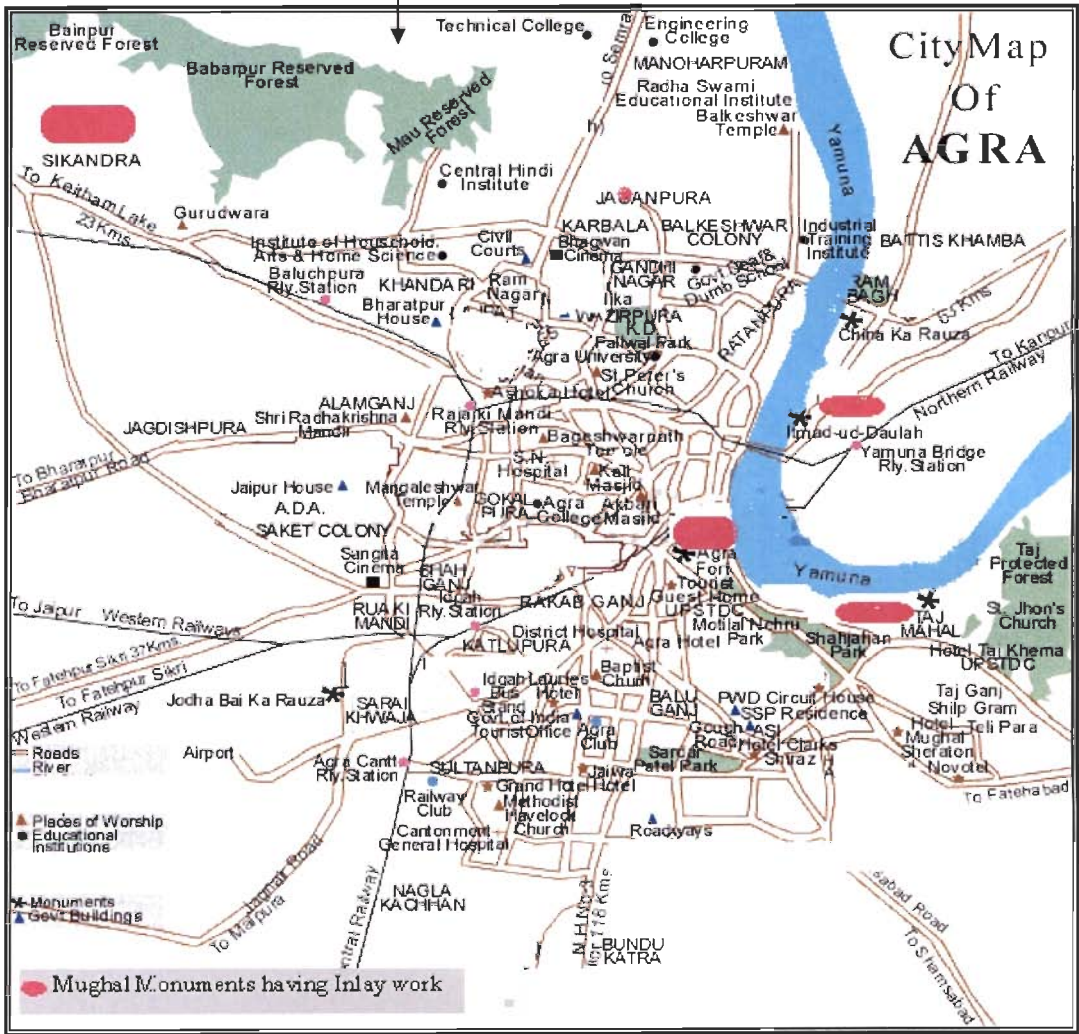
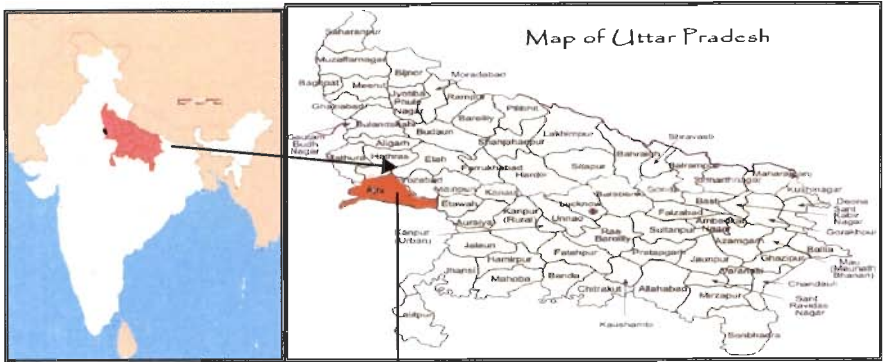
motifs, suitable for cabinet fronts and tabletops. Unlike the *pietra dura* of Italy (particularly the Florentine tradition), which is more flat, Indian inlay work is not three-dimensional. It is observed by the investigator that there is no European inlay motif in the Jahangir period. It should be noted that there is a lot of similarities between the inlay techniques of Itmad-ud-Daulah tomb and Shah Jahan's buildings (Taj Mahal and Agra Red Fort). Inlay art had reached its most gracious position in the period of Shah Jahan with the refinement of inlay designs, placement, and the balance of negative and positive space of the inlay designs.

1.3 FOCUS OF RESEARCH

Agra-- once the capital of the Mughals- witnessed the greatest artistic and cultural activities since the sixteenth century of the Christian era. Agra is the historical and cultural city of Uttar Pradesh in India, and has a great concentration of various craft forms, artisans, and craftsmen. The place (Agra) is also popular for inlay art, and this art work is the reason why I have chosen Agra as my sample district for research. The proposed study covers various dimensions of decorative inlay art in the monuments built at Agra during the period of Akbar to Shah Jahan (1556- 1658 A.D.), The Table 1.2 exhibits the Mughal emperors and monuments built during their regime consisting of Inlay work. For the present study, the following Mughal monuments of Agra were chosen - the tomb of Itmad-ud-Daulah (Fig.1.11), Akbar's tomb (Fig.1.2), Agra Red Fort (Fig.1.12), Taj Mahal (Fig.1.13), Buland Darwaza (Fig.1.10), Salim Chisti Mosque, and Jami Masjid at Fatehpur Sikri. The inlay designs at these selected Mughal monuments belong to three periods of rulers: Jallauddin Akbar's (1556-1605 A.D.), Nuruddin Jahangir (1605-1627 A.D.), and Gyasuddin Shah Jahan (1627-1658 A.D.).

Table 1.2 The Mughal emperors and their monuments with inlay work

Mughal Emperor	Reign	Famous Mughal Monuments	Inlay Work in Monuments of Agra
Akbar's	1556-1605 A.D.	Humayun tomb, Delhi (1560s), Arab Sarai, Delhi (1560s), Agra Red Fort, Agra (1565-1570), Jama Masjid, Fatehpur Sikri (1571-1580), Skaikh Salim Chishti tomb, (1571-1581), Islam Khan's tomb, Buland Darwaza, Fatehpur Sikri (1601)	Delhi gate of Agra Red Fort, Jahangiri Mahal, Jami Maszid and Buland Darwaza Fatehpur Sikri
Jahangir	1605-1627 A.D.	Akbar's tomb, Sikandra (1605-1612), Mariam-uz-Zamani tomb (1622), Skaikh Salim Chishti tomb, Itmad-ud-Daulah tomb (1622-27), Jehangir tomb, Lahore (1627)	Akbar's tomb, Skaikh Salim Chishti tomb, Itmad-ud-Daulah tomb
Shah Jahan	1627-1658 A.D.	Muthamman Burj Agra (1628-30), Anar Sagar Pavilions, Ajmer, Diwan-I-Khas (1635), Shish Mahal, Mina Maszid, Nagina Maszid, and Diwan-I-Am in Agra Fort (1631-40), Taj Mahal, Agra (1631-1652), Black Pavilion. Srinagar (1630), Red Fort Delhi (1639-1648), Jama Masjid, Agra (1648), Jama Masjid, Delhi (1650-1656), Fatehpuri Masjid, Delhi (1650), Moti Masjid (Agra Red Fort) (1648-54)	Muthamman Burj Diwan-I-Khas, Diwan-I-Am (Agra Red Fort), Taj Mahal



Map 1.2 (C) A city map of Agra, showing the location of the Mughal monuments that carried inlay work

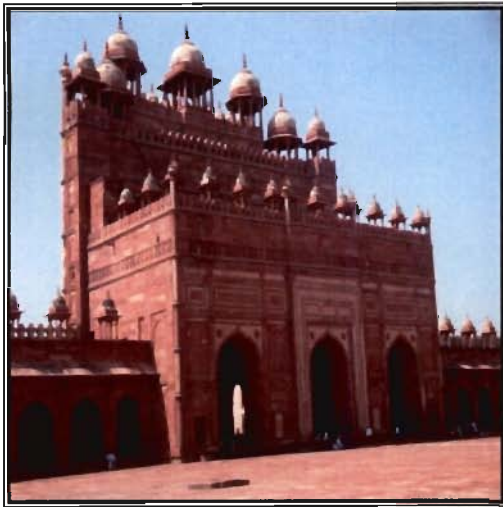


Fig. 1.10 Buland Darwaza, Fatehpur Sikiri Fig. 1.11 Tomb of Itmad-ud-Daulah

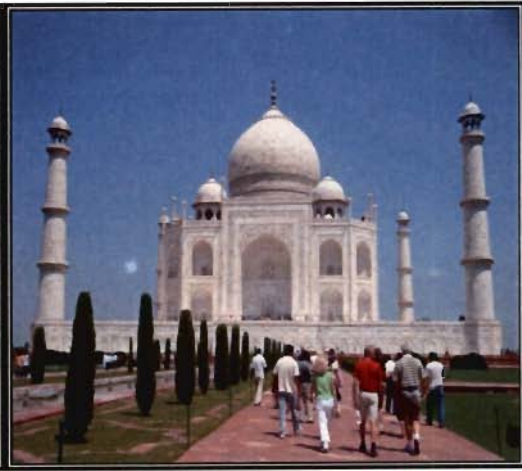
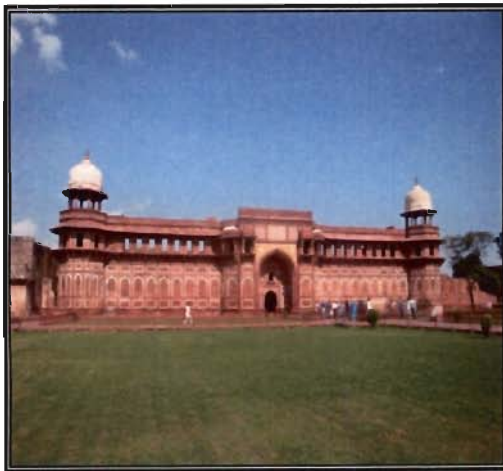


Fig. 1.12 Agra Red Fort

Fig. 1.13 Taj Mahal, Agra

1.4 NEED AND PURPOSE OF THE STUDY

The present work attempts to analyze and understand the Mughal inlay art between 1556-1658 A. D. as most of the development of inlay work has been noted in this period. The Mughal decorative arts have been analyzed by various scholars with conflicting findings. While examining details regarding the Mughal inlay art, following questions arise:

- Is inlay art, developed indigenously in India or Is it an European art?
- What kinds of design elements are used in the inlay work?
- What is the purpose of inlay design elements - decorative or symbolic?

- Why did different Mughal emperors incorporate varied elements in inlay and what were the possible reasons behind it?
- Is the depiction of inlay designs according to design fundamentals and colour symbolism?
- Is the application of inlay designs according to Indian aesthetics?
- What is the logic behind the placement of different design elements?
- Are designs applied on the monuments according to visual ergonomics?
- Do the contemporary inlay designs have any similarities with those of Mughal inlay designs with respect to their designs, techniques, and placement?

In the present thesis, an attempt has been made to explore authentic and reliable answers to these critical questions.

1.5 OBJECTIVES

The following objectives of the study are designed:

1. to study the origin and development of the Mughal inlay art;
2. to identify different design elements used in the Mughal monuments of Agra, their purpose and significance;
3. factors responsible for inlay work such as personal interest and taste of different emperors, emotional motives and political factors;
4. to analyze inlay design elements according to design fundamentals, Indian aesthetic philosophy, and placement; and
5. to perform comparative analysis of the Mughal inlay with the contemporary inlay art.

1.6 SCOPE OF THE STUDY

The scope of the study is to give a full picture of inlay design qualities to derive essence and uniqueness. The intention of the study is to bridge the gap between the traditional Mughal inlay designs and the contemporary inlay designs

by the application of modified traditional design elements to modern buildings while maintaining the tradition and culture. It is an attempt to generate awareness of the historical heritage. The new generation is slowly forgetting the importance and relevance of the past historic art work. It is imperative that the designers should be conscious of the points related to design fundamentals, colour symbolism, aesthetics and the placement. Artists should be aware of these design elements, which are an excellent representation of ornamentation as well as of visual communication. The Mughal inlay elements evaluated in these monuments would be helpful in developing the road map for further investigation, scope and dimension of the Mughal art in India.

1.7 ORGANIZATION OF THE STUDY

This thesis constitutes of five chapters addressing various aspects of inlay designs used in the Mughal architecture of Agra. The figure 1.14 gives the overview of the entire work presented in this thesis. A brief description of each is given below:

The first chapter consists of the introduction to the inlay art, that includes origin and development of inlay art, definition of the problem under study, objectives, the need of study, and methodology. It also defines the scope of the study. The second chapter concentrates on relevant literature review.

The third chapter deals with inlay designs applied in the Mughal monuments of Agra i.e., Agra Red Fort, Akbar's tomb, Taj Mahal, tomb of Itmad-ud-Daulah and Fatehpur Sikiri (Buland Darwaza, Salim Chisti tomb and Jami Maszid). It examines the probable factors behind stylistic changes and development of inlay designs, which are further divided into four responsible factors: personal, geographical, socio- cultural and historical during the different periods of the selected Mughal emperors (viz., Akbar, Jahangir and Shah Jahan). The chapter highlights the inlay motifs that are further classified into geometrical, arabesques, floral, vases and vessels, fruits, auspicious designs, animal, birds,

etc. The chapter also analyzes the purpose and inferences behind the depiction of inlay motifs in the Mughal monuments of Agra.

The fourth chapter provides an analytical study of inlay designs in the Mughal monuments of Agra. This chapter evaluates the inlay motifs and the logic behind their depiction through survey and visual perceptions. The study analyzes the inlay motifs according to design fundamentals, colour symbolism, aesthetic philosophy or *rasa's* of the Indian *Shastras*. It examines the logic behind the placement and appropriate placement of the designs at different monuments.

The fifth chapter explores a comparative study of contemporary inlay work available in contemporary buildings and in decorative articles with the Mughal inlay designs. The chapter analyses the similarities and dissimilarities of the inlay designs, their technique, purpose, and placement.

The final chapter provides, in synthesized form, a series of findings presented in the preceding chapters. It also contains a few suggestions, followed by limitations of the study and scope for further studies on art in the Mughal architecture.

1.7.1 Chapterization

- Chapter 1: Introduction
- Chapter 2: Review of literature
- Chapter 3: Inlay designs in the monuments of Agra: identification, factors influencing the design and their significance
- Chapter 4: Analysis of Mughal inlay designs according to design fundamentals, aesthetic philosophy and their placement at the monuments
- Chapter 5: Comparative study of Mughal inlay with contemporary inlay art
- Chapter 6: Findings and recommendations

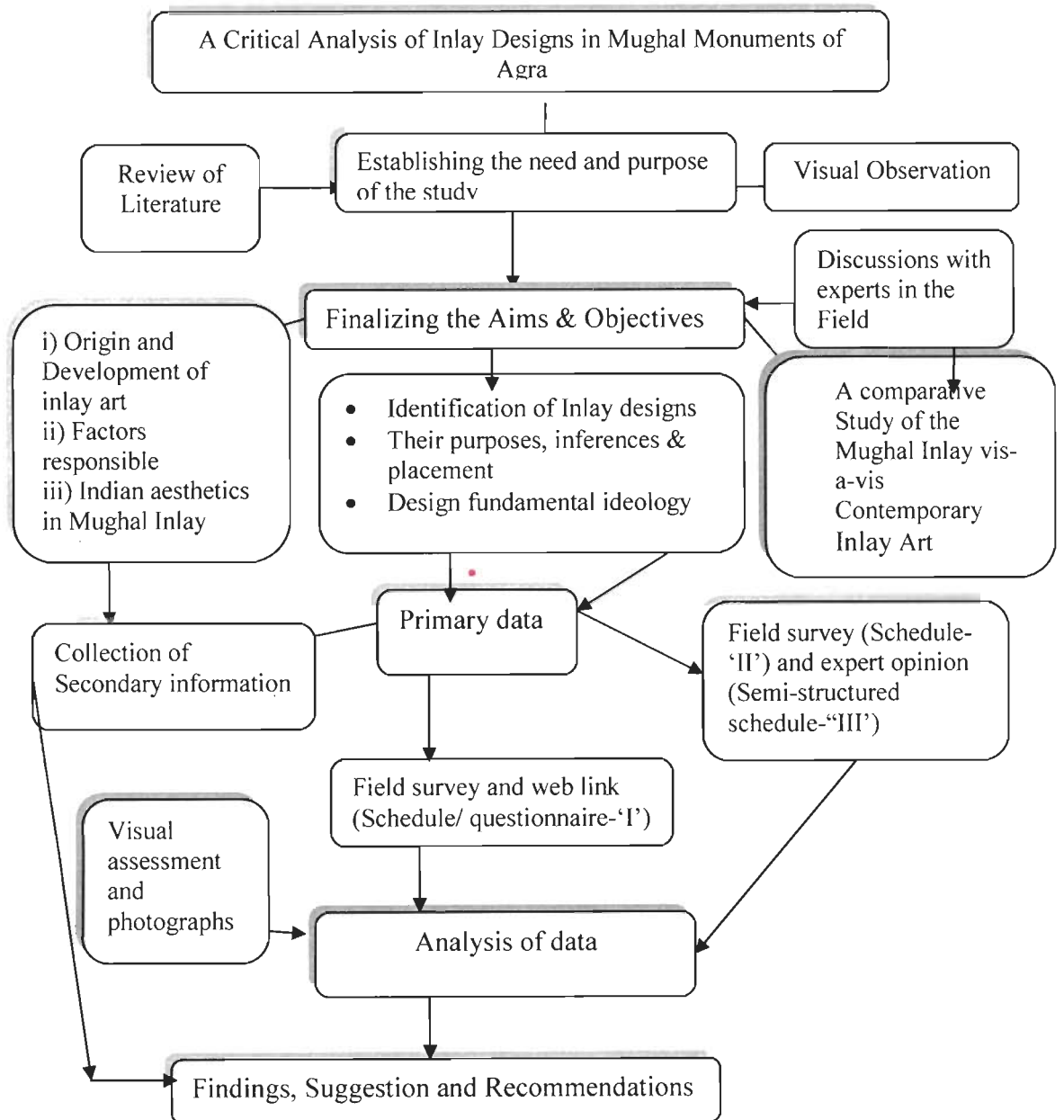


Fig. 1.14 Flow chart of the study

1.8 METHODOLOGY

The present study is analytical in nature and is supported by field survey, visual assessment, and secondary data. Visual surveys have been undertaken to access the features, such as identification of inlay motifs and their significance (Chapter 3), design fundamentals, colour functionality, placement and aesthetics (*rasas*) of inlay designs (Chapter 4) applied in the selected buildings. In the fifth chapter, comparisons with contemporary inlay designs were carried by visual survey. The investigator has done extensive photography of selected Mughal monuments and contemporary buildings. Besides, discussion and interviews of artists, architects, and artisans, etc., have been conducted to seek the information on the targeted inlay design issues. The secondary data in connection with the origin and development of Mughal inlay art, factors responsible for inlay, aesthetic philosophy and the influence of Persian, Chinese, and Hindu motifs were collected from books, journals, internet and biographies of Mughal emperors (e.g. *Babur Nama*, *Humayun Nama*, *Akbar Nama*, *Ain-e-Akbar Padshah Nama*). Necessary information was also obtained from the holy book Q'uran.

1.8.1 Survey techniques and instruments

Purposive sampling technique has been applied for the present investigation. The primary data were collected with the help of two self constructed and well structured survey schedules /questionnaires-'I and II', and one semi- structured schedule-'III'. Pilot survey was conducted with the help of survey schedule-I, and was redesigned on the basis of discussion with artists, tourists and emporium owners during personal visits of the present author to Agra. The refined questionnaire- (Annexure I) was sent to 45 participants by post. E-mail communication was sent to the various artists and architect communities (668 No.). Other avenues such as 'arch net discussion forum', and <http://spreadsheets.google.com/ccc?key=p4a6mzqbh7KdFkVxAKsUsKw> (web link) were also utilized to collect informations pertaining to purpose and

placement of inlay designs. The responses obtained by personal interview method (63), through e-mail (22), totaling sample of 85, were used for statistical analysis. The responses of architects (23), artists (49) and research scholars (13) were utilized to cover the aspects of inlay design, in chapters 4 and 5.

The objectives of sixth chapter were realized mainly through interviews, discussions, and conversations with craftsmen, contractors, and emporium owners as well as by the personal visits to the selected contemporary buildings (Dayal Bagh (Agra), Oberoi Hotel and Resort (Agra), Shri Durga Mata Mandir, (Ludhiana), and various farm- houses and residential buildings, Delhi) for visual assessment. Primary data were ascertained predominantly from Agra region (Taj Ganj, Inderpuri, Sikandra and Dayal Bagh) with the help of survey schedule/questionnaire-'II' (Annexure II). A sample size of 40 artisans was used for analysis. Though the questionnaire- 'II' was designed in English language, during the conversation National language 'Hindi' was used to ascertain appropriate response. Besides, contemporary architects (Ar. V.N. Srivastava, Prof. Santosh Misra, Dr. Prabhjot Kaur and Prof. S.S. Bhati), ergonomist (Prof. Debkumar Chakrabarti) and artists (Dr. Saroj Bhargav and Dr. Pradeep Sharma) were interviewed with the help of semi-structured schedule-'III' (Annexure III).

1.8.2 Analytical procedure and tool applied

Statistical analysis such as percentage, average, weighted mean, bar diagrams, pie diagrams and Chi square were performed to present the results from field survey, email and web link. Adobe Photoshop was used to make details of figures enriched. The present author also employed her own sketches and suitable diagrams to make more clear comparison of the designs.

1.8.2.1 Chi square test

As a test of independence, Chi square (χ^2) enables us to explain whether or not two attributes are associated, i.e., whether the inlay designs have any relationship to placement. In such a situation, we proceed with the null

hypothesis that the two attributes (i.e., inlay designs and placement of inlay designs) are independent. The degree of freedom (d.f.) is calculated as given below.

$$\text{Degree of Freedom} = (C-1) \times (R-1)$$

Where C is the number of columns and R is the number of rows in the data to be cross-tabulated in the sample.

On this basis, we first calculate the expected frequencies and then work out the value of the value of χ^2 . If the calculated value of χ^2 is less than the table value at a certain level of significance for given degree of freedom, we understand that null hypothesis holds true, which means that the two attributes are independent (or not associated). But if the calculated value of χ^2 is greater than its table value, our inference would be that null hypothesis does not hold true, which means that the two attributes are associated. χ^2 is calculated (Kothari, 2005) as below:

$$\text{Chi square } (\chi^2) = \sum (f_o - f_e)^2 / f_e$$

where, f_o = frequency observed

f_e = frequency expected

1.8.2.2 Weighed mean

Weighed mean was also calculated for questions to which the respondents were asked to rank the option. The weights were assigned in the reverse order of the rank given, i.e., the 'Rank 1' was assigned a weight of 5, 'Rank 2' was assigned 4, 'Rank 3' was given 3, 'Rank 4' was given 2 and 'Rank 5' was given to 1. Each response was multiplied by the respective weight. The sum total was then divided by the total sample size i.e., 85 to find out the mean score. The mean score was thus achieved on the basis of weighted mean.

REVIEW OF LITERATURE

2.1 BACKGROUND

Historians and the scholar of arts have explored a number of features of the Mughal monuments and highlighted their importance in art and architecture. An extensive survey of the literature on the Mughal monuments was conducted for the present research work. Previous literature published but relevant to the present research can be divided into four broad categories: 1) historical review of the Mughal art, and architecture; 2) inlay art in the Mughal architecture; Mughal paintings, textiles and other decorative arts; 3) mythological and 4) other relevant aspects of Indian art and architecture.

2.1.1 Historical review of the Mughal art and architecture

The well-known Allami Sheikh Abu'l Fazal's *Akbar Nama*, translated by Beveridge (1979) filled the gap left by the history books. *Akbar Nama* was composed by Akbar's famous secretary and advisor, Allami Sheikh Abu'l Fazal who narrated the day-to-day activities of the emperor's rule and activities related to the construction of Fatehpur Sikri. Details of the personality of Akbar and his interests were also discussed. To this effect, Allami Sheikh Abu'l Fazal's third volume known as *Ain-i-Akbari* (1977) is an authentic extract of Akbar's life. The other outstanding Persian source for monuments built in Agra and Fatehpur Sikri was the writings of Emperor Nuru'd-din Jahangir (1605-27). His memoirs, the *Tuzuk-I- Jahangiri* gave interesting details about the monuments, particularly regarding the Akbar's tomb, the Buland Darwaza and the tomb of Shaikh Salim. The book also gave details of Jahangir's visit to Mandu.

Begam (1657) explained the biography of Humayun (*Haram Sara*) and the translated version of *Humayun Nama* given by Beveridge (1902). Begam described the impact of Iranian motifs on the Mughal inlay art. The study also provided life style, personal taste and interest of Humayun.

Jahangir had attempted to integrate the Central Asian, Persian, and indigenous traditions (Anand, 1958). There was a diffusion of the various schools of art: the direct Mughal tradition of the 18th century, various Rajasthani sub-schools that grew under the Mughal influence.

Goetz (1958) described that the Mughal royalty became apparent in art during Jahangir period, later became the central idea under Shah Jahan. This new spirit was also expressed in novel forms assimilated from architecture of Bijapur and Golconda. In Aurangzeb's period, the Deccani influences were found dominant in the Moti Masjid (Delhi Fort, 1659), the Badshahi Masjid at Lahore (1673-74), and the Bibi-ka-Rauza at Aurangabad. Other buildings of Aurangzeb such as the Badshahi Kila at Burhanpur, Mahal and the garden palace of Zeb-un-Nissa (in the name of Aurangzeb's daughter) were examples of secular architecture. The study of Goetz concluded that Aurangzeb's period practically marked the end of the Mughal imperial architecture, but several local styles were practiced in Rajasthan, Punjab, Mysore, Oudh, and among Sikhs and Marathas. The style of the palaces at these regions was mainly of the classical Mughal type with architectural forms, elaborate pillars, and high *bangaldar* roofs in some. The Hindu temple architecture of later Mughal period showed an admixture of classical Mughal decorative details.

Ferusson (1967) concluded that the Mughal architecture was the combination of Persian, Islamic and Hindu influences and cannot be considered as an isolated phenomenon.

Brown (1975) in his book, *Indian architecture* (Islamic Period from 1200 to 1707 A.D) dealt with the development of Moslem architecture in India. Brown explained the architectural style of Agra and Fatehpur Sikri monuments developed under the Muslim rule, and found Persian and Hindu influences in the architecture of Fatehpur Sikiri. However, the author did not elaborate on the decoration of the monuments.

Hoag (1975) presented the Mughal architecture as a manifestation of the post-classical Islamic style of the Ottomans and *Safavids*. The author primarily

worked on sources of designs available within the territories of the empire, and found that renewed 'Persian' influence was entered in India with Nur Jahan's buildings. Hoag finally concluded that the materials and techniques applied in the Mughal architecture were wholly indigenous, whereas designs were influenced from the central Asia.

Nath (1978) presented a study of Sultanat of Delhi with a descriptive catalogue of the monuments up to the death of Sher Shah Suri. He described the similarities of the Sultanat of Delhi architecture to Ajmer, Badaon and Jaunpur architecture. The study also dealt with Indian *vastu* tradition and inspirations, and their effect on the development of the Mughal architecture.

Nath (1982) described the history of Mughal architecture, in particular, the rules laid down while constructing the mosques. One of these rules was that the mosque would face the east because the holy *Qu'ran* ordains that one has to face the Kaba while offering prayers. Only floral designs were supposed to be used in its ornamentation with a high plinth and pillars. Also, there should be no image depicted in the mosque and no sculpture or animal figure would be employed. Nath further stated that the Taj Mahal is entirely different from other Islamic architecture in terms of concepts, customs, beliefs and decorative arts. He concluded with a remark that the Mughal architecture was developed indigenously in its forms and techniques. Nath (1982a) made an attempt to assess Akbar's personality with respect to his building's style, form and decoration. The study focused on Agra Fort and Fatehpur Sikiri and personality architecture in the buildings of Akbar. The study concluded that no ruler other than Akbar constructed such piece of architecture that had a fusion of all cultures and religions.

Begley (1983) investigated four Mughal caravanserais in Punjab (*Serai* Doraha (Ludhiana), *Serai* Nur Mahal and *Serai* Dakhni (Jalandhar) and *Serai* Amanat Khan built during the reigns of Shah Jahan and Jahangir. The study illustrated the complex methodological problems involved in tracing caravanserai history and the importance of these *serais*. The researcher examined the

approximate dates of two *serais* on the bases of their style and inferences drawn from various Mughal literary sources, and concluded that they lack dates of construction and names of builders.

Lowry (1987) examined answers to questions such as: why was Humayun's tomb not built immediately after his death?; what were the inspirations for its complex design and bold use of materials; and how was the tomb related to other sixteenth century Islamic monuments of India? The author examined the tomb's complicated morphological and ontological problems, and emphasized that the architecture of Humayun's tomb reflected Akbar's attempts to articulate the tomb. The study focused on the use of symbolic associations that were not reserved for the principal elements of the tomb. Lowry explained with two examples— one is three screens on the western wall and other is the six pointed stars that mark the spandrels of all the major gates and arches of the tomb. He pointed out the direct visual appeal and forceful design quality found at the Humayun tomb.

Klingelhofer (1988) explained changes in the Mughals' attitudes toward the typology and articulation of palace practiced under Akbar, Jahangir and Shah Jahan. The author documented all aspects: geometry and planning, space and movement, surface and ornament, and design and function with the help of intensive illustrations. In explaining issues related to surface and ornament, the author observed the ingenious adaptations of traditional Indian forms such as the *makara*, peacock, and various vault designs (historical and original). Klingelhofer argued that these elements are of their Iranian and Indian inheritance, and the crafters of the Jahangiri Mahal skillfully handled these ornamental and architectural forms. He concluded that architecture of the Jahangiri Mahal reflected Akbar's character such as clarity, simplicity and integrity.

Moynihan (1988) investigated the architectural aspects of lotus garden palace and its influence on the Mughal palace garden. The researcher found that Babur's creativity, his character and interests were clearly reflected through

these palaces. The author concluded that the 'Lotus Garden' is more of Indian than Asian per se in design.

Nath (1989) presented different aspects of Indo Muslim architecture and dealt briefly with the techniques, aesthetics, symbolism and sources of inspiration. Pal (1989) documented the romanticism of the Taj Mahal in perspective of material, structure, decoration, and landscape. Based on the Taj Mahal structure and material used, the author reported that its architectural style can be compared with Florentine architecture. Pal explored the influences and inspirations in arts that were seen particularly in the Shah Jahan reign.

Koch (1991) provided a concise study of the Mughal architecture and details regarding its stylistic development and types of building with site plan, ground plan and illustrations from Babur to Aurangzeb. The author documented the influences applied to the Mughal style from design elements of Central Asia, India, and Persia as well as Europe. The planning of the Mughal architecture and the logic of the plans, and the architectural decoration were emphasized. However, the author did not document the details of motifs used in inlay work in the Mughal architecture of Agra.

Asher (1992) contributed towards evolution of the Mughal architecture through each monarchical reign. The author found that the Mughal architecture was dependent upon the personality of the emperors as well as on the cultural and political aspects. The study concluded that in Akbar's period, the Timurid design concepts with forms, motifs, and building techniques were broadly classified as indigenous to Indian architecture. However, the organization and spatial arrangements owed much to Timurid concepts. The author further stated that Shah Jahan had adapted western motifs in indigenous Indian architecture (e.g., the blaster column).

Asher (1993) examined the *jarokha* aspect that was in trend from periods of Babur to Shah Jahan. By contrast to the imperial places during their regime, Asher analyzed three sub imperial palaces - Mun'im Khan Palace (Jaunpur), Raja Man Singh's Rohtas Palace, Mun'im Khan's Chunar residence, and found

that the presence of *jarokha* in sub-imperial palace was of the same feature as that of observed in the imperial palaces. The author highlighted the origin of jarokha in reference to the practice of darshan (older Hindu tradition of kingship) and Perso-Islamic tradition (execution of justice). The Mughal emperors (Akbar, Jahangir, Shah Jahan) presented themselves to nobles at 'Jharoka-I darshan' (presentation to the public). It was concluded that selective use of *jharoka* and the usage of the *jharokha* by princesses of Hindu and Rajput rulers.

Koch (1994) traced the development of the Mughal gardens and highlighted the symbolism of paradise that was used to spread a political message. The author explained that the monuments constructed in the Mughal garden reflect the sense of artificial garden because of the floral and vegetative motifs carved and inlaid on the walls, ceilings, and columns of the monuments. The study concluded that these motifs and the paradise garden had some political and symbolic meaning.

Nath (1995) studied selected monuments: the Qutub Minar of Delhi, the Shariqi mosques of Jaunpur, the gateway of Chandari, the Begumpuri Masjid of Delhi, and the tomb of Muhammad bin Tughluq at Tughlaqabad. The author found that 'chain-and-bell' motif in Jodhabhai Palace, Fatehpur Sikiri, and reiterated that Mughal mosques and buildings were influenced by the pre-Mughal rulers.

Grover (1996) studied the buildings of Jahangir and Shah Jahan, and discussed *pietra dura*. He said that the design elements incorporated in these buildings established a relationship between applied art and architecture. Tadgill (1996) explained the historical limelight of the Mughal art and its architecture with the help of illustrations, maps, and plans of Agra Fort, Fatehpur Sikiri, Itmad-ud-Daulah's tomb and the Taj Mahal. The study emphasized that the Mughal architecture was the combination of Indo- Muslim architecture.

Nath (1997) contributed to the literature of the historical background of Agra, the great Mughals and their contribution to the architectural field facilitating maps, text figures of plans and sections, and plates. The study dealt minutely

with respect to Agra, its history from the earliest times to 1803. A survey was conducted by the author on Agra Red Fort, Akbar's tomb, Taj Mahal, tomb of Itmad-ud-Daulah and other monuments of Trans-Jamuna.

Nath (2000) examined the monuments of Fatehpur Sikiri, both historically and stylistically. The author argued that Akbar was a rare genius because of his contribution to the architecture of Fatehpur Sikiri because the example of fusion of art was not found elsewhere. Koch (2001) observed that European forms were integrated and transformed in the art of Mughul court.

Daljeet (2002) described the monuments of Delhi, Agra, Fatehpur Sikiri with respect to the building traditions and features as well as their historical, social, political, and cultural backgrounds. Kavuri (2002) reported geography, historiography, archeology and aesthetic aspects of Fatehpur Sikiri. The author's research provided a unique case study of built environments as social spaces influencing the construction of various palaces of Fatehpur Sikiri. In a concise report,

Nath (2004a) gave full appraisal of the subject of the Mughal architecture. He ventured to define its ethos, interpret its forms and concepts, and identified the determinants. The author provided information regarding the secularization of architecture as well as the house of Unitary Pillar and Mughal *jharokha*. He also discussed the Taj Mahal's environment, and arrived at the conclusion that it was a cumulative work of the land, the people, and the culture.

Beveridge (2006) translated the bibliography of the *Tuzuk-I-Jahangiri* in an abstract form. The author provided an account of Jahangir's life. Jahangir's memoirs gave a lively picture of India in the early decades of the seventeenth century.

Punja (2007) studied the design aspects of Salim Chisti's tomb in a great detail while Buland Darwaza was briefly covered. He highlighted that the decoration of Jodhabhai palace was similar to the decoration that was found in Persia and Pakistan. The study concluded that the motif *swastika* and lotus were the influences of Hindu as well as Islamic art.

Through historical review of the Mughal art and architecture, the present review documents the findings from books such as *Babur Nama*, *Humayun Nama*, *Akbar Nama*, *Ain-i-Akbari*, *Memoirs of Jahangir*, and *Padshah Nama*, as they are the biographies of the different emperors reflecting their life style, interest, taste for art, and inclination towards art and architecture. Overall, the emphasis was on architectural form, design, and application of decorative arts in the Mughal monuments. Eminent scholars--Nath, Ferusson, Brown, Klinghoofer and Tadjil highlighted that the Mughal architecture is a combination of Persian, Islamic and Hindu influences. Anand, Nath, Brown, Asher also studied the style of Mughal architecture in terms of dynamic socio-economic system, cultural and political aspects that were achieved from periods of Akbar to Shah Jahan.

2.1.2 Inlay art in the Mughal architecture

Although information on art in the Mughal architecture of India is widely documented, the present study is focused on the inlay work available in the Mughal monuments, specifically inlay works in the different periods of Mughal emperors. (e.g., Akbar, Jahangir and Shah Jahan).

Smith (1896) added considerable information to the ornamentation of the famous buildings (Jodha Bai palace, Birbal palace and Diwan- I- Aam) of Fatehpur Sikiri. The study provided minute and important sketches and drawings, and illustrations of every corner of the selected monuments. He concluded that the Mughal art was a combination of Hindu art and highlights the application of Hindu motifs such as the *padama*, *chakra* and *satkona*.

Havell (1904) emphasized that *pietra dura* was introduced for instructing the Mughal monuments with Italian or other European elements. The study provided historical background of the Mughal emperors and the aesthetic description of monuments, however, did not talk about the Indian *rasas*.

Hussain (1956) studied history, dimensions, art and architecture of the monuments in Agra fort. The author examined the historical background of the

place and gave details of the art and architecture of Agra fort. He analyzed that the motifs found in the two monuments, Diwan-I-Am (hall of audience) and Diwan-I-Khas (hall of private), are the fusion of Hindu (lotus), Persian (arabesque) and Islamic (floral patterns) arts. Hussain highlighted that the application and the technique applied on the inlay art was the inspiration of Persian art. However, his work lacks a comprehensive study on the inlay motifs depicted on these monuments.

Anand (1958) gave a complete picture of the master builder, Akbar. After consolidating the Mughal empire during the 1560s, Akbar built his capital, Fatehpur Sikri, in the village where the Muslim saint Salim Chisti lived. The city synthesized the various strains of Akbar's eclectic genius. Akbar's buildings had their antecedents in the architecture of the previous *Pathan* kings, particularly in the tombs, and also synthesized Islamic and Hindu elements. However, the Mughal style incorporated a wider use of the pierced screen, marble, tile work, and an over-hanging dome of brick and rubble dome cased in marble. The buildings of Fatehpur Sikri are characterized by their functionality, reliance on red sandstone, and influence of Hindu style of art. Besides architecture, Akbar's interest in paintings was evident in Abul Fazl's list of 104 painters who worked on the ateliers of the emperor and the carved *jalis* in the tomb of Salim Chisti. The carved pillars in Birbal's Mahal were innovations in the realm of Indo-Islamic architecture. Culmination of Akbar's building experiments was achieved in his tomb at Sikandra, begun by Akbar and completed by Jahangir in 1612.

Lal (1965) attempted to correspond the beauty of the Taj Mahal in its plan and proportion, execution and ornamentation; and concluded that it is the work of gems and jewelers. Lal explained that unique work of Taj Mahal is Islamic in character, and demonstrated a validity for the opposite view of authors, Havell and Oak, who claimed that the Taj Mahal is a Hindu monument. According to Havell, 'What the *Mihrab* was to the Muslims, the lotus was to the Buddhists and Hindus.' Lal highlighted that the Taj is full of romantic sentiments, and is a representation of helplessness at love's impotence against dire death.

Smith (1969) provided a wider knowledge of the origin of *pietra dura*, and explained the modern *pietra dura* inlay. The author highlighted that tastes of an emperor such as Akbar who was inclined to naturalism. He also commented that “The Mughal kings evidently loved flowers, which are admirably treated in all forms of art patronized by them and the motifs, are borrowed from Persian art” (p.175). Smith emphasized Indo–Mohammedan style of architecture and Indo-Mohammedan decorative and minor arts. He dealt briefly calligraphy, decorative reliefs, lattices inlay and mosaic and enameled tiles, and stated that “Muhammadan architecture excluding the styles most deeply affected by Hindu influence...” (p,166).

Nath (1970) studied colour decoration in the Mughal architecture in terms of glazed-tile decoration, mosaic, inlay and glass mosaic. He also focused on stucco and architectural painting, and critically examined the technique, style and subject matter. Nath mentioned that Mughal decorative arts can only be studied in relation to their historical background, and inspirations were derived not only from the ancient civilization of India but also from Egypt, Mesopotamia, Greece and Rome. The study discussed techniques applied for inlay work in detail and coloured stones used (e.g., Lapis Lazuli), which was introduced by the Mughals for the first time in India. The author emphasized that the inlays at Ranpur Temple of the fifteenth-century, an example of mosaic inlay, disproved of the theory that the art was introduced by foreigners during the reign of Shah Jahan. However, in depth analysis on the basis of design fundamentals and logic behind the placement of designs were not studied.

Nath (1972) examined the evolution of tombs in India. He studied the tombs based on historical perspective with reference to the inspiration, plan, construction and ornamentation. Nath also talked of the Taj Mahal's planning and architecture, its ornamentation and aesthetics. Nath also emphasized the Mughal inlay versus the *pietra dura*. He concluded that the Florentine *pietra dura* is an Italian art, and is different from Mughal inlay art. According to the author, ‘Orpheus plaque’ was imported into India and placed later in the Throne-Balcony

of the Diwan-I-Aam of Red Fort Delhi. He also examined the incised paintings at the Taj Mahal.

Nath (1976) discussed that the motifs or design that we came across in Mughal art was not an isolated event but travelled over a long distance before being introduced into India and before being adopted in such a refined way by the Mughals. Nath attempted to classify the motifs into different categories and their application on the monuments, and assessed foreign inspirations that contributed to the formation of the decorative art in the Mughal architecture. He said that the Hindu motif, *burnakalasa*, has disappeared from the tomb of Akbar at Sikandra, Agra. Nath further clarified that there was no lotus or *cakra* or chain and-bell or *gavaksa* or *srivatsa* or *swastika* or any other typically Hindu symbol in the Shahejehanian buildings. However, the *burnakalasa* was the only motif that was employed in the Taj Mahal and Red Fort Agra. Nath (1976a) explained details of the different animate motifs and fabulous animals, and tantric symbols, with very little information on inlay specimens. He also studied the development of Akbar's personality - from authoritarian to liberal and from theocratic to secular person. The plant depicted at the Itmad-ud-Daulah appeared to be copies of the masterpieces of Ustad Mansur. Nath stated, "As a matter of fact, this aspect of Mughal architecture of this phase derived greater inspiration from the contemporary art and painting than from any other source" (p.109). Nath argued, 'without *vastu*-texts of their own, the Mughals were able to build such wonderful (*adbhut*) buildings as the Taj Mahal, the like of which could not be produced in Egypt, Syria, Iraq or even Iran.' In another research paper, the author also discussed the origin of inlay work and concluded that the fifteenth century examples disapprove of the theory that inlay art was introduced in India in the seventeenth century

According to Koch (1988), seventeenth century Mughal India drew inspiration from the unlikely source of Italy, and Medici art was a contributory factor among the various heterogeneous artistic traditions, and their synthesis became the Mughal imperial style. Important transmitters of European art and artistic ideas were the Jesuit missionaries who reached the Mughal court in the

year 1580. The Mughal texts were silent about the connections between the Mughals and the Medici. Koch explained that the main impulse of relating the Mughal art to the arts of the Medici has come from the use of *pietre dure* inlays in the buildings of Shah Jahan. The Mughal patronage of hard-stone carving, natural history drawings, and their transposition in *pietre dure*, was much in common with the art patronized by the Medici. It is likely that similar tastes and interests of the Mughal patrons and artists led to similar artistic expressions, once the initial lesson of the European form and technique had been absorbed.

Okada (1993) focused on decorative art and inlay work executed in the Taj Mahal. She tried to substantiate it with the help of beautifully coloured illustrations. The author highlighted macro views of the decorative art and discussed a study of inlay work of the Taj Mahal. Nath (1996) provided information on the construction of the Taj Mahal, such as the identity of its builders, measurements and costs of different parts. Nath also studied the inlay decoration and examined aestheticism of the Taj Mahal, but not in detail. The author highlighted that the architecture of the Taj Mahal conveys a clear picture of the form, structure, and aesthetic beauty. The study concluded that the aestheticism of Mughal architecture was evident in the Taj Mahal because of its concept of *char-bhag*. Nath concluded that the inlay art, developed in Mughal architecture indigenously from periods of Humayun to Shah Jahan, is an Indian art, and not an European one.

Alfieri (2000) described various monuments of Agra and Fatehpur Sikiri, where a brief introduction of the inlay work was given. Koch (2001) raised a question of whether Shah Jahan *pietre dure* decoration is of Indian or Italian origin. Why were European birds and the image of the mythical musician selected as backwall of the Throne-Balcony, Diwan-I-Aam, Red Fort, Delhi. What would have motivated Shah Jahan or his artistic advisers to put them up in this most conspicuous place? Koch provided answers to these questions with the stylistic analysis of the throne: *Jharoka*. Florentine *pitere dure*, and Mughal *pitere dure*. The study traced the Solomonic peace among the beasts as a symbol of the ruler's justice and European influences in the Mughal period.

Nath (2004) emphasized that *pietra dura* or *pietre dure* had different kind of material, technique, motifs and background, and came to India either during 1707 or after the death of Aurangzeb. He studied the inlay art as developed in the Mughal architecture from Humayun to Shah Jahan (1535 – 1658 A.D.). Nath discussed in detail about the motifs used in ‘*Orpheus Plaques*’ and reported that the plaques were imported readymade and placed in the Throne Balcony of the Diwan-I-Am of Red Fort Delhi. Nath said that Florentine *pietra dura* was a picture (the art used on wooden cabinets and other furniture) while Mughal inlay (*pachikariar* or *parchinkari*) was an architectural ornament. The author concluded that the Mughal inlay art was developed indigenously and is a misnomer to call it by the Italian name *pietra dura*.

Based on the literature review conducted on the inlay art, it is acknowledged that extensive work was previously published, however no systematic analysis of inlay art (e.g., inlay motifs, aesthetics (Indian *rasas*), and placement of inlay designs) has been attempted so far. Furthermore, to the present author’s knowledge, no study was reported on a comparative analysis of the Mughal inlay designs with contemporary inlay.

2.1.3 Mughal paintings, textiles and other decorative art

This section provides a comprehensive look at the available studies on paintings, textiles and other decorative arts.

Irwin (1953) presented a collection of paintings, and a gallery with jades and crystals (inscribed wine cup dated 1613) believed to be of Jahangir. The textiles included were woolen and velvet carpets of the periods of Akbar and Jahangir.

Chandra (1960) examined the imperial and popular Mughal styles. According to the author, a popular Mughal painting took a leading part in the emergence of a typical Rajasthani style, particularly during the period A. D. 1610 -1625. Chandra analyzed several factors such as the skill of an artist, the requirement and preferences of the patrons and local influences including those

of the existing indigenous styles such as the western Indian or any other style in which an artist was originally trained or with which he was acquainted with.

Robinson (1967) provided an overview of collection of Persian miniature paintings found in Great Britain and discussed their style, themes, and symbols in detail with a diagram of styles and chronology.

Kybalova (1969) presented a survey of production areas of the carpets available in various countries (e.g., Iran, Afghanistan, China, and India). Kybalova also provided a carpet's production process and ornaments associated with it. The author gave the symbolic meanings of the motifs used in carpets.

Anand (1977) presented the emergence of style in fourteenth century Persian paintings as well as other sources of creative art in Persia in the medieval centuries. The study also provided the philosophical aspect of myth. It was reported that sources of creative art lie in the creation of a new myth. Anand (1977a) studied the intense period of poetic, artistic, and architectural creations of the pre-eminent periods of human history (1450-1500 A.D.), and explained sources of poetic imagination in the 15th century, for example Bihzad's album.

Bhavani (1978) studied themes of decorative designs on stone and wood in India. In stone, it was reported that the over-all scheme appears to narrate a story in visual form giving rise to the special feature of pictorial ornamentation on stone. Indian artisans of the 15th, 16th and 17th centuries A.D. became noteworthy for other skills of art (for example ornamenting a stone such as inlay work, relief work, stone carving, jali work, glass mosaic, and wall painting).

Dickie (1985) highlighted changes and development of the art of landscape design that flourished notably at the Timurid court. He attempted to introduce the earliest example of Ram Bagh, the Mughal Garden constructed during Babar's regime. The author compared the garden of 'Sikandra' at Agra and Jahangir Bagh at Lahore. The study concluded that the Mughal gardens were based on 'Cosmic Cross', suggesting that the palace garden created a kind of illusion to one's eyes.

Anand (1987) reported that *patka* was an important component in Indian costume; and is evident in early sculptures and Mughal paintings. The author's article illustrated *patka* designs of the 18th-19th century from Rajasthan, Burhanpur (Madhya Pradesh), and Gujarat.

Soucek (1987) attempted to find out the influences and transformations of painters and calligraphers trained in Iran who made important contribution to book production and book illustration in Mughal India. The author examined the careers of Mir 'Ali al- Haravi (ca.1476-1545), 'Abd al-Samad Shirazi (ca.1518-ca. 1600), and Aqa Riza al-Haravi (fl. 1580-1608). The findings highlighted the artistic connections that existed between Iran and Mughal India. The study also provided factors for the migration of artists to the Mughal court– appreciation of Iranian painting and calligraphy by the Mughal emperors, Mughal enthusiasm that formed most decisive link between Iranian traditions, and the taste of the Mughal India. An examination of the careers of four Persian artists demonstrated that several factors encouraged connections between the art of Iran and of Mughal India. Soucek also emphasized the role of Persian artists as teachers and organizers of manuscript workshops which served to increase their impact on other artists at the Mughal courts. The author successfully interpreted, how artists trained in the traditional Iranian techniques reacted to the diverse pictorial sources available to them at the Mughal courts.

Zebrowski (1987) discussed characteristics such as austerity, aniconism, discretion, and stylization that always conditioned the Hindu-Muslim synthesis. . However, gradually the Hindu taste for rounded fleshy shapes influenced imported Islamic forms. This essay discussed further a number of textiles collection that were made during the Sultanate and Mughal periods. Smart and Dale (1987) examined the vast quantity of Mughal luxury textiles and paintings of court life that show the presence of identifiable domestic and foreign textiles mentioned in contemporary texts. The study provided the information about the easily recognized and frequently seen velvet at court. Velvet is made of fibre, although the Mughals favoured silk. The arrival of velvet fabric in India is not yet known, the author pointed out its travel from the Mediterranean region to Iran and

India. The Mughal used velvet, discussed in this paper, in dwellings, decoration, thrones and cushions, trappings, and clothing. Domestic and foreign sources of velvet were also listed by Smart and Dale.

Das (1992) examined large number of drawings and paintings of animals from the Mughal atelier, and came across carefully painted representations of a special kind of sheep known as the "spotted" or Jacob sheep, being connected with the story of Jacob in the Old Testament. This note discussed the many representations of Jacob sheep in the Mughal art.

Seyller (1994) studied "Princes of the House of Timur" which, nevertheless, shows several figures not born at the date established at circa 1555. The author discussed the upper part of the landscape and a few secondary areas surviving in the original state; and found that more ambitious alterations were made to the seated Mughal ancestors. Further, artistic intervention occurred among the groups of servants depicted. Artists such as Hiranand, Inayat, Govardhan, Daulat, Bichitr, Nanha, and Mohan were involved in the recasting.

Okada (1998) discussed Kesu Das, one of the few Mughal artists whose stylistic features discerned in the illustrations done for imperial manuscripts. The study concluded that Kesu Das art was influenced by European prints, especially Flemish and German, circulating at the Mughal court through Jesuit missionaries. As a result, a technical mastery that reveals knowledge of the effects of perspective and the introduction of architecture as a component of background, were characteristic traits of Kesu Das's compositions. According to Stephen (1999), in the reign of Jahangir, the Mughal decorative arts fully developed as a form of creative expression featuring abundant floral imagery. The imperial ateliers were working with the finest materials, producing countless decorative objects of peerless quality. The most distinctive use of flora and fauna imagery was evident in Mughal decorative art.

According to Goetz (1999), the classic Mughal art contains only a modest Persian element. In its golden age, this art was a reflection of the spirit and ideals

of the cosmopolitan Mughal court, where religion, clan, and marital connections (and not nationality) were accorded importance. The study concluded that the decorative art reached its zenith in Jahangir's time, as evident in his picture album discovered by the writer at the Prussian State Library. This album, unique in classic Mughal art, contains various miniatures, calligraphies, European etchings, a coherent set of portraits of political personalities Jahangir met between 1606 and 1618, and self portraits of Akbar's and Jahangir's painters.

Koch (2001) revisited Shah-Jahani painting (*jharoka* image), and agreed in principle with the traditional aims of Indian art and the Hindu masters who dominated Shah Jahan's imperial studio, and explored naturalism for non-naturalistic purposes. The study concluded that the Shah-Jahani painting is truly Indian in its intention through its dependence on Persian traditions and European realism and its programmatic support of Mughal rule. According to Koch, Shah-Jahani painting is apart from contemporary Safavid and Ottoman painting.

Khare (2005) explored the wine cups in Mughal court culture through the Mughal court paintings. The study examined different phases such as 'Wine and Verse' and 'the world in miniature', hedonism to kingship and back to hedonism. Khare concluded that the wine-cup emerges both as an agent and an object that could shape the very political ideology of an empire, and the representation of this sign draws its meaning from its social function.

Minissale (2007) focused on the direct gaze or the outward gazing figure depicted often in the Mughal painting, and used as an essential tool for empowering the Mughal artist in his quest to engage emotionally or intellectually with the viewer.

Various authors have conducted wide range of studies on the Mughal, Indian, Persian paintings; textile designs (carpets, curtain, dresses); and other decorative arts (carving, *jali*, relief, pottery, metal work etc.). Yet, there is still need for in-depth comparative study of the inlay work in the Mughal monuments and other decorative arts.

2.1.4 Mythological and other aspects in art and architecture

In this section, a few studies that consider aspects of mythology, visual perceptions, and aesthetics are reviewed.

Havells (1913) analyzed the different motifs depicted, particularly the Hindu auspicious symbols in the Taj Mahal. In depth comparative study was carried on the structure of the dome and plan of the Mughal architecture with Hindu temple architecture. The author found the impact of ancient Indian traditions on Muslim monuments such as *chajjas*, *jharokas* and *toranas*. Havells findings depict that the Mughals were much influenced by the architecture of monuments in Gujarat and Jaipur. He highlighted that Indian artistic expression was at its peak and influenced the local architecture, whether it be Buddhist, Jain or Hindu; before the establishment of Mughal dynasty. In his other book, *A Handbook of Indian Art and Ideals of Indian Art*, Havells (1904) analyzed the impact of ancient Indian traditions on the Muslim monuments from a new angle.

Anand (1957) weaved the thread of Hindu idealism and art that ran through all Hindu activities and thoughts. He highlighted that the Hindu views of art, which lie in the aesthetic conception of *rasa*, is a manipulation of several different kind of emotions (*rati*, *hasya*, *soka*, *krodha*, *utsaha*, *bhaya*, *jugupsa*, *vismaya* and *santa*) that regard the world as transitory or ephemeral. Batley (1965) provided details of elements of the Indian architecture and its application evident in the Mughal monuments. He presented an informative collection of drawings and detailed illustrations. The illustrations were of the decorative arts such as *jali*, balcony, capital brackets, *chhajja*, ceilings, and inlay motifs.

Sen (1972) communicated the symbolic meaning of animals as elephant, *makara*, snake, bull, lion, horse and birds. The study made a comparative study of the animal symbols with the other parts of the world. The author concluded that the selection of a symbol to represent a particular theme in art depends on taste, interest and knowledge of the artist and its relevance to the subject matter. Sen further emphasized that the application of animal symbols in Indian art not only conveys symbolic meanings but also enhances the aesthetic beauty.

Dalu (1978) explained the elements of decoration (such as surface, pattern and light) with logic. The author discussed the principles of decorative and Islamic architecture and also correlated them with physical as well as visual impact.

Coomaraswamy (1983) speculated the origins of a sculptural form from a technical or a logical point of view. The author was able to establish the continuity of certain aspects of Indian architecture and the origin of the north Indian 'Sikhara' with its decorative 'Jala' of interlaced pattern, a problem that had baffled earlier scholars.

Osamah (1986) mentioned that vegetable and floral representations were among the earliest themes found in mosques. The author reiterated that 'the garden in Islam is not merely a green place, but a place charged with symbolic meaning that touches the very heart of Islam.'

Nath (1986) explained the lotus fountain of the Rang Mahal, Red Fort Delhi, of Shahjahan (1628-58), is unique creation of Indian Sculpture during the medieval period. His emphasis was on the aesthetics and '*rasa*' of this fountain. The author suggested that the petals of fountain create an *adbhut* situation to produce an aesthetic feeling and could evoke a feeling of *rasa* leading to the *anubhuti* (Perception) of *saundaryanada* (aesthetic pleasure).

Rizvi (1987) presented an overview of the philosophical traditions at Akbar's courts. The study discussed the influence of the Sufi saints on Akbar, Akbar's love of discourse and debate, and his religious pursuits including the worship of the sun and the new *Din e Ilahi* religion. Akbar had opened the *ibadatkhana* to the learned men of other faiths too. Sunnis, Shi'is, Sufis, jurists, philosophers, Brahmans, Jains, Parsis, and Christian missionaries participated in these debates. The first Jesuit mission was given to a private audience in Akbar's court. Rizvi reported that Akbar evolved and practiced the tradition of peaceful co-existence and harmony between different religious communities and racial groups.

Golombek (1988) examined the aesthetics of decoration in Islamic architecture. He focused on the role of decoration in communication, which can be left aside to focus on its aesthetic function. The researcher discussed the examples of different Mughal monuments with symmetry (one of the basic principles of design), particularly in the Islamic world.

Zimmer (1990) recorded the basic myths that lie behind the forms of Indian art and civilization. The author described the key mythological motifs such as lotus, elephant, serpent, and folklore of Indian legends. The study further explained the mythology of Vishnu as 'Maya' in the context of Indian art. Zimmer reported that Hindu myths and symbols reveal the Indian sacred diagram (*Mandals*) on the eternity and time, rebirth and life.

Grover (1996) examined the early Hindu–Muslim joint venture at Delhi, the flowering of the Islamic style in various other regions of India, and the impact of the personality of each Mughal ruler on his architecture. The study focused on the Islamic architecture in India and covered its development as a fascinating process of synthesis between the two seemingly divergent building systems, that of the Hindus and the Muslims; and as a result, a truly unique Indo-Islamic style. The author concluded that when the whole of the subcontinent came under the sway of a single unified empire, it was the writ and personality of each Mughal ruler that strongly influenced the architecture of the times.

Parihar (1999) contributed to the depiction of animate motifs on the Mughal monuments of East Punjab and Haryana, and concluded that they were purely the influence of the Indian architecture.

Baer (1999) studied the development of the human figure in the art of Islam from the early days of Syria and Egypt to about the sixteenth century in Iran and Central Asia. The study highlighted that the impact of Sasanian and Greeco-Roman art, and Islamic artists developed a more realistic style during sixteenth century.

Vaughan (1999) highlighted the Mughal imagery, which developed classical traditions and transformed them to create new symbols and allusions. In

this endeavour, the dragon and the *simurgh* (a phoenix-like mythical bird of Arab, Iranian, and Indian literature) were endowed with additional powers of metaphor and allusion, characteristic of Persian poetry and illustration. The study concluded that, this tradition was in use during the century from Akbar to Shah Jahan. However, Aurangzeb did not continue this tradition, and by the 18th century, allusions to mythical animals in the Mughal art almost completely ceased to be portrayed.

Liu (2003) discussed the relationship between aesthetics, ethics, and the traditional research issues in human factors. He explained the traditional human factors such as safety and usability into three dimensions: the arousing quality dimension, the dimension of information processing demands, and the dimension of psychosomatic soundness. Further, Liu incorporated explicitly the dimensions of aesthetics and ethics. The study concluded that aesthetics dimension help us to realize that human factors must go beyond safety and usability. The paper also highlighted that the aesthetic human factors are not only about design for pleasure, but also for displeasing situation. Liu (2003a) pointed out that aesthetic appraisals of products and work system possess two special features: First, they tend to be multi-model; and second, interactive. Liu established theoretical foundation and dual-process research methodology for understanding of aesthetic issues.

Peter *et al.* (2005) introduced a new term 'hedonomics' into the human factors/ergonomics. He defined 'hedonomics' as a branch of science and design devoted to promotion of pleasurable human-technology interaction. According to the author, the design should establish a valid and reliable measure of pleasure that is theoretically driven and empirically grounded.

Friggieri (2006) drew an analogy between the desirable future of design and the desirable future of humanity. The author narrated positive psychological impact, aesthetics, emotional involvement, and ethical dimensions of design philosophy. These aspects were explained with the help of contemporary designs.

Overall, the works of eminent scholars Coomaraswamy, Dalu, Zimmer, Grover and Golombek, and Liu on different aspects such as visual perceptions (visual ergonomics, design fundamentals) and aesthetics provided greater insight into the present study.

Based on the reviews provided in this chapter, it is possible that the works of such famous and influential scholars invariably invited appreciation across the globe for their minute analysis in art. It is evident that the Mughal monuments of Agra fulfill almost all the literary genres to perfection, yet there is a big gap in research in terms of analyzing the different aspects of inlay designs. Moreover, there is a lack of research that pertains to a variety of inlay design elements in the different periods of Mughal emperors, suggesting the need for an in depth analysis of inlay designs (Mughal and Contemporary). The present work, therefore is a critical analysis of different Inlay design elements that are based on design fundamentals, Indian *rasas*, placement on a structure, including a comparative study of the Mughal inlay with inlay in contemporary buildings.

INLAY DESIGNS IN THE MONUMENTS OF AGRA: IDENTIFICATION, FACTORS INFLUENCING THE DESIGN AND THEIR SIGNIFICANCE

3.1 BACKGROUND

With the arrival of the Mughals in India, blossoming of new art elements, forms, and architecture styles were observed in the Indian history. According to Nath (Nath, 1976, xx), "It is surprising that during only a short period of about 100 years (from Akbar to Shah Jahan, 1556-1658), more than 500 tombs, mosques and mansions were built at Fatehpur Sikiri, Agra, Delhi and Lahore, some of which rank among the most beautiful and the most wonderful monuments of the world" During the Mughal dynasty (1526 to 1707 A.D.), their camaraderie with common people and the regional cultural traditions of India was vastly increased, thereby a system for amalgamation and interrelationship among these distinctive traditions was established (Beach, 1992, 32-33). During their period, the Mughals fabricated not only striking architecture, but made use of different varieties of motifs in different mediums. The monuments raised by the three great Mughal emperors - Akbar, Jehangir, and Shah Jahan- at Agra, convey the step by step evolution of Mughal inlay art that characterized the reign of Akbar to the fine elegance associated with Shah Jahan to the successful development of inlay art during the period of Jahangir.

The Mughal inlay started in 1533 A.D. when Humayun built his *Din-Panah* citadel (Old Fort) at Delhi (Nath, 1982a, 134-135). On the façade of its northern Talaqi-Darwazah, for example there was a stylized lotus design containing eight petals with an eight-pointed star, inlaid with white marble on a red-stone (Nath, 1982a, 143). Further examples of Mughal Inlay can be seen in Sher-Mandal and Qala-i-Kuhana Maszid, built by Humayun in 1533-40 (Nath, 1982a, 151 and 173). The tomb of Atagah Khan at Delhi (1566-67) and tomb of Humayun (1558-70)

also at Delhi are the most representative earlier examples of Mughal inlay (Nath, 1982a, 191 and 261). The preferences of designs were altered with the passage of different emperor's social conditions, cultural inspirations, and aesthetics. The Mughal inlay ornamental designs were visible in the forms of floral, vegetal, arabesque, geometrical, vases, vessels, Hindu auspicious motifs, Chinese cloud form, birds, animals, and calligraphic forms and many miscellaneous inlay designs. Some of them were prominently depicted in Akbar's régime and others during the regimes of Jahangir and Shah Jahan. It should be noted that the significance of every design also depends upon their meaning, idea and ideal placement. This chapter details on the changing trends of design motifs that make a mysterious impact on the viewers since the application of various designs has unique symbolic meaning and inferences to viewers.

3.2 FACTORS INFLUENCING MUGHAL INLAY

The present study discusses the factors responsible for the Mughal inlay art. The Mughal emperors' personal interest, taste and inclination shaped inlay style, which was observed in the involved inlay motifs in monuments of Agra. Every emperor had his own taste and inspiration that was reflected in decorative arts of his buildings. Among other factors, personal, socio- cultural, historical and geographical factors are notable. Besides, the application of inlay was linked to availability of the raw materials for inlay, skill and religions of the artisans during each emperor's regime.

3.2.1 Personal factors

3.2.1.1 Akbar

During Akbar's reign (Fig. 2.2a), the Mughal architecture took on new forms because of his liberal attitude to absorb new ideas coupled with fine aesthetic sense (Grover, 1996). Akbar made use of the Hindu, Persian and Islamic styles in his buildings. On his personality, Nath (Nath, 1976a, 54) stated "A patron of the Jainism, Parsees, Christians, *Jogis*, Sufis and *Pandits* alike, he

puzzled his biographers as elusively as does a well-cut diamond glittering in different colours on different sides” Akbar constructed numerous forts, towers, palaces, mosques, mausoleums and gateways. Akbar expressed his religious interest and taste in architectural form very precisely, and his generous attitude was reflected in his buildings. Akbar’s broad religious outlook developed from the mystical bent, had been shown in the year 1570 when he undertook the building of his new city of Fatehpur Sikri (Watson, 1979, 115). In Koch’s words (1991, 43), “Akabari architecture developed into a dramatic, supra-regional synthesis characterized by borrowing of features from earlier Timurid, Transoxanian, Indian and Persian styles”. According to Allami Abul Fazal (1972), Akbar’s renowned analyst, minister and friend, more than a hundred workshops were established for creating crafts and for making arms, armour and weapons, in all of which Akbar took a personal interest. By 1575 A.D., Akbar’s interest in comparative religion had become so strong that he built a special *Ibadat-Khana* (House of Worship) to hold religious discussions. Akbar’s new religion, the *din-i-Ilahi*, based on a vague and mystical liberalism, was known as the Divine era (Gascoigne, 1971, 109 and 117). Tillotson (1998) stated that this emperor did not consciously deal religious fundamentals in architectural elements in order to create a synthesis or amalgamation of the two religions for a political balance. In the present author’s opinion, Akbar’s buildings were a unique example of Indo-Muslim architecture and harmony. It contains both religious and secular interests; testifying the emperor’s aim of achieving social, political and religious integration. During his rule, inlay art was not very popular but continued smoothly and was utilized wherever it was feasible. The *satkona*, sun, lotus and geometrical inlay designs were seen at the Buland Darwaza, the Jami Masjid and the Jahangiri Mahal, emphasizing his liberal religious attitude.

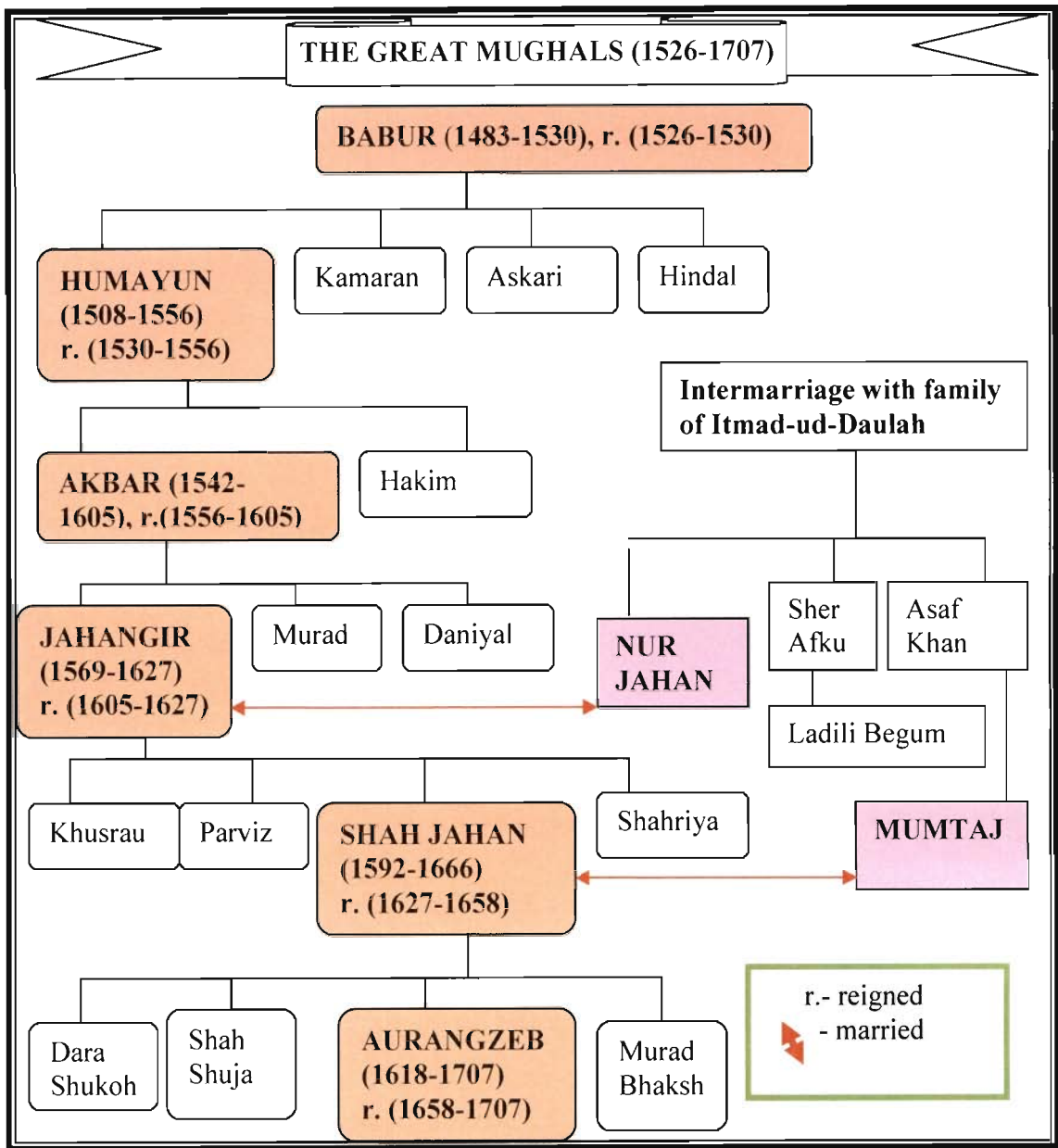


Fig. 2.1 Genealogy of the Mughals



Fig. 2.2 (a) Portrait of Akbar, (b) Jahangir and (c) Shah Jahan

3.2.1.2 Jehangir

Jehangir (Fig. 2.2 b), the son of Akbar and *Jodhabhai* a Rajput, was considerably influenced by Rajput tastes, and rewarded skilled Hindu artisans with prominent positions in his court. In his monuments, Hindu inlay designs- *swastika*, *satkona*, and lotus, were evident as in the period of Akbar. Jahangir followed many customs of his father, such as *Tula dan*. This finding was further corroborated by Beveridge (2006, 230). The mausoleum building (Akbar tomb), which his father had planned, was completed by Jehangir and gave suggestions to the art of building (Goswami, 1953, 35). Jehangir understood his father and Hindu mother's lessons and incorporated the Hindu designs in his buildings. In the later period of his regime, however the Hindu motifs disappeared and Persian influence became prominent. With an amazing eye for excellence in design and implementation in the arts and crafts, Jehangir encouraged talent and promoted merit without favoritism. He also took an interest in local flora and fauna, miniature paintings, and had an interest in horticulture. Jehangir was fond of fruits and imported those fruits that were not available in India (Beveridge, 2006, 5). Jehangir, a lover of art, was fond of natural beauty, and therefore in his time the beautiful floral, fruits and trees motifs in inlay were seen. He visited Kashmir and was attracted by the beauty of red roses, violets, the narcissus, Jessamines (called *chanbili* in India), lilies and the banquet adorning tulips (Beveridge, 2006, 143-145). To this effect, narcissus, lilies, roses and lotus flowers were mainly seen in inlay designs at tomb of Itmad-ud-Daulah. Interestingly, Jahangir enjoyed drinking wine and its influence could be seen in the contemporary Mughal paintings and decorative arts of his period. Unfortunately, as Jehangir grew older, he became increasingly dependent on opium and alcohol and Nur Jahan assumed much of the administration of the country (Beach, 1992, 90). Jahangir's poor health, exacerbated by excessive consumption of wine and opium, rendered him incapable of attending to the affairs of state (Asher, 1992, 101). It should be important to note that new design elements such as wine vessels, fruits, trees and flower vases were introduced in decorative art due to his love for drinking, flora and fauna.

3.2.1.3 Shah Jahan

Shah Jehan (Fig. 2.2 c), the most famous of the Mughal builders, had a passion for decoration. His reign marked the construction of numerous palaces, forts, mosques and gardens. The quality of feminine grace and elegance were evident in the buildings he built. However, the art-work in his monuments does not demonstrate the masculinity of Akbar's solid red sandstone constructions. Shah Jahan inherited Jahangir's taste for creative sophistication and ornamental exuberance. He was fascinated by the jewels, and was able to give a more accurate judgment than professional jewelers on the quality of a particular piece of art (Khan, 1990, 84; Gascoigne, 1971, 192). This quality in him was the reason that Shah Jehan's buildings had the superior quality of stones that increased the beauty of ornamentation in the monuments. Like his father, Shah Jahan was also fond of flowers, and was reflected in his buildings as well. For example, in *Padshanama* Shah Jahan can be seen in several paintings holding flowers in his hands and bordered with flower plants.

Table 2.1 Personal tastes of the Mughal emperors reflected on the inlay motifs used in Agra's monuments

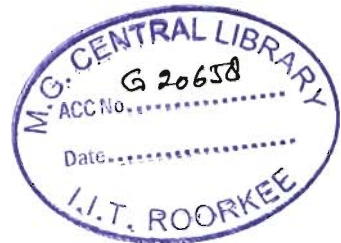
Emperor	Inlay Designs	Mughal Monuments	Influence
Akbar	<i>Satkona</i> , Sun, Bird- Ducks, Fabulous animal- <i>Gajavyala</i> , Star, Lotus flower, Geometrical designs	Delhi Gate and Lahore Gate of Agra Red Fort, Jahangiri Mahal, Jami Maszid and Buland Darwaza Fatehpur Sikri	Hindu and Islamic designs
Jahangir	<i>Swastika</i> , Lotus, <i>Shanku</i> , <i>Satkona</i> , Arabesque, Floral, Geometrical, Vases and vessels, Fruits- grapes and pomegranates, Cypress tree, Bird- Handle with bird beak, Chinese cloud bands	Akbar's tomb, Skaikh Salim Chishti tomb, tomb of Itmad-ud-Daulah	Persian, Hindu, Islamic and Chinese
Shah Jahan	Arabesque, Floral, Flower vase, Lotus, <i>Purnakalasa</i> , <i>Gavaksa</i> , Chinese cloud forms, Geometrical and Calligraphy	Muthamman Burj Diwan-I-Khas, Diwan-I-Am – Agra Red Fort, Taj Mahal	Islamic, Persian, and Hindu modified designs

A variety of inlay motifs were found in the different Mughal monuments of Agra (Table 2.1). Based on the literature review of personal interests of the Mughal emperors and visual analysis of inlay motifs, it made the present author to conclude that Akbar had interest in different religious perspectives and applied Hindu and Islamic designs. However, Jahangir used less of Hindu and Chinese design elements and more of Persian and Islamic decorative inlay motifs. Shah Jahan applied Islamic, Persian motifs on a large scale, and modified Hindu designs and Chinese motifs on a lesser scale. Overall, there was an intriguing possibility that a close relationship between personal factors and application of inlay motifs existed during the Mughal dynasty.

3.2.2 Socio-cultural factors

3.2.2.1 Akbar

The Mughal architecture of Akbar demonstrated his passion that was evident through planning and construction of splendid ornamentations. Akbar's reign forms the dividing line between the old and new methods of government with new ideas in architecture. Akbar explained the importance of decorative art in his life in *A'in-I Akbari*. He considered decorativeness as part of the pomp of sovereignty, and accounted the care given to it as a divine worship (Allami, 1977, 48-49). From 1562 to 1605, the fundamental changes were seen in his political policies, and the same was evident in art and architecture. Although earlier examples of inlay works were found in Indian architecture (as explained in Chapter-1), inlay art was not very popular in the Mughal architecture in his period. Akbar had used inlay motifs as a part of decorative designs with some symbolic meaning in his buildings. His marriage with a Hindu bride (Jodhabhai) further contributed to the liberalizing process. Thus, Akbar was surrounded by the Hindu influences at home, which must have worn away the natural repugnance of a Muslim for Hindu practices. The same happened with inlay art. In Akbar's buildings, the Hindu inlay motifs and geometrical shapes were promoted during his period.



3.2.2.2 Jahangir

Jahangir was the lover of art, but indulged in drinking wine (Beveridge, 2006, 308). He was spineless, debauched, and susceptible to women but was the most talented person in cultural matters (Gascoigne, 1971, 131). In his monuments the use of inlay art became popular in architecture, depicting Persian motifs such as a wine vessel and floral motifs. The floral motif was very well known in the Indo-Islamic culture and in Persian poetry, and presumably was derived from Safavid sources during Jahangir's period (Sharma and Gupta, 2008a). These authors hypothesized that the reason for the maximum use of this motif was Jahangir's wife Nurjahan and her family, as they came from Safavid, Iran. During his period, many Safavid artists (e.g., Aqa Riza, Mirza Ghulam) emigrated from Safavid lands to the court of Jahangir, thus bringing Persian aesthetics to the Mughal court (Okada, 1992). Persian influence was evident in the monuments as Jahangir and his wife possibly might have given preference to Safavid artists.

3.2.2.3 Shah Jahan

Shah Jahan's period was known as the most vivid and fascinating, in the field of Mughal art and architecture. The best-known aspect of Shah Jahan's patronage was the architecture and the imperial art par excellence. His regime was an era of great architectural awareness as reflected in the contemporary sources (Koch, 1991, 96). Shah Jahan spent much time in the discussions of architecture and planning and in public obligations as stated below.

"The emperor's daily morning session with his artists in the *Dawlat Khana –i Khas* or *Diwan-i-Khas*, the hall of Private Audience, also included the close inspection of the work of his painters: Part of the time [His Majesty] spends in seeing gems [*jawahir*] and precious objects [*nafa'is*]. And part of the time he examined with care and in detail the masterpieces of artists [*karnamaha-yi arbab-l sana'l*], such as painters [*musawwir wa naqqash*], carvers and

engravers [*naqqar*], goldsmiths [*zargar*], enamellers [*minakar*] and [illegible]... he attended to it fully by creating most of the designs himself and also by carrying out appropriate designs himself, and also by carrying out appropriate changes to whatever the architects have thought out." (Muhummad Amin Qazwini, *Padshahnama*, folio.139a; translated by Ebba Koch, 2001, 131).

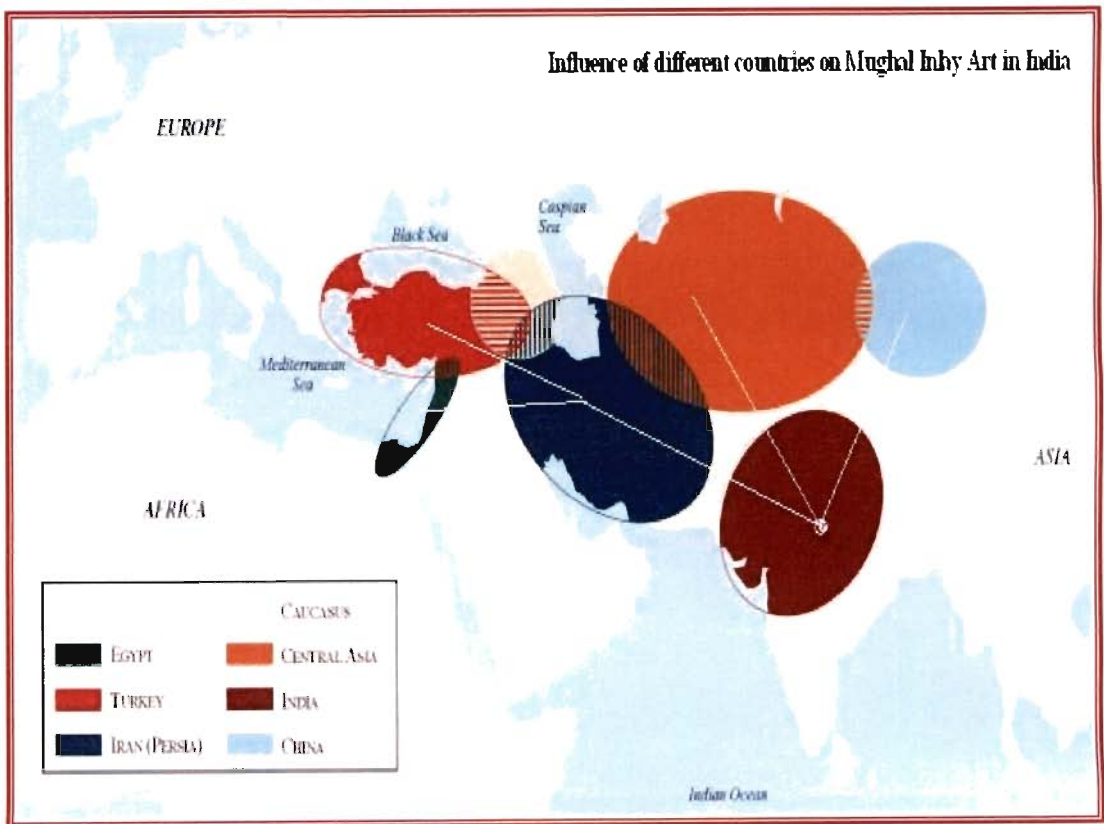
Shah Jahan's buildings had *jharokha-i-darsan* where he presented himself to the people. He commissioned the famous peacock throne (in the Red Fort of Delhi and Diwan-I-Am (Red Fort Agra)) and various *jharokhas* with greater splendor (Gascoigne, 1971, 184). During his regime, recently completed works of art such as paintings or embroidery would be presented together with plans of new or proposed buildings for the emperor's inspection (Gascoigne, 1971, 188). Inlay art motifs had been used with much sophistication, and were skillfully and aesthetically displayed in his monuments; as evidenced in the Taj Mahal. Shah Jahan himself enjoyed and patronized Hindu music and poetry, and his reign became the Golden Age for Hindi literature (Gascoigne, 1971, 199). The Mughal court in the time of Jahangir and Shahjahan was chiefly composed of dignitaries of Persian ancestry such as *Khaje-shams-ed-Din* Mohammed (or Hafez as he became known later). Overall, these Mughal rulers were fond of travelling, and as they traveled they observed the new art and tried to apply them along with the native forms of art, architecture, and culture.

3.2.3 Historical factors

Mughal rulers' background and their experience played a vital role in the formation of any art style and growth that was clearly observed in buildings constructed during their regime. The Map 2.1 indicates the route and relationships of the Mughal rulers with the countries that exerted the influence. They replaced the upper structure of Hindu governmental institutions with an Islamic framework that was based on Iranian examples (Zebrowski, 1997, 177). For example, Shah Jahan loved to hear the passages from the *Babur-nama*, the

inspiring memories of his great-great-grand father (Gascoigne, 1971, 191). The influence of his grandfather is evident in his architecture.

Although inlay work was not the feature of Iran, Mughals started this art in India and promoted and further developed this style of art (as discussed in Chapter 1). They brought the Arabian, Persian, and Chinese artists and craftsmen with them, and incorporated Indian culture, art and architecture. These emperors provided artists with all facilities for the development of this inlay style, and artists sharpened their skill to deal with more precious material and sober colour scheme than in Iran (Dalu, 1978, 167).



Map 2.1 Influence of different countries on the Mughal inlay art in India

3.2.4 Geographical factors

The availability of artisans and raw materials is discussed here. Marble and precious and semiprecious gemstones stones were the essential raw materials for the inlay art. Forty-two kinds of stones were used in *pietra dura* ornamentations (Goswami, 1953, 52). The availability of gemstones and its craftsmen played a key role in the development of inlay art. Map 2.2 shows the marble stones that were collected from different parts of countries during the Mughal period. As red sand stone was profusely available in the regions of Fatehpur Sikiri in Delhi and Dholpur, it was easy to transport and to use this material in their art and architecture. The craftsmen were also competent in handling the stones both for structure and ornamental purposes (Nath, 1976; Rizvi, 1972). The use of red sand stone was also depended upon the location where it was applied, either in exterior or in interior. The most costly materials were used for the area immediately surrounding the cenotaphs suggesting the technical craftsmanship of the highest quality (Begley and Desai, 1989, 84).

Akbar invited the artisans from Gujarat where they were practicing their traditional art. He employed them and provided full freedom to apply their art (Nath, 1976, 5). As a result, Akbar's buildings were a good combination of Hinduism and Islamism.

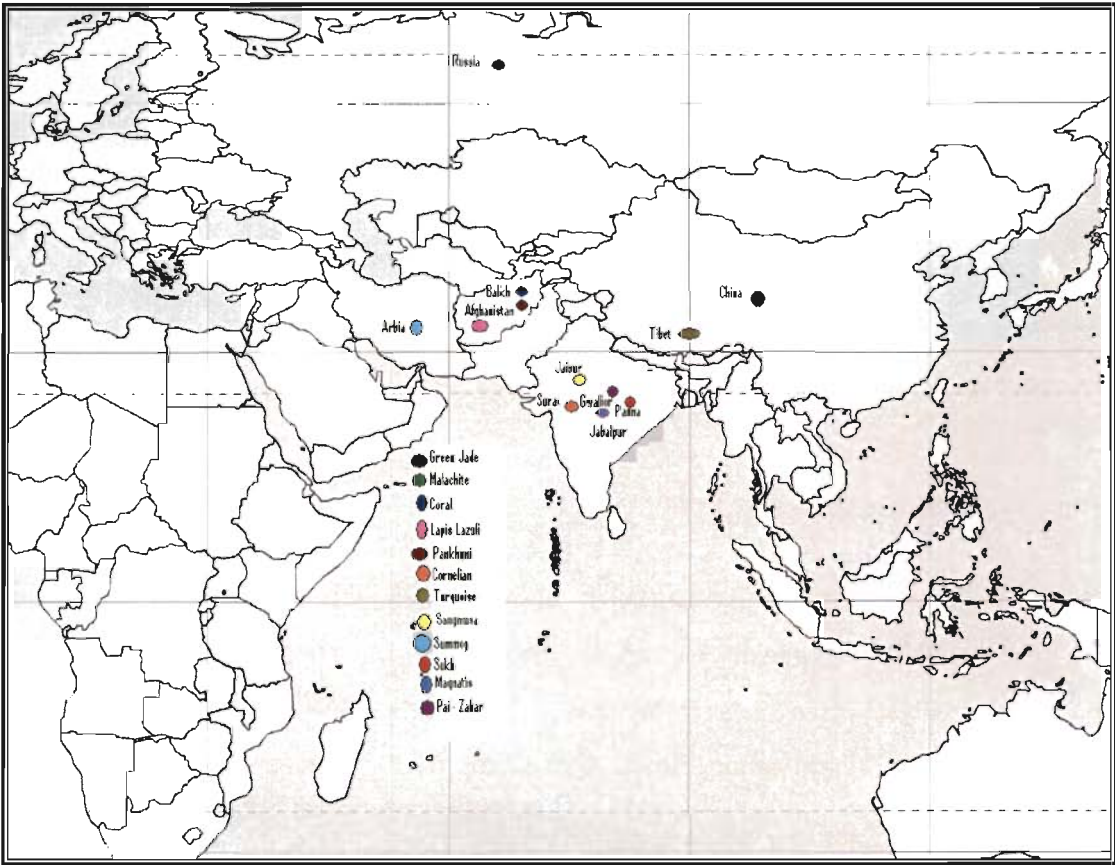
In Jahangir's reign, artists in his royal workshop included Balchand, Govardhan, Bichitr, Abu'l-Hasan, Mansur, Farukh Beg, Aqa Riza, and Muhammad Ali. The mix of Muslims, Hindus, and Persians formed a distinctive Mughal idiom, first seen only in the period of Akbar. But after Akbar's period, in Jahangir's buildings, the use of Hindu inlay motifs became less visible. Jahingir called Safavid artists and gave preference to them and Persian inlay motifs took over Hindu motifs. In Jahingir's period, as Goswami (1953, 41) reported "Persianism became the fashion of the day; it is from time that Persian ideas prevailed in the art and culture of the Mughals". Therefore, his buildings were known for a change in the method of decoration. For the first time, inlay work was

so abundantly evident in his buildings. The bold floral mosaics, made of marble or red stone, appear on the south gateway of Akbar's tomb were nearly equivalent in effect to that of *pietra dura* work, but were not similar (Smith, 1969, 175). The tomb of Itmad-ud-Daulah contains beautiful arabesque patterns that were borrowed from Persian art. In the tomb of Itmad-ud-Daulah, the present author found a highly sophisticated style of inlay in the perfectly developed condition. In the development of Mughal Inlay art, Jahangir's contribution was notable (as deliberated in Chapter 1).

Shah Jahan's buildings show the excellence in inlay art as he himself selected the plans submitted by the master masons and craftsmen, and finalized the designs with his own thoughts (Gascoigne, 1971, 182). He also provided the financial support freely to the artisans and craftsmen (Mundy 1907). Shah Jahan's buildings with Hindu inlay motifs such as *purnakalasa*, *gavaksa* were observed in their modified forms. Lotus inlay motif was described as a "Progressive elaboration of plant forms towards the interior" (Koch, 2006, 159). The pure white marble was procured from *Makrana* in Jodhpur and was formed the chief building material for Taj Mahal.

During Shah Jahan's regime, recruitment of a particular set of artisans and lavish patronage of the skills of craftsmen directly influenced selection of the designs. The recruitment of the artists, their place, and religion were also important factors in the depiction of the inlay designs. For example, the list of the principal masons, artists and craftsmen — a group of Hindu craftsmen, chiefly from Multan and Kanauj who worked on the mausoleum (e.g. Taj Mahal), and influenced the production of the mausoleum that still stands as a notable creation in the entire gamut of eastern architecture (Goswami, 1953, 53). In 1632 A.D., as construction of the Taj Mahal began, artists from across Asia converged on Agra, making the Taj Mahal as the most vital creative centers on earth. For this historic monument, Chiranji Lal from Delhi was chosen as the chief mosaicist (Carroll, 1953, 60-61). In addition, Ismail Afandi (a designer of hemispheres and a builder of domes from Turkey); Qazim Khan (a renowned worker of precious metal from

Lahore); and Amanat Khan a calligrapher from Persia were invited (Carroll, 1953, 60-61). From the different parts of the Asian countries, Precious material came From the different parts of the Asian countries. For example, Jade and crystal arrived from China, turquoise from Tibet, lapis lazuli from Afghanistan, chrysolite from Egypt, rare shells, coral and mother-of-pearl from Indian Ocean (Carroll, 1953, 62). Different marble stones were collected from India as well as from other countries as shown in Map 2.2. It can be summarized that availability of the raw material played a vital role in the development of inlay art during Mughal dynasty. Based on the literature review, it was hypothesized that a majority of Mughal rulers made use of the local tradition as well as Hindu astrology for developing inlay art in their architecture.



Map 2.2 Marble stones collected from different countries during Mughal period (source: As described in Taj Museum, Taj Mahal- Agra)

3.3 APPLICATION OF INLAY DESIGNS IN THE MUGHAL MONUMENTS

This section presents a brief outline on inlay designs and a cross section of the type of ornamental craftsmanship in the Mughal architecture. Hinduism and Buddhism, the two religions with their various offshoots, were dominant in India until Islam became powerful from the 13th to the 18th century. The Mughal inlay designs were mainly the amalgamation of different designs and symbols of Islamic (geometrical, arabesque and calligraphy), Persian (floral, fruits, cypress tree, vases and vessels), Hindu (*swastika*, *satkona*, sun, lotus, *gavaska*, *purnakalasa*) and Chinese (Chinese cloud bands). These forms were freely (sometimes endlessly) displayed on most of the Mughal structures where an ornament was sometimes either functional or decorative. Yet, this decoration suggests a deeper dimension or meaning. Dalu (1978, 161) wrote in his informative essay entitled *Surface, Pattern and, Light* :“Islamic art is an art not so much of form as of decorative themes that occur both in architecture and in the applied arts, independently of material, scale and technique”.

The Mughal architecture can be identified with the following design elements in inlay work:

3.3.1 Islamic and Persian inlay designs

3.3.1.1 Geometrical designs

In the Mughal architecture of India, two-dimensional geometrical surface design reached the zenith of artistic development. Geometry was used to articulate building elements in all materials; particularly in Inlay designs for displaying the considerable efforts and skills of the artisans. These patterns exemplify the Islamic interest in repetition, symmetry and continuous generation of a pattern. It was for the first time that Indian architecture had introduced a variety of geometrical patterns and reached magnificent heights, particularly in inlay art (Dalu 1978, 169). Designers demonstrated their masterful integration of geometry with optical effects of balancing of positive and negative areas with a

skillful use of colour and tone values. Akbar's buildings, namely Jahangiri Mahal (Fig. 1.1), Jami Masjid of Fatehpur Sikri (Figures 2.5 and 2.6), Badshahi Darwaza and Buland Darwaza (Figures 1.10 and 2.3) depict maximum number of hexagonal geometrical designs and different groups of star motifs.

In Jahangir buildings — Akbar's tomb (Fig. 1.2) and the tomb of Itmad-ud-Daulah (Fig. 2.4), enormous geometrical shapes in inlay relieved the monotony. These geometrical forms were a common feature of the selected monuments and principal mode of adornment on all of the external surfaces in buildings of Jahangir. They were applied in different forms of geometrical calculations such as square grid, compound patterns (Figures 2.7-a, b, c and d), hexagon (Figures 2.8- a and b), star (Figures 2.9-a and b), inter lock (Figures 2.10- a and b), the octagon (Fig. 2.11), the overlay (Fig. 2.12), the isometric grid, border and open work lattices. The geometrical designs in inlay work were preferred in buildings of Akbar and Jahangir. A great variety of these designs were observed particularly in Jahangir buildings. The development of geometric pattern reached a degree of complexity and sophistication that was previously unknown in India. These geometric patterns exemplify the interest and taste of the rulers in attributes such as repetition, symmetry and continuous generation of patterns. Different categories of a star such as trigon, square, pentagon, hexagon, octagon, decagon, and *swastika* groups were noticed in the Akbar's tomb and tomb of Itmad-ud-Daulah. The exterior of both tombs was divided into panels of different shapes and sizes, and the geometrical pattern was used almost everywhere in a wide variety of patterns with marvelous combinations. These designs, therefore were fitted harmoniously into the totality of the facade. In fact, variety is the secret of this art.

In the buildings of Shah Jahan, these designs were less depicted as compared to buildings of Akbar and Jahangir. At the Taj Mahal and the Agra Fort, the geometrical designs were observed in the simple angular lines on the pillars, waterfalls and on minarets (Fig. 2.13), and gave harmonious effect as well as flow and movement. This kind of zigzag pattern of straight lines called *chevron*

was observed only in Shah Jahan buildings. The *chevron* pattern came from Persia where it was a traditional design used for architectural ornamentation since the time of the Assyrian culture (Koch, 1991; Grover, 1996; Nath, 2000). The *chevron* design was also used at the Akbar's tomb and the tomb of Itmad-ud-Daulah, but mainly on pillars. The trend of these design patterns thus changed from regimes of Akbar to Shah Jahan. Akbar chose to use geometrical designs to crown the western entrance of his palace in Agra Red Fort (Fig. 1.1); however Shah Jahan used a simple design on the pavement of the mortuary hall of the Taj Mahal. The emphasis obviously shifted from typically Islamic elements to those that had grown in the art of the Mughal itself. These geometrical designs were applied for surface decoration to relieve the monotony. In this regard, it may be appropriate to mention that the geometrical pattern has its own adaptability to a surface and the Mughal artisans were expert in the use of thousands of designs with straight or carved lines and became the principal mode of decoration on all external surfaces.

The survey conducted by the present author revealed the view regarding a negative effect, if any by the repetition of design on the viewers. The Table 2.2 shows that a larger number of respondents (81.2%) have the opinion that repetition of the designs has no negative effect while only 18.8% oppose that view. The authors' experience advocates that the repetition of designs creates harmony and its variety eliminates them from being monotonous.

Table 2.2 Effect of repetition of inlay designs, n=85 (*survey results*)

Response	Count	Percentage
Not Responded	6	7.1
In favour	10	11.8
Not in favour	69	81.18



Fig.2.3



Fig. 2.4

Fig. 2.3 Geometrical designs, Buland Darwaza

Fig. 2.4 Geometrical designs, tomb of Itmad-ud-Daulah



Fig. 2.5



Fig. 2.6

Fig. 2.5 and 2.6 Geometrical designs, Jami Masjid

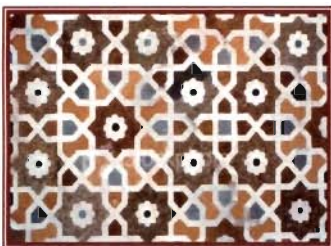


Fig. 2.7-a



Fig. 2.7-b

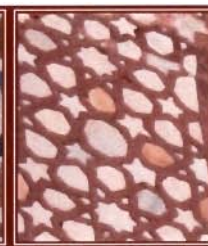


Fig. 2.7-c

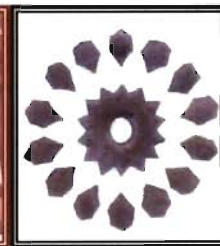


Fig. 2.7-d

Fig. 2.7 (a), (b), (c) and (d) Geometrical—compound designs at tomb of Itmad-ud- Daulah and Buland Darwaza (Fatehpur Sikiri)

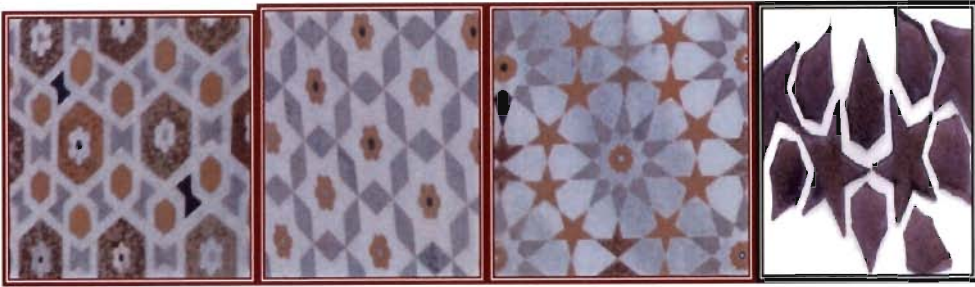


Fig. 2.8-a

Fig. 2.8-b

Fig. 2.9-a

Fig. 2.9-b

Fig. 2.8 (a), (b) Geometrical– hexagon designs, tomb of Itmad-ud-Daulah

Fig. 2.9 (a), (b) Geometrical– ten and five armed star designs, tomb of Itmad-ud-Daulah

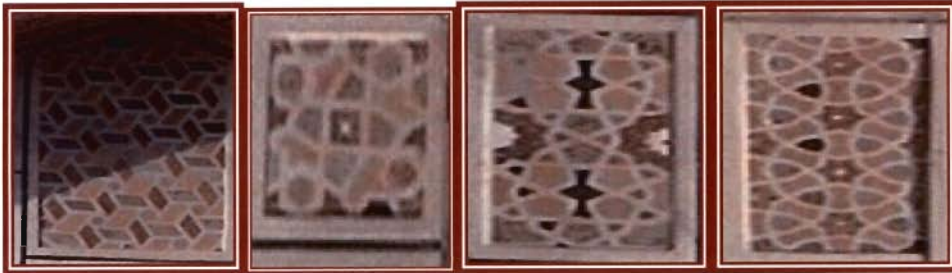


Fig. 2.10-a

Fig. 2.10-b

Fig. 2.11

Fig. 2.12

Fig. 2.10 (a), (b) Geometrical– interlock designs, tomb of Itmad-ud-Daulah

Fig. 2.11 Geometrical– octagon designs, tomb of Itmad-ud-Daulah

Fig. 2.12 Geometrical– overlay designs, tomb of Itmad-ud-Daulah



Fig. 2.13 Geometrical– *chevron* design at Taj Mahal

3.3.1.2 Arabesque designs

An arabesque is a style of decoration characterized by intertwining plants and abstract curvilinear motifs. As adapted by Muslim artisans during approximately 1000 A.D., this design became highly formalized, and for religious reasons, no birds, beasts, or human figures were included. The arabesque became an essential part of the decorative tradition of Islamic cultures. The arabesque is a rhythmic design of curved lines, spread over a surface, with reciprocal repetitions of vegetation designs that formed geometrically. An element of Islamic art, the arabesque was an elaborate application of repeating geometric vegetal ornament forms composed of circular or spiral tendrils, often characterized by a continuous stem which splits regularly, producing a series of counterpoised and secondary stems, which in turn split again or returned to be reintegrated into the main stem (Dalu, 1990). Arabesque was used in mosques and buildings around the Muslim world, and came from Egypt, Syria, Iraq and Persia (Nath, 1976, 55).

The harmonious blending of colours, the Persian style of conventionalized forms of flowers and leaves, and curling stems, and the smooth woven effect of this type of decoration became a fine art, during the reign of emperor Jahangir. To this effect, the arabesque design was significantly represented in inlay work at the tomb of Akbar (Fig. 2.13). These designs were inlaid in coloured marbles and compose a beautiful flowing ornament on arched portal. An arabesque design was beautifully inlaid on a plain marble surface with coloured precious and semi precious stones at the tomb of Itmad-ud-Daulah, and the Agra Red Fort (Fig. 2.28). The flowers depicted in these designs were realistic or natural and stylized, and the effect of this work is extremely graceful. The spandrels of portals and arched alcoves at the Taj Mahal inlaid designs were marvelously formalized and were emphatically presented like a jewelled necklace on a fair bloom (Nath, 1976, 60). Artisans used lotus (Fig. 2.15), hibiscus (Fig. 2.21) and pomegranate flowers (Fig. 2.14) with leaves, tendrils, and buds. The stylized flowers were used for the ornamental decoration of the building. But the natural

flowers that were identified (Figures 2.57 and 2.58) and placed on prominent places may have some symbolic meaning and purpose, representing endurance and repetition. This phenomenon of endless intertwined tendrils was somewhat similar to the Indian ornamentation of traditional *toranas* of Sanchi of 100 B.C. and Hoysala period's sculpture of 1150 A.D. The purpose was the same while the style and technique was different. The arabesque in the tomb of Itmad-ud-Daulah and Muthamman Burj (Agra Red Fort) had the Chinese bands, and it seems as a typical combination of the Persian and Chinese influences. A grandeur variety of arabesque was evident at the splendid archways of the Taj Mahal. This type of arabesques was lavishly used mainly in the interiors as well as exterior archways of the main building of the Taj Mahal. The style of arabesque was entirely different in the Taj Mahal (Fig. 2.14). The arabesque style was similar to that of being observed in Muthamman Burj (Fig. 2.73) and tomb of Itmad-ud-Daulah (Fig. 2.72). In Jahangir's buildings, conventionalized flowers in varied style were observed whereas in Taj Mahal, natural floras gave the impression of a white marble garden to the mosque.

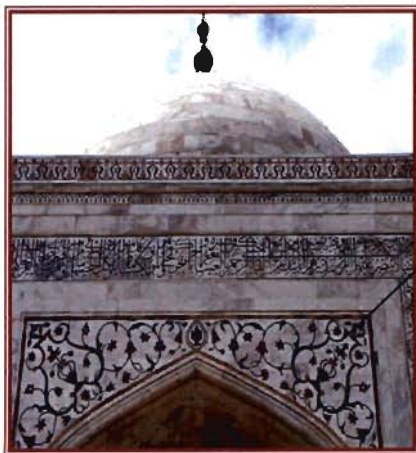


Fig. 2.14

Fig. 2.14 Arabesques designs at the Taj Mahal



Fig. 2.15

Fig. 2.15 Arabesques designs at the Akbar's tomb

3.3.1.3 Calligraphy

Calligraphy was considered as one of the most important arts of the Islamic religion because of its role in recording the words of their God. While many religions have made use of figural images to convey their core convictions (e.g., Hindu religion), Islam instead used the shapes and sizes of words or letters. Nearly all Islamic buildings have some type of surface inscription on stone, stucco, marble, mosaic and painting. The inscription might be a verse from the Qur'an, lines of poetry. In Islamic and Arabic cultures, calligraphy became highly respected as an art of writing, as evident in the Mughal monuments of Agra. The use of Islamic calligraphy, instead of pictures that was forbidden in mosque architecture, became popular in inlay art at the time of Shah Jahan. Arabic calligraphy is associated with geometric Islamic art (the arabesque) on the walls and ceilings of mosques. Calligraphy for a Muslim is a visible expression of the highest art of all, the art of the spiritual world. However, calligraphy in inlay was only available in Shah Jahan's buildings, and can be seen at the Taj Mahal (Fig. 2.16) and the Agra Red Fort. Shah Jahan employed calligraphers from Persia and inlayers from South India who specialized in building turrets and carving marble flowers, in total thirty seven men who formed the creative nucleus (Carroll, 1953, 62). The master calligrapher, Amanat Khan who came from Shiraz (Persia), was given the task of adorning the façade and burial chamber of the Taj Mahal with Arabic lettering (Carroll, 1953, 61). The calligraphy was made by jasper inlaid in white marble panels. Some of the works were extremely detailed and delicate, especially that were found on the cenotaphs in the tomb. These calligraphic designs found in the Mughal monuments were portrayed in the following variations:

i) Calligraphic Panels

Calligraphy messages enclosed in border panels were rarely applied in the Mughal monuments in inlay. Calligraphy on the panels and lintel of main gateway or arched entrance gives a message for a visitor to enter the holy place

with respect and care. Calligraphy emphasized the portion of the building on which it was adorned. It was applied to make the designs more prominent in style, colour, placement and size. Only at the Taj Mahal, calligraphic panels and bands were beautifully depicted on the sidewall of entrance gateways (Figures 2.16-a, b and c) and on the lintel in the inner chamber. Higher panels on the southern façade of the Taj Mahal were provided with written verses from the holy Qur'an. These panels that were slightly larger in text to reduce the skewing effect when viewed from the below ground, gave an ingenious optical trick (Fig. 2.16) that creates a long lasting impression on the visitors. Similar observations of calligraphy on the Taj Mahal were recorded by Carroll (1953).

ii) **Calligraphy trapped in Amulet-Pattern**

Calligraphic specimens enclosed in an amulet-pattern present a sacred atmosphere and feeling of protection to the viewers. In the Mughal buildings, this pattern was frequently used in relief and stucco work. However, in inlay, it was found on the walls of Diwan-I-Khas, Agra Red Fort (Fig. 2.17), cenotaphs at the tomb of Itmad-ud- Daulah (2.16-c), and at the upper part of the cenotaphs of the Shah Jahan and Mumtaz. The very purpose of calligraphy was not only to convey the message but also decoration. They were beautifully composed in a style of art form in Agra Red Fort. As Smith (1969, 170) wrote, "The Arabic alphabets in its various forms, as used for writing both the Arabic and Persian languages, is so well adapted for decorative purpose". Calligraphy was framed with an amulet pattern or floral forms, and exposed the aesthetic value and created sacred atmosphere in the Mughal buildings.



Fig. 2.16-a



Fig. 2.16-b



Fig. 2.16-c

Fig. 2.16 (a), (b) Calligraphy on large pishtaq' at Taj Mahal

Fig. 2.16 (c) Calligraphy at the cenotaph of Itmad-ud-Daulah tomb

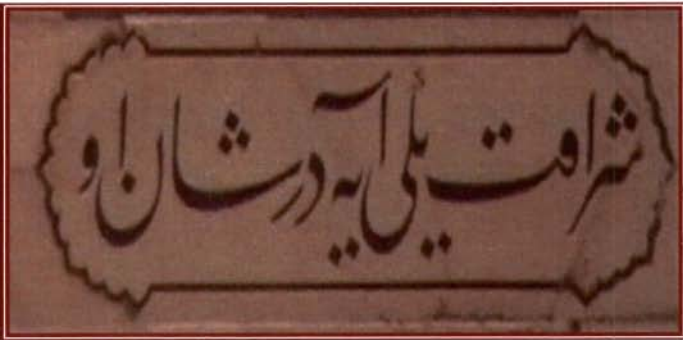


Fig. 2.17 Calligraphy on the wall of Agra Red Fort

3.3.1.4 Flora designs

The Mughals were enthralled with vegetation and used these design inspirations abundantly in architecture, paintings, and textiles for decoration. The important aspect of the Mughal decoration that gained wide popularity was the blending of Persian and Indo-Islamic floral types as decorative motifs.

i) Natural flora

Flora in the Mughal monuments can be divided into two divisions— natural or realistic flower and stylized designs.

a) Flower designs

The Mughals reproduced nature with a great deal of accuracy. The realistic floral forms were used in faithful imitation of nature. These florals were applied as plants, buds, leaves and flowers, and also as twigs and branches in natural forms. The inlaid natural floral designs were applied in the Akbar's tomb and tomb of Itmad-ud-Daulah in general and the Agra Red Fort (Fig. 2.18) and the Taj Mahal in particular. The craftsmen had inlaid natural flowers form in marble surpassing reality in colour. According to Begley and Desai (1989, 83), the poet Kalim also points out:

"They have inlaid stone flowers in marble,
Which surpass reality in colour if not in fragrance.
Those red and yellow flowers that dispel the heart's grief,
In reality are carnelian and amber."

Wholly naturalistic floral become more popular after incorporating the same in the tomb of Itmad-ud- Daulah and in the inlaid flowers of the Taj Mahal, depicting a stamp of realism with a soft lyricism thereby captivating the visitor with their grace and colorful freshness. The flower designs were used symbolically as well as ornamentally. In Islamic culture, flowers and roses were often seen as symbols of the Kingdom of Allah (Okada and Joshi, 1993). Thus, the Taj Mahal's allusion to paradise can be seen in the motifs of flowers inlaid on the mausoleum. At the tomb of Itmad-ud- Daulah, accompanied by fruit, bunches of flowers in the vases, flower plants expressed the abundance that awaits the faithful in paradise. A flower depicted in the figure 2.20, is a fully flowering lotus also identified as chrysanthemum (Koch. 2006, 17). The full-bloomed flower spread the love and beauty to the viewers. The lotus foretells a great ancestry while the peony symbolizes wealth. The upper face of the base was decorated with an elaborate marble framework from which all kinds of flowers and buds emanate (Kennedy, 2007, 114).

In the buildings of Jahangir and Shah Jahan, predominance of the naturalistic and chiefly vegetation motifs and floral forms – lotus (Figures 2.15 and 2.20), hibiscus (Fig. 2.21), tulip (Fig. 2.22-a), poppy (Fig. 2.22-b), narcissus (Fig. 2.2-c), dahlia (Fig. 2.19), tuberose, chrysanthemum (Fig. 2.20), pomegranate flowers (Fig. 2.14), fuchsia flowers (Fig. 2.23), and many other natural floral designs (Figures 2.24-a, b, c, d and e) were noticed. In the hall at the upper storey of the tomb of Itmad-ud-Daulah, there was a super floral scroll in inlay. Lotus is the sacred flower of ancient Indian mythology and the symbol of purity, whereas lily signifies virginity, pomegranate signifies fertility, and rose signifies eternal love. Chrysanthemum, used mainly in China is a symbol of happiness. All of these flowers became more stylized, ornamental, and 'bloodless' with symmetrically arranged thin interlaced stems (Koch, 2001, 91). The floral designs such as lily, rose and chrysanthemum were observed on the outer face of the interior chamber of the Taj Mahal. The panels were arranged with upright flowering plants, alternating between lilies and fuchsia flowers (Fig. 2.23). On the inner face of these panels were four cartouches filled with alternate blooms resembling narcissi and fuchsias. Some flower plants were hanging downward with their stem erected upright (Figures 2.22- c, 2.23- a and b) whereas some of them were depicted as upright flower plants (Figures 2.22- a, b and 2.20). The down warded (hanged) flower plants on and around the cenotaph of the Mumtaz (Fig. 2.23-b) are indications of sad and sorrowful environment. The uplifted branches of flower plants seem to be spreading the fragrance of the Shah Jahan's love and affection towards his beloved Mumtaz. In Agra Red Fort, the natural flowers and flower plants at Muthamman Burj and Diwan-I-Am were beautifully depicted. In this way the plant decoration inlaid in marble became more naturalistic, fleshy and colourful than its predecessor at Agra.

During the present author's survey, 84.7% of the respondents were of the view that the down warded flower plants were the symbol of sadness and sorrow (Table 2.3).

Table 2.3 Reason behind the depiction of down warded flowers on or around the cenotaph of Mumtaz in Taj Mahal, n = 85 (survey results)

Reason	Count	Percentage
Decorative	13	15.3
Symbol of Sadness / Sorrow	72	84.7



Fig 2.18 Floral decoration at Diwan-I -Am, Agra Red Fort

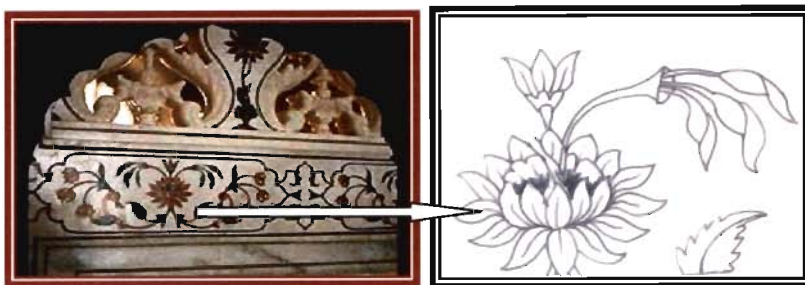


Fig. 2.19 Dahlia flower at upper horizontal jali border on the marble screen in the interior hall of Taj Mahal



Fig. 2.20

Fig. 2.21

Fig. 2.20 Lotus or chrysanthemum flower designs at upper horizontal jali border on the marble screen in the interior hall of Taj Mahal

Fig. 2.21 Hibiscus flower at the outer gateway of Taj Mahal

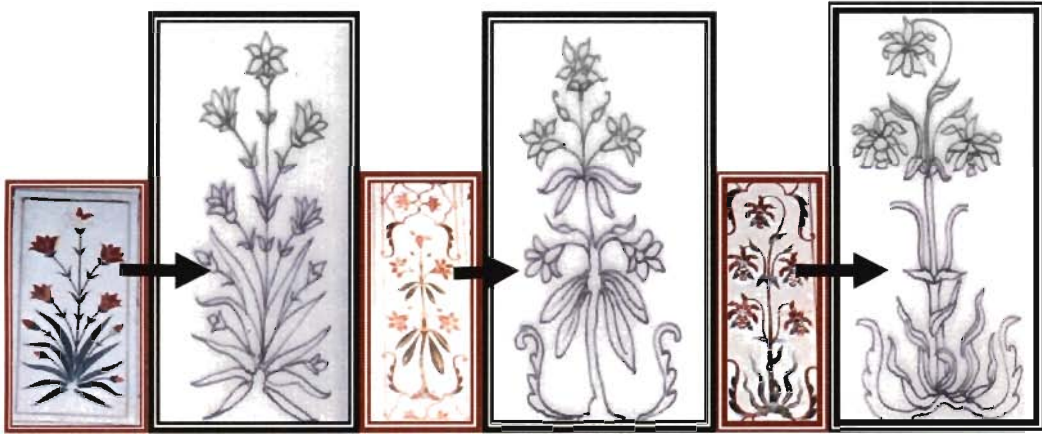


Fig. 2.22-a

Fig. 2.22-b

Fig. 2.22-c

Fig. 2.22 (a), (b) and (c) Tulip, Poppy and Narcissus flowers at the Agra Red Fort



Fig. 2.23-a

Fig. 2.23-b

Fig. 2.23 (a) Fuchsia flower plant in the interior hall of Taj Mahal

Fig. 2.23 (b) Down warded flower at the cenotaph, interior hall of the Taj Mahal



Fig. 2.24-a

Fig. 2.24-b

Fig. 2.24-c

Fig. 2.24-d

Fig. 2.24-e

Fig. 2.24 (a), (b), (c), (d) and (e) Sketches of flower plants depicted at the Taj Mahal

b) Trees, creepers and fruits

Akbar, as quoted by Powell (1966), mentioned in *Ani-i-Akbari*, “The plants as one of the greatest gifts of the Creator”. Further, Asher (1992, 117) stated that “Cypress trees and wine vessels are the only representational objects depicted but they are symbols of the divine”. These motifs were usually associated with Persian motifs. The cypress tree symbolizes mourning as well as immortality through death (Carroll, 1953, 96), and were employed in the tomb of Itmad-ud-Daulah (Figures 2.27- a, b, c and d). They were displayed with other small plants and creepers. For example, the figure 2.27-a, suggests two creepers growing in an upward direction on the cypress tree reaching simultaneously at the top. The creepers were applied in the form of spirals, scrolls on pillars, nook-shafts, panels on walls, and in the borders and arabesques designs (Fig. 2.14 and 2.15). The creepers contained stylized flowers and leaves (Fig. 2.25). The fruit design was only accessible in the tomb of Itmad-ud- Daulah in inlay marble (Fig. 2.26), and was presented in a very informal way. The grapes and pomegranates, served in dishes with a jar (vessel) were evident in the figure 2.35, and signified ‘celebration’. These two fruits had become the favorite subject matter during Jahangir time as pomegranate and Samarkand grapes were imported to India from Yezd (Beveridge, 2006, 350). There was no depiction of fruits on the trees or creepers in a natural way in inlay medium as observed in carving and wall paintings at Fatehpur Sikiri and the tomb of Itmad-ud-Daulah.



Fig. 2.25



Fig. 2.26

Fig. 2.25 Creepers on the border of the dado, Muthamman Burj (Agra Red Fort)

Fig. 2.26 Grapes and pomegranates in the tomb of Itmad-ud-Daulah



Fig. 2.27-a

Fig. 2.27-b

Fig. 2.27-c

Fig. 2.27-d

Fig. 2.27 (a), (b), (c) and (d) Cypress trees in the tomb of Itmad-ud-Daulah



Fig. 2.28

Fig. 2.29

Fig. 2.30

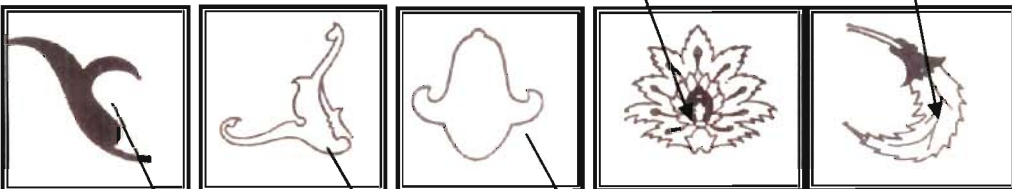


Fig. 2.31

Fig. 2.32

Fig. 2.33

Fig. 2.28, 2.29 and 2.30 Stylized designs at Agra Red Fort

Fig. 2.31, 2.32, and 2.33 Stylized designs at the tomb of Itmad-ud-Daulah

ii) Stylized floral

The stylized floral designs showed the artistic compositions that were depicted according to demand of the overall design and conventionalized format. Creswell

(1958, 210) said: "Although naturalistic fruits abound in the decoration, flowers are always conventionalized". The artisans used the flora according to availability of design and space as shown in figures 2.28, 2.29, 2.30, 2.31, 2.32 and 2.33. Stylized floral designs became part of the borders, pillars, dados and also as the part of the ornamentation of the arabesques designs. Different kinds of floral shapes and forms were employed in a stylized way. These stylized forms were very much popular in the Mughal architectural decoration at that time.

2.3.1.5 Vases and wine vessels

The vases and wine-vessel motifs in the Mughal court culture were applied during the late reign of Akbar and were fully developed in Jahangir's period. They were used as a common place object mostly in inlay, relief, marble carving, fresco and in paintings. The Mughal monuments of Agra built during Jahangir's regime provided splendid shapes of wine vessels, flower vases, and dishes. In particular, these motifs were evident in inlay work and in wall paintings in the tomb of I'tmad-ud-Daulah. In this tomb, wine vessels with dishes and cups were launched and served on the four gateways (Fig. 2.36) as well as on the main building of the tomb in different shapes and sizes (Figures 2.35 and 2.38). These varieties of forms were observed all over the monument, making it clear that Jahangir was highly influenced by these motifs. These designs were in white marble as well as in red sand stone (Figures 2.35 and 2.36). The wine vessel was in trend during Jahangir's period and was a prominent element to enhance emotions (Sharma and Gupta, 2008a).

The present study found that the vases were depicted as a flower container, and not as *purnakalasa* because these vases did not contain leaves and the distinct coconut shape (Figures 2.39 and 2.40-b). The study further found that the vase observed in the figure 2.37 was very similar to the Buddhist symbol that is a treasure vase and modeled on the basis of traditional Indian clay water pot. For example, on the top of the vase, there was a large jewel indicating that it was a treasure vase (Fig. 2.35). Therefore, the treasure vase in these figures

symbolized prosperity (Beer, 1999). The figures 2.35, 2.36, 2.39- a, b and c show that the flower vases were depicted individually as well as in the form of serving dishes and cups. The individual motifs of vases may resemble the Buddhist symbol of treasure. Similarly, vessels were arranged not only as the main component of interiors but also used on exteriors. The Persian forms were assimilated in the whole building, (both interior and exterior) in which the decorative inlay art and other representational arts were fused to illustrate the theme of the Mughal hedonism most relevant to Jahangir. The new subject (vases and wine vessels) occurred as one of the prominent features in the buildings of Jahangir's era only because of his personal liking for these objects and fondness of drinking (as supported by 68.24% of the respondents, Table 2.4). The other reason for these vase-related motifs was that the builder or designer wanted to maintain an atmosphere of joy and celebration (52.54% respondents are in this favour). It may be possible that such an environment is the result of the attractive colour stones used and composed with fruits and flower vases. These objects were influenced by the Persian culture (21.18% respondents are in this favour). The present study also found that it was the preferred theme in the contemporary Mughal paintings (Fig. 2.40-a) and in other decorative arts (Fig. 2.34 and 2.40-b) during Jahangir period (Sharma and Gupta, 2008a).

Table 2.4 Reason for prominent use of wine vessels in the tomb of Itmad-ud-Daulah, n = 85 (*survey results*)

Sr. No.	Reasons	Frequency	Percentage
1.	Jahangir fond of drinking	58	68.24
2.	Itmad-ud-Daulah liking	7	8.24
3.	Itmad-ud-Daulah disliking	3	3.53
4.	Persian impact	18	21.18
5.	Depict joy or Celebration	45	52.94
6.	Sorrow	11	12.94
7.	Artist's interest	6	7.06



Fig. 2.34-a

Fig.2.34-b

Fig. 2.34 (a) and (b) Vases and wine vessels in wall painting at the tomb of Itmad-ud-Daulah



Fig. 2.35

Fig. 2.36

Fig. 2.37

Fig.2.35 Different shapes and sizes of vases and wine vessels in inlay at the exterior, Itmad-ud-Daulah's tomb

Fig. 2.36 Vases and vessels at the gateway, Itmad-ud-Daulah's tomb

Fig. 2.37 Buddhist auspicious vase motif



Fig. 2.38-a

Fig.2.38-b

Fig. 2.39-a

Fig. 2.39-b

Fig. 2.39-c

Fig. 2.38 (a) and (b) Wine vessels in inlay at the exterior of Itmad-ud-Daulah's tomb

Fig. 2.39 (a), (b) and (c) Flower vases in inlay at the exterior of Itmad-ud-Daulah's tomb

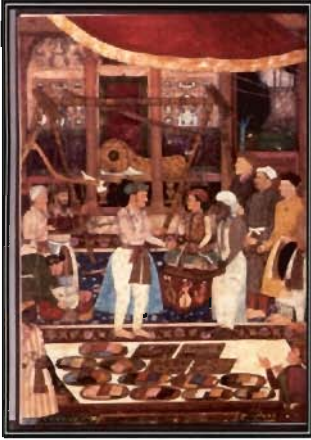


Fig. 2.40-a



Fig. 2.40-b

Fig. 2.40 (a) Wine vessel applied in the Mughal painting (source: Carroll, 1953)

Fig. 2.40 (b) Relief work at the Akbar's tomb

3.3.2 Hindu auspicious inlay design elements

The Hindu auspicious inlay design elements were very prominently presented in the Mughal monuments and applied by different rulers. The design elements were: *swastika*, *satkona*, *gavaksa*, sun, lotus and *burnakalasa*. These elements are considered as very auspicious in Indian culture and are a part of decoration in the Hindu architecture. The Mughal emperor applied them symbolically as well as ornamentally in their monuments. In this section, different auspicious Hindu design elements and reason behind their modified versions and their depiction in various monuments were highlighted.

3.3.2.1 Satakona or star

Satkona was found in the early Mughal buildings with a *bindu* in its centre lotus inside or alone (Fig. 2.43). *Satkona* was also depicted on: the mihrab of the Jamali-Kamali Masjid at Qutub, Delhi (1528 A.D.); the western gateway of the Old Fort, Delhi; the facades of the Shere Mandal (1530-45 A.D.); and at the tomb of Humayun, Delhi (1565 A.D.) (Nath, 1976, 31). In the Indian art, the *satkona* is a symbol of life energy (Zimmer, 1990) and symbolizes *Shiva*

and *Shakti*. This motif was used in temples, particularly in those of *Shiva* and *Shakti*, for example as evident at Mandor near Jodhpur (Nath, 1976, 38).

During Akbar's time, a majority of the buildings had *satkonas* in a variety of styles. In inlay, it was present at the Delhi Gate, Jahingiri Mahal of the Agra Fort (Fig. 2.41), Akbar's tomb (Fig. 2.42) and Taj Mahal (Fig.2. 44). According to Lowry (1987, 144), *satkona* design conveys the idea of uniting opposing forces as the astrological symbolism of the stars. This element was engendered from the central indivisible point in the double triangle (*satkona yantra*), regarded as the symbol of creation. This "Point" is one of the world's universal symbols, whether set in the centre of hexagram or in a circular *mandala* or *yantra*, within a sphere (Boner, 1990, 19). The tomb of Itmad-ud-Daulah contained inlaid work in a star pattern, which is similar to the Fatehpur Sikri decoration. "The star patterns are unquestionably the most beautiful and intricate of all Islamic patterns" (Lee, 1987, 182). The pavements and dados in the interior of the Akbar's tomb and tomb of Itmad-ud-Daulah also have inlaid geometrical designs in which a six-pointed star predominates but not in the same manner as in the buildings of Akbar (Fig. 2.8-b). The six-pointed star, as a part of geometrical designs was presented ornamentally demonstrating the whole pattern as a charming appearance.

At the Jahingiri Mahal and Akbar's tomb, the *satkona* with a *bindu* was used at the gateways (Figures 2.41 and 2.42). At the same location in the earlier monuments of Fatehpur Sikri, a lotus motif was also depicted. In this way Akbar and Jahangir used this design element profoundly. However, this element was seen as a part of arabesque design in the buildings of Shah Jahan, (as shown in the figure 2.44), and were not used as symbolically as in Akbar and Jahangir's building. These *satkonas* were small in size but are in a large number (sixty-four), and were depicted as a part of decoration.

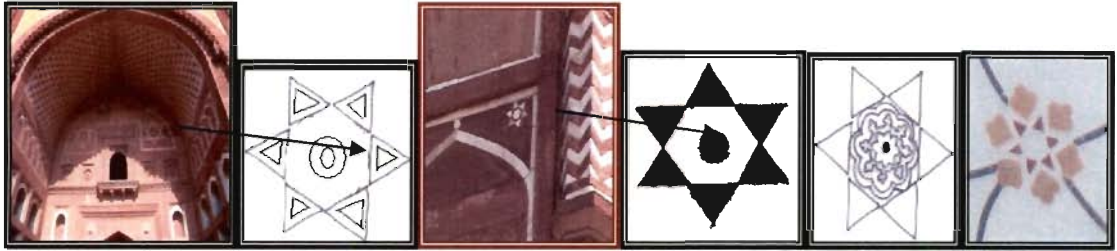


Fig. 2.41-a

Fig. 2.41-b

Fig. 2.42-a

Fig. 2.42-b

Fig. 2.43

Fig. 2.44

Fig. 2.41 (a) and (b) *Satkonas* at the western porch of the Jahangiri Mahal, Agra Red Fort

Fig. 2.42 (a) and (b) *Satkonas* at northern gateway of Akbar's tomb, Sikandra (Agra)

Fig. 2.43 Ancient Hindu motif of *satkona*

Fig. 2.44 *Satkonas* motif at the Taj Mahal

3.3.2.2 *Swastika*

The symbol of *swastika* is as old as the history and culture of India. It is an auspicious symbol signifying the four fold aspects of motion and creation. It depicts *Brahma* (the creator), *Vishnu* (the preserver) and *Mahesa* (the destroyer) (Sudhi, 1988, 142). *Swastikas* depicted in the Jahangiri Mahal were applied as a part of composition in relief work (Fig. 2.45d). In inlay art, *swastika* was only available at the entrance gateway of the Akbar's tomb. In the present author's opinion, the purpose of this motif might not be decorative to provide rhythmic effect. This motif has a message of receptivity in Hindu religion and provides a secure frame of protection to the Hindu community. The religious minded Hindus inscribe this symbol on the opening page of their accounting books and ceremonial transcripts associated with marriage, hair shaving of newly born babies and during the worship of the goddess *Lakshmi* (Sudhi, 1988, 143). This symbol was presented on the south gate of Akbar's tomb in various colours and was placed on a very eminent area visible to everyone (Figures 2.45- a, b and c) However, there was no evidence of *swastika* inlay motif after Akbar period, suggesting, the appreciation of Akbar for this design element.



Fig. 2.45-a

Fig. 2.45-b

Fig. 2.45-c

Fig. 2.45-d

Fig. 2.45 (a), (b) and (c) *Swastika* at the Akbar's tomb

Fig. 2.45 (d) *Swastikas* at the Jahangiri Mahal, Agra Red Fort

3.3.2.3 Lotus (*Padma*)

Lotus (*padma*) is a holy symbol of the Indian cultural heritage (Fig. 2.48). It is a sacred symbol for the Hindus and has been mentioned in Hindu scriptures. Lord *Brahma* and *Vishnu* were depicted sitting in a lotus. The Indian goddess holds two lotus blossoms and two buds at her sides (Zimmer, 1990, 91). The Indian poets have used lotus as a simile for the feet of the Gods (Zimmer, 1990, 91). According to Mahayana, a sect of Buddhism, all souls emerge from a lotus. *Padma* was applied in the buildings of Akbar. But in inlay, the lotus was depicted as a part of arabesque in the Akbar's tomb (Figures 2.15 and 2.46-a, b), the tomb of Itmad-ud-Daulah, (Fig. 2.46-c), in the Agra Red Fort and the Taj Mahal (Figures 2.20 and 2.48-a, b). It was used only as a flower and not as *padma*. According to Nath (1976) that there was no lotus in inlay at the tomb of Itmad-ud-Daulah. The design in the figures 2.46-a,b and c was recognized as lotus by 54 out of 63 respondents, while 14.3% of them considered it as 'rose' (Fig. 2.47-a).

All varieties of lotus were seen in the Mughal monuments, especially in the Taj Mahal. This lotus motif is mostly visible at the upper part of the monuments and mostly on entrances. The dome of the Taj Mahal resembles the upside-closed *padma* resting on its petals whereas in the central dome, it springs from the design of a lotus inlaid at the top of a drum (Carroll, 1953, 89). The present study found that lotus designs were depicted as stylized and in realistic form

(e.g., bud (Fig. 2.47-b), half bloomed (Fig. 2.47-c) and full bloomed lotus that represents an Indian goddess holding the lotus in her hands (Fig. 2.20)).



Fig. 2.46-a

Fig. 2.46-b

Fig. 2.46-c

Figs. 2.46 (a) and (b) Lotus flower, Akbar's tomb (Sikandra)

Fig. 2.46 (c) Lotus flower at the tomb of Itmad-ud-Daulah

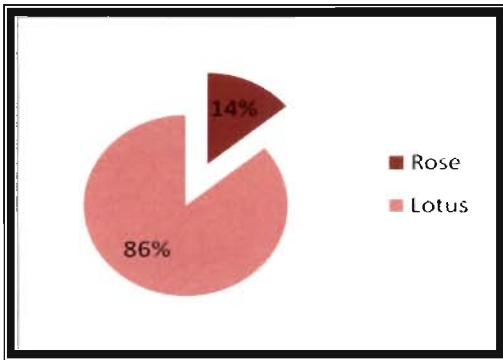


Fig. 2.47 (a) Identification of (Fig. 2.46-a, b and c) by respondents
(survey results)



Fig. 2.47-b

Fig. 2.47-c

Fig. 2.48

Fig. 2.47 (b), and (c) Bud and half bloomed lotus designs in the Taj Mahal

Fig. 2.48 *Padma* at the Agra Red Fort

3.3.2.4 *Gavaksa*

Gavaksa is an arched or horseshoe-shaped window in a *catiya* (Partha, 2001, 14). The typical Hindu motif *gavaksa* (Fig. 2.52-c) was found abundantly in the buildings of Akbar in relief work at the monuments of Fatehpur Sikri and in the Jahangiri Mahal. (Figures 2.52-a and b) This motif was absent in Jahangir and Shah Jahan's buildings as stated by Nath (1976, 9 and 20). However, the same kind of motif with some modifications was found in the Agra Red Fort and at the Taj Mahal on its dome and the upper part of boundary wall (Figures 2.49 and 2.51). This motif has the same kind of two curves with a bud inside at the location of half lotus. Indeed, this motif (Figures 2.49 -b and 2.51-b) is a modified version of *gavaksa* applied in the Taj Mahal. A Buddhist *gavaksa* creates a rich lace-like surface texture (Partha, 2001, 42), and figures 2.49 and 2.51 demonstrate such a feeling. Between two *gavaksa* motifs, one can also notice a design similar to *burnakalasa* that has a *kalasa* or vase containing two mango leaves besides the coconut (Fig. 2.54). In terms of the presence of *gavaksa* design (a modified form) in the Taj Mahal and Agra Red Fort, the present survey found that the design element (Figures 2.49 and 2.51) resembles *gavaksa* as 63.5% of responses were in favour of this statement (Fig. 2.50). The present results reiterate that since maximum artisans were Hindus (Table 2.7), *gavaksa* – Hindu auspicious motif was incorporated during the Shah Jahan period. The placement of *gavaksa* in various figures provided demonstrates that its auspicious character was always in the mind of builders and architects.

It should also be noted that figures 2.53 (a) and (b) were not *gavaksa* because its curves were turning inside, and are only used as stylized designs. It may be possible that the inlay craftsmen had much interest in this particular motif and could not calibrate skillfully as in relief or carving work. Nath (1976, 20) stated that this motif was popularly used in carved forms (Figures 2.25- a and b) on pillars, pilasters, and piers in the red sandstone buildings of Akbar, and however its use discontinued as soon as the white marble replaced the red sandstone.

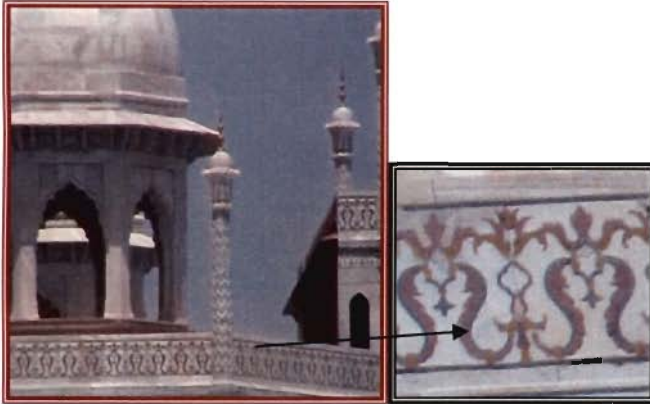


Fig. 2.49-a

Fig 2.49-b

Fig. 2.49 (a) and (b) Modified gavaksa design at the Taj Mahal

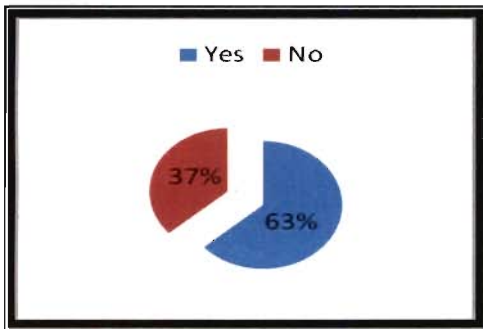


Fig. 2.50 View of respondents whether (Fig. 2.49-b, 2.51-b) resembles (Fig 2.52) – gavaksa motif (survey results)



Fig. 2.51-a

Fig. 2.51-b

Fig. 2.51 (a), (b) Modified gavaksa design at the Taj Mahal

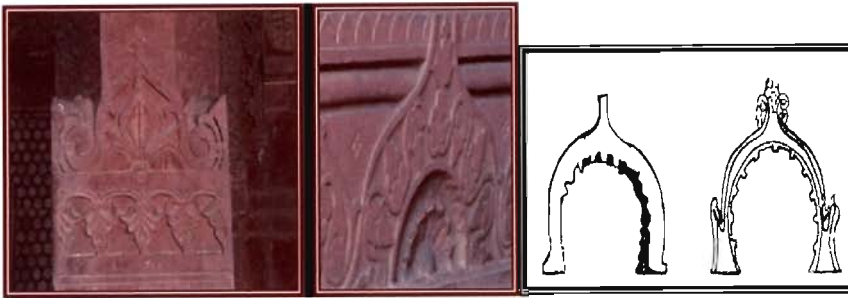


Fig. 2.52-a

Fig. 2.52-b

Fig. 2.52 (c)

Fig. 2.52 (a) *Gavaksa* design at Jami Maszid, Fatehpur Sikiri

Fig. 2.52 (b) *Gavaksa* design at Jahangiri Mahal, Agra Red Fort

Fig. 2.52 (c) Typical Hindu *gavaksa* (source Nath, 1976)



Fig. 2.53-a

Fig. 2.53-b

Fig. 2.53 (a), (b) Inlaid designs at the Agra Red Fort

3.3.2.5 *Purnakalasa*

Purnakalasa, also known as *purnakumbha*, *purnaghata* and *mangalakalasa*, is one of the eight auspicious symbols of the Indian classical art (Figures 2.54-a, b, c and d). It is a symbol of abundance and creativity. This symbol is normally associated with the goddess *Lakshmi* and consists of an overflowing foliage composed of lotus buds, flowers and mango leaves. This motif was evident in the buildings of Akbar (mainly at Fatehpur Sikiri) in various styles (e.g., relief and carving works) but not in inlay techniques. In the buildings of Jahangir, the *purnakalasa* motif was found to be replaced with the use of flower vases and vessels due to influences from Persia (Figures 2.39-a, b and c). But in the buildings of Shah Jahan, *purnakalasa* appeared in carving work in the dadoes of the Taj Mahal and on the pillars of Diwan-I-Am (Agra Red Fort) in its

finest form (Nath, 1976; Koch, 2002). The Taj Mahal and Diwan-I-Am of Agra Red Fort have arabesques in inlay.

Some motifs, resembling the design of *purnakalasa*, were also observed in the Taj Mahal and Agra Red Fort (Figures 2.55, 2.56, 2.57 and 2.58). The vase and the foliage motif (in the Taj Mahal and Agra Red Fort) have been combined in a very fine way with the stylized arabesques. According to Nath (1976) and Smith (1969), *purnakalasa* motif was absent in the buildings of Jahangir and Shah Jahan in inlay work. *Purnakalasa* motif was depicted in stylized and manipulated form to achieve a hyper-real beauty to the composition that makes their identities less clear. The figures 2.55-b, 2.56-b, 2.57-b and 2.58-b show the shapes of a vase with leaves or tendril and a coconut. The modified *purnakalasa* designs located in the Taj Mahal and Agra Red Fort were verified as *purnakalasa* through the present author’s survey (Table 2.5). It was found that the design element in figures 2.55, 2.56, 2.57 and 2.58 resembled *Purnakalasa*—a vase with flower, leaf and coconut’ (63.5% agree), ‘Floral ornamentation’ (33.3% agree), and ‘only a decorative Flower’ (12.7% agree). These results further suggest that as maximum artisans were Hindus, they used *purnakalasa*—a Hindu auspicious motifs in the Taj Mahal.

Table 2.5 Identification of inlay designs (Figures 2.55, 2.56, 2.57 and 2.58) and (Fig. 2.54-a) on the basis of respondents opinion, n = 63 (survey results)

Responses	Floral ornamentation		Purnakalasa (A vase with flower, leaf and coconut)		A decorative Flower	
	Frequency	%	Frequency	%	Frequency	%
Yes	21	33.3	40	63.5	8	12.7

In the buildings of Akbar and Jahangir, a modified design of *purnakalasa* was absent, but was observed only in the monuments of Shah Jahan. Since in inlay art technique was sophisticated and complex as compare to other decorative arts, it was very difficult to design the *gavaksa* and *purnakalasa* motifs in inlay art. These motifs (*gavaksa* and *purnakalasa*) were present at the

entrances of the monuments (Figures 2.47 and 2.46). It is the author's opinion that as the inlay craftsmen were Hindus, they knowingly applied the motifs in a modified version. Furthermore, the Mughal rulers employed maximum number of Indian workmen (*pachchikari*) who executed the inlay at the Taj (Nath, 1970, 36) and were very much influenced by this particular motif and thereby inlaid in the monuments.

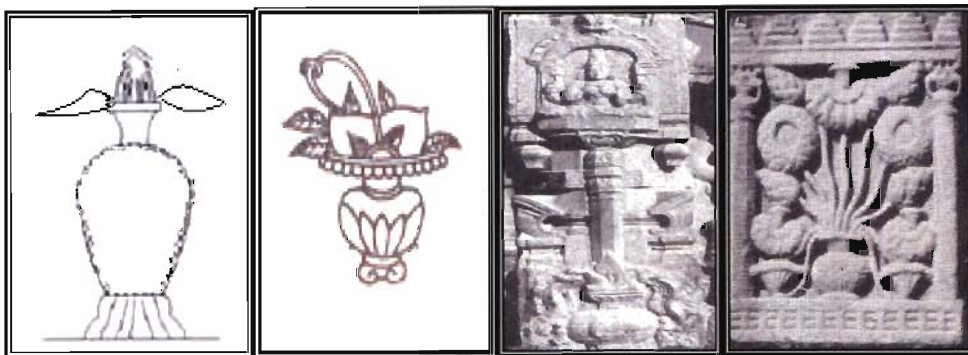


Fig. 2.54 (a) **Fig. 2.54 (b)** **Fig. 2.54 (c)** **Fig. 2.54 (d)**

Fig. 2.54 (a) and (b) Typical Hindu *Purnakalasa*

Fig. 2.54 (c) *Purnakalasa*, Hampi, Vijaynagar, 1513-42 A.D. (source: Boner Alice, 1990)

Fig. 2.54 (d) *Purnakalasa*, Sanchi gateway, C100 B.C. (source: Boner Alice, 1990)

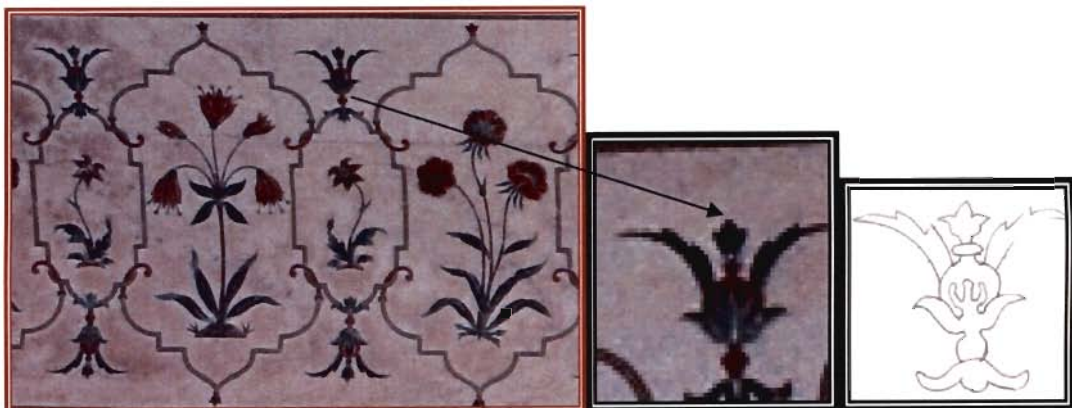


Fig. 2.55-a

Fig. 2.55-b

Fig. 2.55-c

Fig. 2.55 (a), (b), (c) Modified *purnakalasa* designs as a part of arabesques at Red Fort, Agra



Fig. 2.56-a

Fig. 2.57-a

Fig. 2.58-a

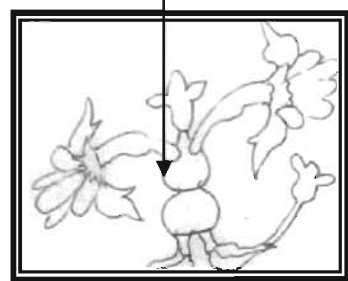
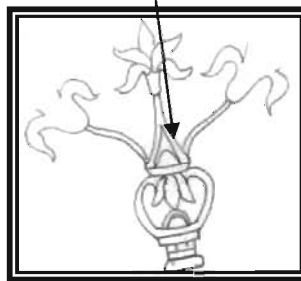
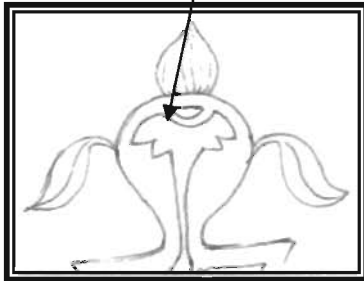


Fig. 2.56-b

Fig. 2.57-b

Fig. 2.58-b

Fig. 2.56 (a), (b), 2.57 (a), (b), 2.58 (a), (b) Modified *purnakalasa* designs as a part of arabesques at the Taj Mahal

3.3.2.6 *Chakra* or *cakra*

Cakra is the revolving wheel of time element that depicts the cyclic rhythms of the cosmos. This wheel (*chakra*) is also held as one of the emblems of the Preserver (*Vishnu*). According to *Svetasvatara Upanisad*, whole manifested world is compared to *cakra* or a wheel; and the God is meditated upon the wheel of this universe (Sudhi, 1988, 12). The wheel was an ancient Indian symbol of creation, sovereignty, and protection that represented continuous motion and change. In Indian culture, there are thirty kinds of *cakras* (in “*Samkhaya*” philosophy) and its one part represents nature known as *Maya*, *Prakriti*, *Sakti*, *Ajnana* or *Avyakta* (Sudhi, 1988, 12).

Chakra was profoundly used in relief work of Akbar’s buildings (Fatehpur Sikiri and Jahangiri Mahal) and also in stucco work of Shah Jahan’s buildings (Taj Mahal, Agra Red Fort). At the tomb of Itmad-ud-Daulah, the movement of *cakra* in inlay was observed in the form of flowers and was depicted on the

arches of gateway (Fig. 2.75) and as well as in the geometrical patterns (Figures 2.72, 2.73 and 2.74). In the tomb of Itmad-ud-Daulah, the movement of *chakra* was depicted on the outer side of the star with a flower inlaid inside suggesting a movement in design (Fig. 2.60) The lotus placed in the *chakra* represents a centre for the supply and distribution to the physical body of the vital etheric or *pranic* forces (Sudhi, 1988, 14). The depiction of *chakra* in the tomb of Itmad-ud-Daulah expressed its decorative purpose. Although the *chakra* was not presented in an Indian style, it signifies movement (Figures 2.59-b and 2.60-a)



Fig. 2.59-a Fig. 2.59-b Fig. 2.59-c Fig. 2.60-a Fig. 2.60-b

Fig. 2.59 (a), (b) and (c) Geometrical designs representing *chakra* at the tomb of Itmad-ud-Daulah

Fig. 2.60 (a) and (b) *Chakra* in floral design at the tomb of Itmad-ud-Daulah

2.3.2.7 Sun

The sun has a great importance in the Hindu mythology. Hindus consider the sun as a *devta* (God) and pray to it during their morning rituals. It is an auspicious sign to offer water to the rising sun. The sun motif was only seen in inlay at Jahangiri Mahal (Fig. 2.61). Its presence in the inlay might be due to the king Akbar who used to offer water to the sun and considered it as good omen and, therefore were boldly applied on the archways of the eastern and southern directions.



Fig. 2.61 Sun design at the Jahangiri Mahal

3.3.3 Reason behind the use of Hindu motifs

While the ancient Indian art was more interested in decorating structures with sculpture and carving, the Mughal had a love for colour and decoration through incorporating different methods of embellishment. Indians were famous throughout the eastern world for their skill on working on the stone. To this effect, Chiranji Lal was chosen as the chief mosaicist to work on the Taj Mahal (Carroll, 1953, 60-61). “No doubt its builders borrowed what they considered the best of what was available, because so many of the artisans were natives of that country” pointed by Carroll (1953, 89) about the Taj Mahal.

Goswami (1953, 53) rightly said, “...as the development of an Indian style the monuments belong to India, and has an Indian appearance and character, in spite of the hands of so many foreign workmen”. The Table 2.6 shows that the Hindu motifs depicted in the Mughal monuments were due to the reason that mostly craftsman/artisans were Hindu (85.9% respondents agreed) while 14.1% did not concur with this statement (Table 2.6). Through the survey, it was found that 73.9% of the respondents were of the view that Mughal believed in Hindu astrology as they applied Hindu auspicious designs, while 20.8% respondents had opposite view.

Table 2.6 Reason behind the use of Hindu motifs, n= 85 (survey results)

Response	The Mughal Believed in Hindu Astrology		Hindu Motif used by Craftsmen/Artists as they were Hindu	
	Frequency	Percentage	Frequency	Percentage
Yes	63	73.9	73	85.9
No	18	20.8	12	14.1

3.3.4 Miscellaneous Designs

3.3.4.1 *Shanku*- running time of the hour glass

An hourglass, also known as a *shanku*, sandglass or sand timer or sand clock is a device for the measurement of time (Fig. 2.63). From the beginning of 15th century, the flow of sand in the hourglass was used to measure the flow of time. This hourglass motif was found in a Mughal painting (figure 2.64) showing the emperor Jahangir conversing with a Sufi wise man with the emperor perched high upon his hour glass throne (Carroll, 1953, 48). The influence of contemporary paintings on the decorative inlay art was also evident from the figure 2.64.

A similar kind of device was also observed on the Akbar tomb (Fig. 2.62). On this design, a flying bird was applied (Figures 2.62- a and b). Commonly, this notation is referred to as the time seeming to 'fly' (a period of time seeming to pass faster than usual). The same concept might have been conveyed through this monument.. The survey results further highlight that this motif resembles to *shanku* with a flying bird (37 responses out of 63 were received in favour), whereas 30.2% of respondents were of view that it was part of a geometrical pattern (Table 2.7). Therefore, the present study concludes that this object applied in the period of Jahangir was inspired by the Mughal paintings. Therefore, inlay artisans applied this 'flying bird' with its symbolic reference as the time seeming to 'fly'.

Table 2.7 The design (Fig. 2.62) resembles figure 2.63, n= 63 (survey results)

Response in favour	'Shanku' with flying bird		Geometrical pattern		Bell	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	37	58.7	19	30.2	7	11.1

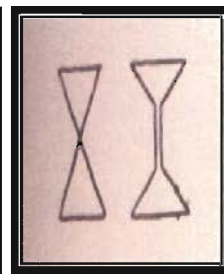
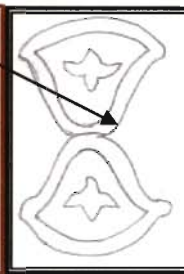


Fig. 2.62-a

Fig. 2.62-b

Fig. 2.62-c

Fig. 2.63

Fig. 2.62 (a), (b) and (c) *Shanku* design at Akbar's tomb

Fig 2.63 *Shanku* design

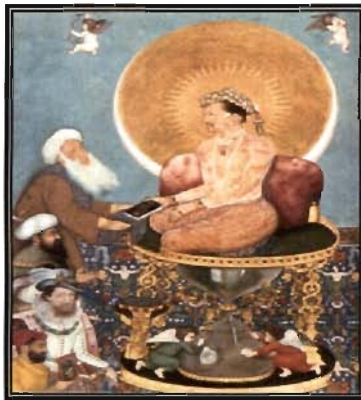


Fig. 2.64 *Shanku* design in the 15th century Mughal painting (source: Carroll, 1953)

3.3.4.2 Animals

The creation of living things, i.e., human and animal is considered to be in the realm of the God. However, Islam discourages artists for producing such

figures or idols through art. Nevertheless, a certain amount of figural art was evident in the Islamic world, though it was mainly confined to the decoration of objects and secular buildings. Akbar started the reconstruction of the Agra Fort in 1565 A.D., where the Delhi Gate was ornamented with all possible schemes of decorations. The *Hathi-Pole* (the Elephant Gate) had horizontal panels above the second storey, depicting *gaja-vyalas* (composite animals with elephant head) a fabulous animal (Fig. 2.65). A composite animal in the figure 2.66 has four legs the upright tail of a lion, and a thin waist similar to that of a lion. The neck and ears were of a horse and the mouth was of an elephant with tusk and trunk. Two wings were also inlaid with white marble pieces on a red stone slab. Tusks and nails were also made of marble. Eyes were sculpted with the help of black marble. Overall, the fabulous animal was composed of a lion, horse, elephant and a bird. This animal looks as if it was fighting seven smaller elephants at the same time. On the other side of this animal figure, there were five panels consisting of six elephants. The depiction of such composite and fabulous animal has been found on seals in the Indus Valley art period (3200 B.C. to 2800 B.C.) in India (Agrawal, 1965, 37). Artisans have derived the inspiration from Indian art conception (Nath, 1976, 131). Therefore, it can be said that the Mughals too were inspired by the Indian art. However, it should be noted that there was no depiction of animals in inlay work in Jahangir and Shah Jahan buildings.

3.3.4.3 Birds

Inlay on the Delhi Gate (Agra Red Fort) has twelve and half panels on each side. Each panel has animals and ducks in pair, the former separated by a geometrical pattern (Fig. 2.67) and latter by an Assyrian palmate (tree of life) (Fig. 2.68). Each duck or *hamsa* was curved with an open beak (Fig. 2.67-a). The ducks were inlaid with white marble on red sandstone. Black marble was used to demonstrate prominent parts such as eye and crown (Fig. 2.67-b). The duck panels seem to have been directly inspired by the Sassanian art traditions of ancient Persia (Fig. 2.69-b).

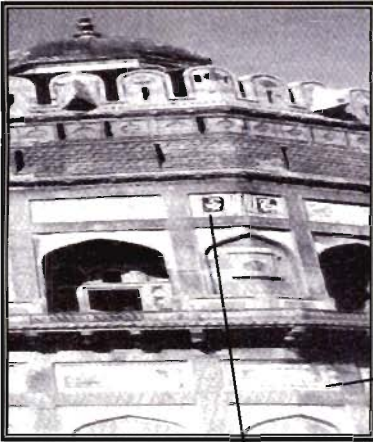


Fig. 2.65

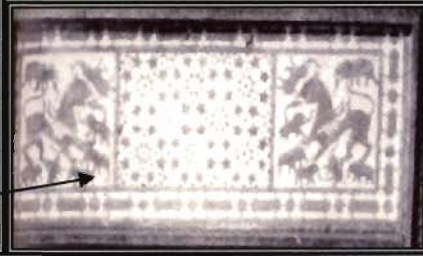


Fig. 2.66

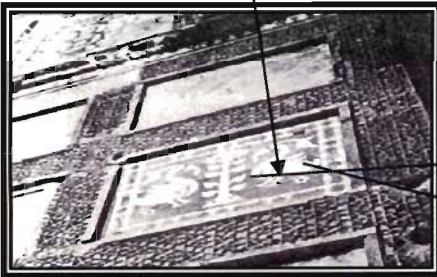


Fig. 2.67-a

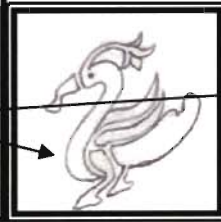


Fig. 2.67-b



Fig. 2.68

Fig. 2.65 and 2.66 *Gaja-vyalas* (composite animals with elephant head), Agra Red Fort (source: Nath, 1976)

Fig. 2.67 (a) and (b) Ducks depicted at the Agra Red Fort (source: Nath, 1976)

Fig 2.68 Tree of life, ancient Assyria

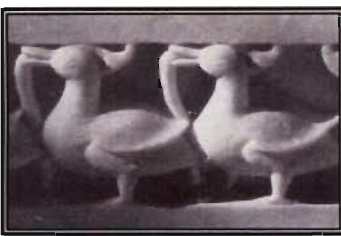


Fig 2.69-a



Fig 2.69-b

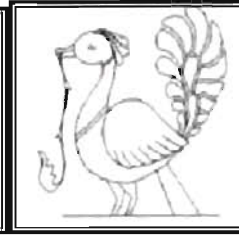


Fig 2.69-c

Fig 2.69 (a) Row of *hamsa*, Dilwara temple, Mount Abu, 12th century (source: Boner Alice, 1990)

Fig 2.69 (b) Sassanian duck of the ancient Persia

Fig. 2.69 (c) *Hamsa* depicted in ancient Hindu art

At the tomb of Itmad-ud-Daulah, the present author found a variety of the vases and vessels handles with a mouth resembling bird's upper portion with its beak. The figures 2.70 and 2.71 show different styles of depiction of birds' upper part. One flower vase has a handle of bird's upper portion with a flower in its beak (Fig. 2.70-c). It is very similar to the motif depicted in the ancient Hindu art (Figures 2.69- a and c). On the top and at the opening of the vase, there is a mouth of bird, as indicated in the figure 2.70. This motif was used to decorate the vases and vessels in stylistic form (Figures 2.70 and 2.71). The birds' depiction in relief work at the Akbar's tomb show the influence of contemporary trend of bird paintings that was the characteristics of Jahangir's reign, while there was no depiction of bird and animal in the Shah Jahan's building. In inlay work, the depiction of birds was not much inspired by the work of *Ustad* Mansur as he was known for realistic depiction. During Akbar's period, inlaid bird and fabulous animals of the ancient Hindu influenced motifs (e.g., peacock, parrot, *hamsa* and duck) were beautifully applied in the relief work at the Fatehpur Sikiri, the Akbar's tomb, and the Jahangiri Mahal.



Fig. 2.70-a Fig. 2.70-b Fig. 2.70-c

Fig. 2.70 (a), (b) and (c) The mouth of vases and vessels with duck beak, tomb of Itmad-ud-Daulah



Fig. 2.71-a Fig. 2.71-b Fig. 2.71-c Fig. No: 2.71-d

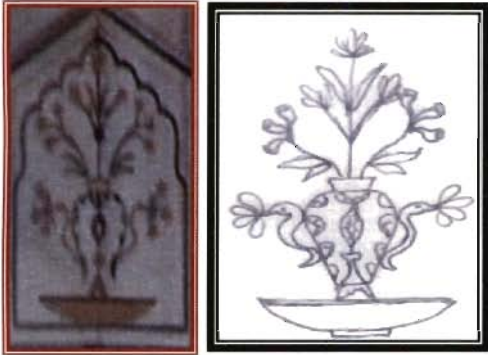


Fig. 2.71-e Fig. No: 2.71-f

Fig. 2.71 (a), (b), (c), (d), (e) and (f) Vases and vessels with duck beak handle, tomb of Itmad-ud-Daulah

3.3.4.4 Chinese elements in Mughal inlay

i) Chinese cloud forms

The stylized waves of Chinese cloud form were used aplenty in the Mughal monuments. These cloud forms symbolized spirit consonance and life motion. They were used in the form of tendrils, scrolls, waves and spiraling in a two series interweaving or crisscrossing one another (Fig. 2.74). Inlaid cloud forms were used on the border of dados at the tomb of Itmad-ud-Daulah. These forms were applied on the white marble dados of the Muthamman Burj in Agra Fort that belong to the earliest period of Shah Jahan's reign. The dado panel has a beautiful border, inlaid with coloured stones. These cloud forms were also used in the later monuments built by Shah Jahan.

ii) Chinese cloud-band

A Chinese cloud-band is a ribbon like ornament, used as a symbol for clouds in far eastern art and brought to Persia can be seen as stylized variants of the ancient Chinese band. The figure 2.75 show the form inspired by the Chinese cloud band in the Akbar's tomb (Fig. 2.15), the tomb of Itmad- ud-Daulah and the Muthamman Burj (Figures 2.72 and 2.73). This Chinese pattern was evident in

the form of stylized variants of the ancient Chinese dragon. Persian artists freely used this motif, as Chinese motifs were popular in textile and paintings during the period of Jahangir and Shah Jahan. Inlaid cloud forms were used on the border of dados at the tomb of Itmad-ud-Daulah. These Chinese bands were depicting movement and unity to the design.



Fig. 2.72

Fig. 2.72 Chinese cloud band in arabesque design at the tomb of Itmad-ud-Daulah



Fig. 2.73

Fig. 2.73 Chinese cloud band in arabesque design at Muthamman Burj (Agra Red Fort)



Fig. 2.74

Fig. 2.74 Chinese cloud-forms at the tomb of Itmad-ud-Daulah

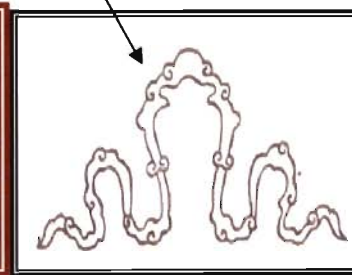


Fig. 2.75

Fig. 2.75 Chinese cloud-band

3.3.4.5 Abstract designs

In the Mughal inlay art, abstract forms were visible as the part of arabesque. The abstract forms were composed according to the space and requirement of the design (Figures 2.76 and 2.77). In Akbar's tomb, abstract

forms were evident in the arabesque design (Fig. 2.76). These abstract forms were used to complete a design.



Fig. 2.76 Abstract forms at the main gateway of Akbar's tomb

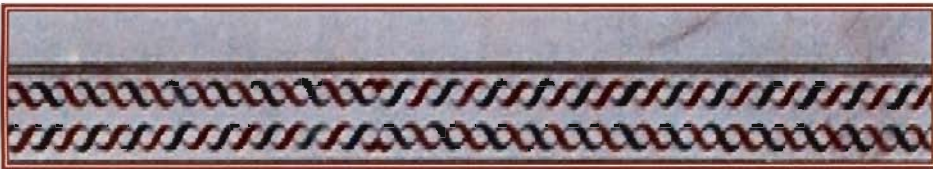


Fig. 2.77 Abstract lines at Agra Red Fort

3.3.4.6 Medallions

It is a central design of the space and creates a border, often formed by a medallion and can be applied in different designs such as spiral scrolls, diamonds, clove leaves, and arabesques (Figures 2.78, 2.79, 2.80 and 2.81). Different kinds of medallions were used in every Mughal monument (Figures 2.83, 2.84, 2.85 and 2.86). This medallion design was applied by all of the Mughal rulers to fulfill the requirement of the space and design that was inspired by the Persian carpet designs.



Fig. 2.78

Fig. 2.78 Medallion at Agra Red Fort



Fig. 2.79

Fig. 2.79 Medallion at the Taj Mahal



Fig. 2.80

Fig. 2.80 Medallion at the tomb of Itmad-ud-Daulah



Fig. 2.781

Fig. 2.81 Medallion floor design at the Taj Mahal

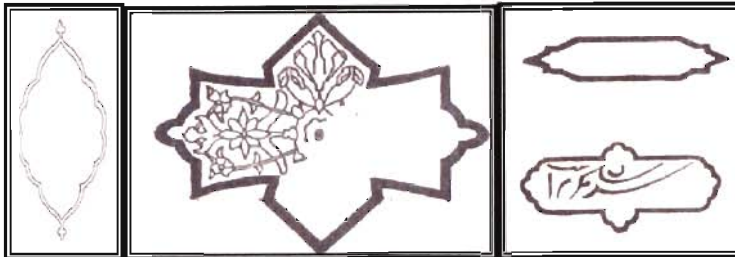


Fig. 2.82 Sketches of different styles of medallions

3.4 PURPOSE AND INFERENCES OF INLAY DESIGNS IN THE MUGHAL MONUMENTS

The decorated surfaces of Islamic architecture have a physical reality as well as visual impact (Dalu, 1978). It means that there is a possibility of variations in visual impact, because every one has his or her own point of view. The Indian art believes in *artha* (inner meaning) of motifs and not only in *rupa* (form) of purely ornamental motifs. As Agarwal (1965, 55) pointed out “Without meaning art is Jejune” Symbols are objects, characters, figures and colours used to represent abstract ideas or concepts in the form of motifs. Symbols are chronic structures, contrasts, or fictional strategy that can help to develop and inform the major themes. Every motif should have some meaning and purpose to convey the ideas through the language of symbols. With the advent of the Mughal, a new chapter was added to the history of Indian art.

The purpose of this present study was not only to identify the inlay design elements but also to explain their meaning and examine: why, how, and where they were preserved through the ages; how their appearance was modified or

changed; what were the inferences and assumptions drawn; and their role in the Mughal architecture. The study included descriptions of rituals and traditions in which images of these motifs were prominent, and interpreted their significance in the ceremonies and customs. The inlay designs were applied to consider the different aspects that made political balance, emperor's taste and order, user's interest, messages for the masses or, at times, only decorative in purpose. In this way, this research was focused on inlay designs, as discussed earlier, to identify their purpose— decorative, symbolic, and logically deduce possible reasons for the same, and the inferences on the viewers' feedback with the appreciation of their purpose, meaning, and charm.

3.4.1 Purpose

In the selected monuments of Agra, it was found through the survey (Figure 2.83) that overall 72.1% of the respondents concurred with the purpose of inlay designs as for 'symbolic' reasons whereas only 19.8% agreed that the purpose was 'decorative'. Other 8.1% of the respondents did not respond.

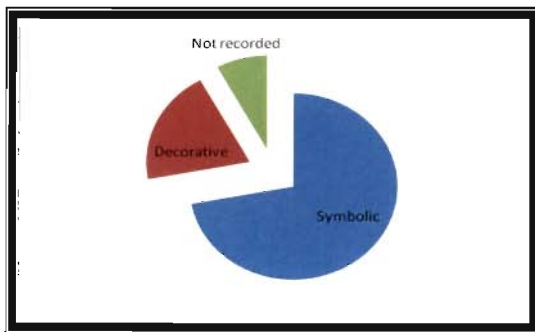


Fig. 2.83 The purpose of inlay designs in the monuments of Agra

The use of different designs bears an individuality of its own inspired by the character of the symbol that was understood by the builders and the people. The purpose of each inlay design element was clearly mentioned in Table 2.8. The result suggests that the Mughal architectures were free from any religious bias or preferences, and is a secular art with unreserved emphasis on the aesthetic aspect.

Table 2.8 Purpose of different inlay designs in the Mughal monuments, n=85
(survey results)

Inlay Design Elements	Purpose			No Response	
		Decorative	Symbolic		Decorative and Symbolic
Floral	Frequency	46	27	10	2
	Percentage	54.1	31.8	11.8	2.4
Arabesques	Frequency	52	29	-	4
	Percentage	61.2	34.1	-	4.7
Geometrical	Frequency	72	13	-	-
	Percentage	84.7	15.3	-	-
Calligraphy	Frequency	12	58	-	15
	Percentage	14.1	68.2	-	17.6
Bird- Swan	Frequency	22	62	1	-
	Percentage	25.9	72.9	1.2	-
Wine Vessels	Frequency	17	63	4	1
	Percentage	20.0	74.1	4.7	1.2
Fabulous Animal	Frequency	21	52	10	2
	Percentage	24.7	61.2	11.8	2.4
Cypress tree	Frequency	37	45	-	3
	Percentage	43.5	52.9	-	3.5
Star	Frequency	20	61	2	2
	Percentage	23.5	71.8	2.4	2.4
Swastika	Frequency	13	67	-	5
	Percentage	15.3	78.8	-	5.9
Purnakalasa	Frequency	15	69	-	1
	Percentage	17.6	81.2	-	1.2
Lotus	Frequency	20	61	2	2
	Percentage	23.5	71.8	2.4	2.4
Satkona	Frequency	28	55	-	2
	Percentage	32.9	64.7	-	2.4
Fruits- pomegranate, grapes	Frequency	35	49	-	1
	Percentage	41.2	57.6	-	1.2
Chinese cloud	Frequency	27	51	-	7
	Percentage	31.8	60.0	-	8.2

From the table it is evident that 84.7% respondents felt geometrical designs were used for decorative purposes whereas 61.2% opted arabesques and 54.1% opted floral. At the same time, majority of the respondents considered inlay designs to be in the category of symbolic purpose as well. The bird–swan (72.9%), wine vessels (74.1%), fabulous animal (61.2%), *purnakalasa* (81.2%), lotus (71.8%), *swastika* (78.8%), star (71.8%), calligraphy (68.2%), *satkona* (64.7%), Chinese cloud (60.0%), fruits– pomegranate, grapes (57.6%), and cypress tree (52.9%) were symbolically used in the Mughal monuments of Agra.

Table 2.9 Symbolic inlay designs used by Mughal emperors

Symbolic Inlay Design Element	Mughal emperor		
	Akbar	Jahangir	Shah Jahan
Bird Swan/ Duck	√	√	-
Wine Vessels	-	√	-
Calligraphy	-	√	√
Fabulous Animal	√	-	-
Cypress tree	-	√	-
Star	√	√	√
Swastika	√	-	-
Purnakalasa	-	-	√
Lotus	√	√	√
Satkona	√	√	√
Fruits-Pomegrate, grapes	-	√	-
Chinese cloud	-	√	√

All these design elements have symbolic meaning and convey a message to the viewer. According to the present author's personal experience, the symbolic designs were much preferred in inlay in the Jahangir's buildings followed by the buildings of Akbar and Shah Jahan (Table 2.9). The buildings of

Jahangir were considered as transition phase in inlay and many new designs were introduced in this art. Akbar's buildings have a few varieties of inlay designs as his period was the beginning of inlay art. However, Akbar's buildings have maximum symbolic designs in other decorative arts, i.e. carving and relief work. Inlay art reached at its peak in Shah Jahan's period. In his buildings, symbolic designs were depicted as well but not to the extent of that observed in the period of Akbar and Jahangir. He believed in aesthetic value and ornamental character of designs instead of symbolic values. So it can be said that the inlay design elements were mostly used symbolically during the Mughal era. Besides, inlay designs symbolize various cultural activities and rulers' interest.

Overall, the aim and purpose of inlay art in the Mughal architecture was to convey ideas through symbols and motifs that were used in the form of decorative art. Since there was no effective source or media to reflect feelings, messages and lessons of the Mughal dynasty, the art was considered as the best means for expressing their appreciation.

3.4.2 Inferences from survey results

The study highlighted the purpose of using design elements, both individually as well as in fusion. Every inlay design in the Mughal monuments convey the feelings and messages of the creator as discussed in Table 2.10. Through the survey, responses of each respondent were recorded and summarized into varied inferences they drew from different inlay designs (Table 2.10). It is interesting to note that the respondents have found all possible inference and impact of design element that were similar to that of viewers. It indicates that every design applied on each monument has great importance and meaning as it emanates some impression and idea, thereby enhancing the value of the design and its charm in architecture. Every monument tells a story of that period and without these designs in the monuments, it is very difficult to appreciate and recognize the culture of that time. Monuments without a design can be tedious and lifeless.

Table 2.10 Inferences of inlay design elements (based on survey results)

S.No	Inlay Designs	Inferences
1.	Floral Design	Welcoming effect, life, decorative, prosperity, love for nature, decoration, to soften the masses, happiness and joy, freshness, folk element, beauty, foliage, aesthetic, growth, sophisticated workmanship, pleasure, blooming, environment, flourishing, affluent, over-elaborate, delighted, vegetative
2.	Geometrical	Decorative, relaxed, warm, symmetry, harmony, inspiration of perfection, to join other element, educative, numerical, symbol of exactness or the cosmic directions, rhythm, Persian art, progress, focus, exact, precise, influential, accurate, specific, movement, unity in different shapes, shapes play, play of lines, break monotony, lifeless
3.	Arabesques	Welcome, celebrations, joy, nature, life, surface decoration, soothing, calming, yielding, relaxing, mythological, deviations, religion, tender, rhythm, quality of shine, to dominate Indian symbols, gentle, hospitable, cheering, springy, symbolic, universal, expressiveness
4.	Calligraphy	Persian Art, mode of communication, heaven, Arabic and Persian scripts, memorandum, verification, testimony, to keep a record, devotion, facts, religious value, specifics, meaning fullness, decorative art, engrave messages, evidence, significance, information, data, Quran's messages, announcement, religious wordings, prayer for the God, inherent meaning in words
5.	Bird- Swan/ Hamsa	Intimacy, flight, prosperity, happiness, flamboyance, life, coolness, freedom, nature, soul of the mass, flight or movement & its white colour for peace, <i>udaan</i> , nature, the symbol of love, flora and fauna, conquer the sky, companions, consent, independence, peace, decoration, living, sovereignty, existing, liberty, environment, eroticism
6.	Wine Vessels	Joy, celebration, Persian motifs, leisure, power, infrastructure, luxury, royalty, sorrow, <i>shringar</i> rasa, happiness, heaven, delight, enjoyment, pleasure, <i>masti</i> , empirical, enjoyment, joyfulness, just a status symbol
7.	Fabulous Animal	Fear, show power, nature, victory, liveliness, anger, pride, joy, mood, <i>bhayanak</i> , symbol of strength, overconfidence, fauna, proud, strongest, royalty, sovereignty, aggressiveness, hostile, pompous, arrogant, violent, Indian culture
8.	Star	Sparkling effect, movement, Muslim symbol, astronomy, heaven, twinkling, fate, shining, nature, <i>rajsahi</i> , universal, astronomy and indicating position
9.	Swastika	Movement, Hindu symbol, tolerance, auspicious for good luck (<i>shubh</i>), protect from evil, equality of society, holiness, Four sided movement, progress, religious ideology (Hindu), content, pleased, central part, dominant, blessing, symbol of goodness, fortune

Table 2.10 contd/--

10	<i>Purnakalasa</i>	Prosperity, healthiness, tradition, equality of society, money, <i>shubh</i> , educative symbol, spiritual, wealthy, plenty, spiritual, wealth, satisfied, booming, well-off, value, content, prosperous, fulfilled, profusion, delighted, and life, symbolic, adoration of 'Annapurna'.
11	Cypress tree	Persian motifs, sadness, death, cool mind, nature, universal, used in ayurvedic medicine, aesthetic, relaxation, shades, freshness, greenery, delight, panorama, geography, demise, pleasure, gladness, enjoyment, heaven, foliage, strength
12	Fruits- Pomegranate, grapes	Royalty, happiness, Persian motifs, richness, exotic, entertainment, royal, <i>rajshahi</i> , decorative, offer, <i>shringar rasa</i> , colour and taste, celebration, gladness, good cheer, full of life, pleasure, delight, alien, outlandish, majestic, imperial, contentment, produce, symbol of attraction, lure, or sex
13	<i>Satkona</i>	Shiva- <i>Shakti</i> , unity, Hindu symbol, energy symbol, symmetry, movement, to store energy, tightness, educative, decorative, for things going in the right direction, religious ideology, exacting, triumphant, balance, content, glory, union, intermingle, draw together, intermix, join up, amalgamation, combination, blend, fuse, balance
14	Chinese cloud	Rhythm, movement, in China it is the vehicle of the Gods, believes and nature, God's message, rational, aesthetics, relation between god and soul, Chinese art, symbolic, cultural, fear, strangeness, pride, progress, growth

3.5 CONCLUSIONS

The Mughal phase of the Indo-Islamic style, between 16th and 18th century, utilized Islamic and Hindu designs and luxurious raw materials to a highest degree in developing the inlay art. This art devoted much attention to inlay motifs as a source to identify ruler's personality, taste, and socio-cultural influence. For example, the religious and secular quality of Akbar were visualized through motifs depicted in his regime. Jahangir's love for nature and his drinking habit were also reflected in his monuments, and was inspired by the Persian art

and Persian influence. Shah Jahan was inspired by the Persian and Islamic designs as evident from the floral decoration and calligraphy,. The present study also found that Indian artisans were interested in Indian motifs, and can be seen particularly in the Taj Mahal.

The study highlights that the Mughals did not pay much attention to figurative work although there were depiction of birds, animals and human figures for the ornamentation of the buildings. Instead, their prominence was on geometrical, calligraphy, floral and auspicious designs. In inlay, a human figure was absent and birds and animals were seen only in the period of Akbar and Jahangir. However, the portrayal of birds, animals and a human figure in inlay were absent in the monuments of Shah Jahan. The Hindu auspicious design elements were mixed with other designs. In the Akbar's buildings, for example, the uses of geometrical designs were in a large number, while arabesques were very less. Ancient Hindu motifs such as sun and *satkona* were applied for its auspicious character. The arabesque, stylized flowers, abstract forms, geometrical patterns and medallions were used only for decorative purpose. Presence of a variety of inlay designs were limited during the period of Akbar.

Jahangir era was known for the development of inlay art with a wider variety of motifs. They ranged from *swastika*, *satkona* and lotus to Iranian or Persian motifs like vases, wine vessels, floral, fruits, cypress, birds, arabesques and geometrical motifs. The motifs *swastika* and *satkona* (Hindu auspicious motifs) were only applied in his father's tomb, suggesting the respect he had for his father's taste and interests and not of Jahangir's own interest. The present study found a *shanku* motif as a part of geometrical pattern at the Akbar's tomb. At the tomb of Itmad-ud-Daulah, there were Persian or Iranian motifs and Chinese cloud forms but lacks Hindu auspicious motifs. Maximum geometrical patterns were found in the tomb of Itmad-ud-Daulah. Later, the geometrical designs in inlay disappeared and only *chevron* pattern was used in Shah Jahan buildings. During Shah Jahan's regime, a full range of natural and realistic flowers like hibiscus, lily, lotus, rose and poppy flowers as well as stylized flowers

and conventionalized designs in the border were depicted so profusely. The geometrical designs gave a rhythmic effect to a viewer. A variety of arabesque designs with stylized floral designs and leaves were presented in his buildings. Interestingly, a modified version of *burnakalasa* and *gavaksa* were noticed in the buildings of Shah Jahan, implying the inlay craftsmen's interest in these particular designs. The study also highlights that the maximum inlay artisans were Hindus.

An attempt was made by Akbar to bring a cultural fusion through art and architecture. Akbar's period showed the first evidence of the usage of Hindu symbols in his architecture. Many ancient symbols and icons, both in their original form as well as in modified form, were used as decorative motifs. The Mughals included motifs and icons of Hindu mythology- *swastika*, *satkona*, *burnakalasa*, *gavaksa*, *sun*, and lotus. In the Taj Mahal, the Hindu motifs- *gavaksa* and *burnakalasa* were recognized but in a modified form. *Burnakalasa* was also depicted in carvings in Shah Jahan's buildings. The arabesques have some motifs similar to *burnakalasa*, and another motif, resembling *gavaksa*, was also found on the prominent places such as the tower, dome and upper boundary walls of the Taj Mahal and Agra Red Fort. The survey result reveals that the identified design was very close to *burnakalasa*, and most probably it is *burnakalasa*. The artisan might have utilized these ancient motifs more as an architectural element for aesthetic effect than for its symbolic representation. It was concluded that these inlay designs observed resemble *burnakalasa*, *gavaksa*, *shanku* and lotus designs.

There was no doubt that the inlay motifs of the Mughal architecture received great motivation from the contemporary art of paintings, textiles designs and other decorative arts as well as from the Indian art and architecture., thereby demonstrating elegance and grace. The typical Islamic elements such as arabesque, stalactite, geometrical and calligraphy were a constant presence in their architecture. The impact of Islamic art, along with Hindu symbols, Persian motifs and Chinese forms, was evident from the craftsmanship of indigenous

artisans. In a majority, the Mughal architecture represented both Muslim and Hindu artistic traditions. This fusion helped in bringing a cultural harmony in art and architecture. Traditional Indian tastes and influences played an important role in shaping the most vibrant monuments commissioned by the Mughal rulers. Therefore, it would be incorrect to consider India's Mughal inlay art as a totally foreign implant as argued by a few art historians.

Based on the survey conducted, the purpose of designs was considered as both symbolic as well as decorative. The Mughal emperors and inlay artists were inspired by different design elements, and therefore placed them according to the demand of design, influence of other arts, location and surface characteristics at the specific monuments. The geometrical, arabesques, and floral designs were used for decorative purpose. At the same time, majority of the designs were in the category of symbolic purpose as well, and conveyed a message (e.g. flower represents love and happiness) to viewers. The symbolic inlay designs were much preferred in Jahangir buildings, followed by the buildings of Akbar and Shah Jahan. The inferences from these designs suggested that designs applied on a specific monument conveyed immense importance reflecting an impression and idea embedded in a particular Mughal era.

ANALYSIS OF MUGHAL INLAY DESIGNS ACCORDING TO DESIGN FUNDAMENTALS, AESTHETIC PHILOSOPHY, AND THEIR PLACEMENT AT THE MONUMENT

4.1 BACKGROUND

In the previous chapter, I have dealt with the application of inlay designs and design elements, their conditioning factors, purpose and inferences. Different Mughal emperors and inlay artisans were inspired by different designs and design elements, according to personal, social, historical and geometrical factors. The availability of space and material also played a vital role in this regard. The Sanskrit term for ornament or decoration used by generations of Indian aestheticians is *alankara* like *upama* (simile) and *rupaka* (metaphor), which broadly include poetry, drama, music, philosophy and visual arts. Commonly, the term *alankara* would simply relate to beautification, ornamentation, and enhancement of grace and beauty. The ideology of ornamentation encompasses Indian creative psychology, manifesting itself in art, architecture, sculpture and decorative arts. According to Havell (1913, 4), "All Arab designs, whether in architecture, in the forms of domestic utensils, or in surface decoration, were distinguished by this feeling for pure outline and colour, rather than by a plastic treatment of surfaces or the massing of forms for contrast of light and shade in which the Hindu architectural genius especially asserted itself." Inlay decoration in the Mughal monuments does not only serve to please the eyes of the beholder but also fulfil an auspicious purpose. Thus, the impulse to adorn stems from a deep-rooted sensibility with auspicious symbols, designs and motifs has the purpose to obtain good fortune and protection from evil.

"Art is the creative expression of the fundamental values of a culture and should be viewed as one continuous process in the stream of time" (Munshi, 1956, 41). If the Mughal inlay art is viewed in this way, it would not be difficult to

learn the direction of the aesthetic urge, as it is bodied forth from time to time. Some questions arise related to inlay designs: What were the elements that designers included in designs, which attract the viewers by their beauty after more than three hundred years? Were they considered art fundamentals, colour symbolism, and aesthetic philosophy? To find out the answers to these questions, in the present chapter, inlay designs and their elements are critically visualized with respect to the design fundamentals, colour symbolism, and aesthetic pleasure in inlay designs applied on the selected monuments. This section of the study is also concerned with the appropriate placement of different designs and aspect of visual ergonomics with regard to good visualizing conditions.

4.2 DESIGN FUNDAMENTAL IDEOLOGY

This section highlights balance, point of emphasis or dominance, unity, contrast, visual movement, rhythm, harmony or gradation, repetition, and variety within designs. The above-mentioned design fundamentals represent the basic assumptions of design and deal with the arrangements of elements in any given space or surface. The artist or artisan should always consider these fundamentals for the best design possible. On the basis of the design fundamentals, the designs of inlay art in the selected monuments of Agra are studied and visually analyzed. The artisans consider each of the following fundamentals carefully as discussed below:

4.2.1 Balance

Balance is the distribution of the visual weight of motifs, colours, texture and space. It helps to keep design like a pattern. Visually, balance is the state of distribution in which everything has come to a standstill. The designs, as seen in the monuments, can be classified into symmetrical and asymmetrical balance. Factors such as shape, direction, and location are mutually determined by each

other in such a way that no change seems to be possible, and the whole design assumes the character of necessity.

4.2.1.1 Symmetrical balance

In symmetrical balance, the elements used on one side of the design are similar to those on the other side. The prominent examples of symmetrical balance, which are depicted in the monuments of Agra, are geometrical patterns, arabesques designs, border designs, etc. A balanced design provides a feeling of stability. There are numerous examples of symmetrical designs in inlay at the Mughal monuments of Agra. The artists preferred to apply symmetrical balance in the majority of designs, as shown in figures 3.1 and 3.2.



Fig. 3.1



Fig. 3.2

Fig. 3.1 Symmetrical balance at the minerate of tomb of Itmad-Ud-Daulah

Fig. 3.2 Symmetrical balance at Diwan-I-Am, Agra Red Fort

4.2.1.2 Asymmetrical balance

In asymmetrical balance, both sides are different in terms of design element but whole design still looks balanced. It is interesting to note that the individual design element does not give a balanced shape, as one side has much weight than the other. The same was noticed mainly in the flower plant decoration at the tomb of Itmad-ud-Daulah (Fig. 2.27-c). The whole design is an example of symmetrical balance (Fig. 3.3) whereas the single design element (Fig. 3.4) is an example of asymmetrical design. The whole panel became balanced with the same design element depicted on its opposite side.



Fig. 3.3



Fig. 3.4

Fig. 3.3 and 3.4 Asymmetrical balance in inlay designs at the tomb of Itmad-Ud-Daulah

4.2.2 Visual Movement

Visual movement is the suggestion or illusion of motion in a design, and is evident in the designs of the tomb of Itmad-ud-Daulah, Agra Red Fort, and in Akbar's tomb. Figures 2.59, 2.60, 2.72, 2.73 and 2.74 demonstrate the dynamic movement that flows smoothly within a design. The creepers, geometrical and arabesque designs show the flow and expansion of the design elements. The figure 3.5 shows the visual movement in geometrical, creeper and border inlay designs at the tomb of Itmad-ud-Daulah. The typical example of Chinese cloud band at the tomb of Itmad-ud-Daulah, though not in a dominating position, gives movement to the design (Fig. 3.3).



Fig. 3.5 Visual movements in geometrical, creeper and border inlay designs at the tomb of Itmad-Ud-Daulah

4.2.3 Harmony

Harmony increases the emotional strength with rhythm, colour, and size. Inlay designs in the Mughal monuments provide harmony, as the elements such as line, shape, size, value, colour, space and texture were in an ideal proportion that creates a balance in the entire decorative composition and gives a melodious effect. Harmony can be classified into three categories:

4.2.3.1 Harmony with line

Harmony with lines always provides a rhythmic effect to the design depicted to the space. In the figures 1.8, 1.9, 2.29 and 3.6, the arabesque designs with rhythmic lines create harmony. Similarly the borders, arabesques at pillars (Fig. 2.30), and the geometrical designs (Fig. 1.2), the harmony of line, colour and shapes add aesthetic beauty to the design, and enhance overall grace of the monument.



Fig. 3.6 Arabesque design at the Taj Mahal

4.2.3.2 Harmony of form

In the Mughal monuments, harmony of primary and secondary design elements is evident. The figure 3.7 indicates that the primary design (geometrical design) is dominating, whereas the border designs are secondary. The different types of designs (geometrical and floral) were kept together and provide harmony, beauty to shapes and forms (Fig. 3.8). Through visual assessment, it

was observed that the primary design elements are bolder in size and gain more attention than secondary design elements. It can be stated that the artisans used primary and secondary design elements artistically, in such a manner that one cannot ignore any design element form being viewed and its purpose is to add beauty to the form and shape.



Fig. 3.7

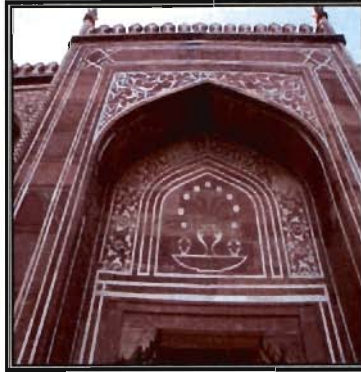


Fig. 3.8

Fig. 3.7 Geometrical and creeper designs at the tomb of Itmad-ud-Daulah

Fig. 3.8 Harmony in forms at the tomb of Itmad-ud-Daulah

4.2.3.3 Harmony of Concept

The concept was very clear to the craftsmen and they mixed one design with other one successfully. The southern gateway of Akbar's tomb shows the harmony of concept. Artisans used mostly geometrical designs in different blocks and applied an auspicious element, *swastika*, which contains a geometrical pattern representing a harmony of concept (Fig. 3.10). If craftsmen use the *purnakalasa* or figure instead of *swastika*, it will become an example of emphasis. The same effect can also be seen in the designs of flower vases, drinking vessels, cups and dishes (as shown in Fig. 3.9) at the eastern gateway of the tomb of Itmad-ud-Daulah. All these designs are considered members of the same family and enhance the beauty of the full wall panel of the monument.



Fig. 3.9

Fig. 3.9 Harmony in flower vases and wine vessels at the tomb of Itmad-ud-Daulah



Fig. 3.10

Fig. 3.10 Harmony in geometrical designs at the Akbar's tomb

4.2.4 Dominance / Emphasis

Emphasis is a visual weight in the composition, which catches attention. In inlay design, artisans' emphasis was on a particular area within a design so that it can be easily noticed as compared to other parts of the design. The examples of emphasis in a design can be seen on the arches of gateways, pillars, domes, and dadoes of the Mughal monuments. These designs catch the viewer's attention. In the figure 3.11, plant design on the panel captures the viewer's attention because of its dominating colours, boldness of design, and negative space within the panel. The figure 3.12 shows an example of dominant, sub-dominant, and subordinate designs. Big and bold white lotus motif on yellow surface at both side of the gateway (upper part) is the dominant part. The centre column is the sub-dominant part of the gateway, decorated with three large *satkonas*. The lower part, the main gateway has comparatively small lotus and is the subordinate part. The composition shows how much conscious artisans were of fundamentals of art. The figure 3.13 shows the lotus bud motif in the centre of the gateway arch, and is found to be dominating, because it catches the maximum attention. The *purnakalasa* depicted on the both sides of the

arabesque design is the sub-dominant design, whereas twigs, flowers and leaves from the *purnakalasa* are the subordinate designs. Artisans took into consideration the arrangements of a design such as qualities of the forms, shapes, lines, colours and textures.



Fig. 3.11

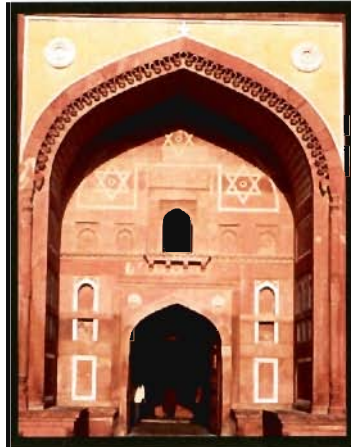


Fig. 3.12

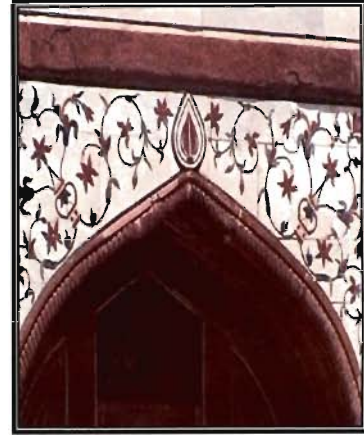


Fig. 3.13

Fig. 3.11 Flower plant dominating at the Muthamman Burj (Agra Red Fort)

Fig. 3.12 Lotus and *satkona* designs at the gateways of Jahangiri Mahal (Agra Red Fort)

Fig. 3.13 Lotus, *purnakalasa* and twigs at the Taj Mahal

4.2.5 Unity

The avoiding of confusion is called unity (Pepper, 1949, 50). It is a type of design panel and all design elements that create a sense of completeness. Unity helps the design to be seen as one entity instead of randomness all around it. Unity can be classified as unity in static and dynamic, style, and theme.

4.2.5.1 Unity in static and dynamic design

Static unity in the monuments of Agra can be found in the regular geometrical design elements whereas dynamic unity is seen in the plants, floral, animal and bird designs. The former are passive and inert in nature, while the latter are active, living and growing in nature. The static unity can be seen at the

Buland Darwaza, Akbar's tomb and the tomb of Itmad-ud-Daulah, and the dynamic unity is found abundantly at the Taj Mahal, Agra Red Fort, and tomb of Itmad-ud-Daulah . The figure 3.14 is an example of static unity while figure 3.15 is an example of dynamic unity. The craftsmen very skillfully handled the elements of design and presented a beautiful composition.



Fig. 3.14



Fig. 3.15

Fig. 3.14 Static unity at tomb of the Itmad-ud-Daulah

Fig. 3.15 Dynamic unity at the Diwan-I-Am, Agra Red Fort

4.2.5.2 Unity in style

The figure 3.9, 3.10, 3.14 and 3.15 demonstrate the unity in style with artisans inlaid the design remarkably well, and adopted the same technique and colour scheme at full design panel. The technique of inlay work was different in period of Akbar, Jahangir and Shah Jahan. This technique had developed gradually and carefully, which can be clearly visible in their monuments, and reached its zenith in the period of Shah Jahan (as discussed in Chapter 1).

4.2.5.3 Unity in theme

Every design element or motif has some meaning and purpose to convey the ideas through the language of symbols. Design elements can help to develop and express the major themes. The theme of designs can be decorative or symbolic. When there are only geometrical designs, it becomes decorative in purpose, and when artisans use the symbolic or auspicious motifs in the

complete design, it represents some particular idea. The logic behind the depiction of design elements in a particular surface is to provide the unity to the design. In the tomb of Itmad-ud-Daulah, the vases, vessels, dishes, cups and dishes with fruits represent the unity of design elements and express it with sincerity (Fig. 3.16). The geometrical designs applied with the combination of *swastika* create harmony and unity to the shape (Fig. 3.10). In the same manner, auspicious motif *burnakalasa* in the floral design was placed to generate rhythm and unity in shapes (Fig. 3.13).



Fig. 3.16 Unity in theme at the tomb of Itmad-ud-Daulah

4.2.5.4 Unity in variety

The avoiding of monotony is often called variety (Pepper, 1949, 50). In a design, if variety is introduced in excess, it results in confusion. On the other hand, unity leads to monotony. A judicious choice is essential for a successful work of art. Further, it is essential that the design should cooperate with one another. Unity in variety is used in the design of the monuments to avoid both monotony and confusion (Figures. 3.7, 3.14 and 3.15). It is noteworthy that the repetition of designs and the variety of designs result in unity in variety (Figures 3.15 and 3.16). At the Taj Mahal, flowers, flower plants, calligraphy and arabesque designs depicted around the cenotaphs of Mumtaz and Shah Jahan present the best examples of unity in a variety of designs (Fig. 3.17). Generally, the repetitions of a single design may create monotony, and might not attract the viewers.



Fig. 3.17 Varieties of design depicted in the inner chamber of Taj Mahal

4.2.5.5 Unity in colour

There is a great symphony in colours and schemes found in different monuments of Agra. Red sandstone, white marble and black stone has been used in Buland Darwaza (Fatehpur Sikiri) and Jahangiri Mahal (Agra Red Fort). At the Akbar's tomb– red, white, black, grey, yellow, and brown stones were used in a harmonious combination. In the tomb of Itmad-ud-Daulah, red and white colour scheme can be seen at the entrance. Besides, yellow (light to dark shades), brown (light to dark shades), grey and black colour scheme on the white base can be noticed outside the main building. This colour scheme was the turning point in presenting and adding sober diverse colour schemes. A revolution in colour schemes can be seen in Agra Red Fort (Figures 3.18 and 3.32) and in the Taj Mahal (Figures 3.19, 3.33 and 3.34). In flora, polychromatic (Figures 3.18 and 3.32) and natural (Figures 3.19 and 3.33) colour schemes are depicted beautifully.



Fig. 3.18



Fig. 3.19

Fig. 3.18 Polychromatic colour scheme at the Agra Red Fort

Fig. 3.19 Colours applied in flower at the Taj Mahal

4.2.6 Contrast / Variety

According to Pepper (1949, 50), if an area of colour seems to be monotonous, it should be broken into different contrasts of colour. This approach shows the difference in two different sections of the design or demonstrates that the designs being created are very different from other designs because of their contrast. The contrast is used to generate emphasis on any part of the design. It is the most striking principle of design, and gives the quickest relief to the tendency of monotony. The figures 3.11, 3.12, 3.16 and 3.20 are good examples of the contrast in designs. The several elements of a design are used to hold the viewer's attention and guide the viewer's eye through the design surface. The variety in designs has the capacity to gain the spectator's interest.



Fig. 3.20 Calligraphy and arabesque design at the Taj Mahal

4.2.7 Repetition

The repetition of design elements creates unity within the design. Interestingly, the repetition of design elements makes the impression of artwork active. This phenomenon is very common in the Mughal monuments of Agra. At the Buland Darwaza, full repetition of geometrical design creates rhythm as shown in the figure 3.21, and at the same time, it can also add to monotony. The designs are reciprocal in repetition and interchanging of sequence (Fig. 3.22). Exact repetition of two units of stylized floral designs indicates a strong, clear, integrated and emphatic effect, as it is evident on the dome of Taj Mahal. Repetition enhances the harmony in overall composition and it also avoids monotony. Stylized patterns and well-proportioned designs are also seen at the Taj Mahal; it is an indication of divine harmony and peace. This idea may have inspired the balance and harmonious designs that ornament the Taj Mahal. Dalu Jones (1978, 163) expresses his views for such adaptations as the limitless rhythmical alternations in the monuments conveyed by reciprocal repetition of curved lines, producing a design free from tension.



Fig. 3.21

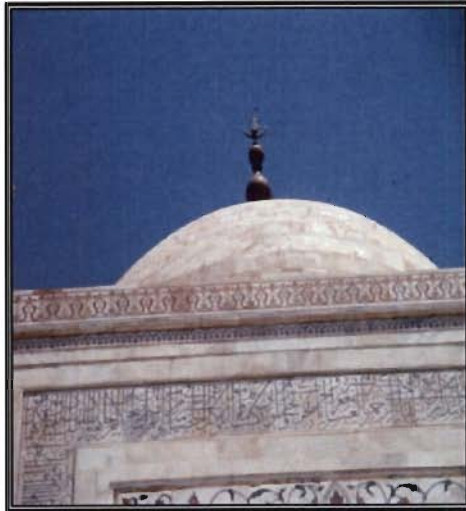


Fig. 3.22

Fig. 3.21 Repetition of geometrical designs at the Buland Darwaza

Fig. 3.22 Repetition of different designs at the Taj Mahal

4.2.8 Rhythm

Rhythm is created when one or more elements of design repeat to create a feeling of organized movement. Variety is essential to keep rhythm exciting and active, and to move the viewer around the design. It is noticed mainly in arabesque and border designs, which have rhythm in form and lines. (Figures 2.27-c, 3.6, 3.13 and 3.23) The figure 3.24-b shows that the design has a 'beat' or 'flow' within. The floral designs are expressing beauty through their metrical flow of lines and colours in figure 3.18.



Fig. 3.23

Fig. 3.24-a

Fig. 3.24-b

Fig. 3.23 Rhythmic flow of forms at the Agra Red Fort

Fig. 3.24 (a) and (b) Rhythmic flow of lines at the Agra Red Fort

4.2.9 Colour

"Colours, like features, follow the changes of the emotions." --Pablo Picasso (Patrick, 1955, 97)

Colour schemes in inlay design of the Mughal monuments are used to create style, appeal, and an aesthetic feeling. This is the most important feature in the Mughal inlay art, and is evident in the monuments of Agra. A variety of colour stones were used, based on their functionalism, symbolism, and psychology of colours.

4.2.9.1 Colour scheme in the Mughal monuments of Agra

i) Value-tints and shades

The lightness or darkness of a colour is called its value. We can find the values of a colour by making its tint and shades. Tints are light values formed by mixing a colour with white. Shades are dark values obtained by mixing a colour with black. The figures 3.25, 2.72, 3.14 and 3.16 have tint of yellow, brown and black, and shades of gray and brown. Similar kind of tint and shades were found in the Muthamman Burj, Agra Red Fort (Figures 3.23 and 2.73).



Fig. 3.25 Tint and shades of colour scheme on the tomb of Itmad-ud-Daulah

ii) Complementary colours

Complementary colours are opposite to each other on the colour wheel, and look lively when used together. They give variety, attention and contrast to the design. Red and green are examples of complementary colour in Diwan-I-Am (Agra Red Fort) and Taj Mahal (Figures 2.55 and 2.57). In figure 3.26, the red colour of flowers really stands out with the green stems and leaves. It means that when complementary colours are put together, each colour looks more noticeable and appealing. In this scheme, it is important to choose a dominant colour, and use the same with its complementary colour for accent. The complementary colour scheme offers stronger contrast than any other colour scheme, and draws maximum

attention. It reveals that designers were aware of the importance of this scheme.



Fig. 3.26 Complementary colour scheme at Agra Red Fort

iii) **Monochromatic colour scheme**

This colour scheme uses variations in lightness and saturation of a single colour. Monochromatic colours go well together, producing a soothing effect because the primary colours integrated with neutral colours (black, white, and gray). Neutral colours with primary colours are easy to manage, and always look balanced and visually appealing. This colour scheme is found at the entrance gateways of the selected Mughal monuments where the varieties of red sandstone, white marble and black stones are applied. This scheme looks clean and elegant as showed in figures 3.27 and 2.51. Monochromatic colour scheme is used to establish an overall mood. The perfect example of monochromatic scheme can be seen at the Akbar's tomb (Fig 3.27), although it is not as vibrant as the complementary scheme



Fig. 3.27 Monochromatic colour scheme at the Akbar's tomb

iv) Neutral colours

Neutral colours do not usually appear on the colour wheel. Neutral colours include black, white and grey (Wyller, 1992, 203). The neutral colours are often called 'Earth tones'. In the Buland Darwaza (Fatehpur Sikiri) and at the entrance gateways of Akbar's tomb, the application of many neutral colour schemes can be evident. We can see a few glimpses of red, white, black, grey, brown, and yellow colours in these monuments. Nevertheless, the overall effect is of natural brown and gray colours, like those we see in rocks, sand, and clay. In the Taj Mahal, a combination of three types of motifs— calligraphy, floral and geometric, creates a decorative scheme that is an earthly representation of the heavenly paradise. The use of a white background with black text (calligraphy) is an example of a basic and commonly default colour scheme in inlay (Fig 3.28).



Fig. 3.28 Neutral colour scheme at the Akbar's tomb

v) Analogous colour scheme

Analogous colours come next to each other in the colour wheel. They tend to look pleasant together because they are closely related. Orange, yellow-orange, and yellow colours are examples of analogous colour scheme. They have been unified nicely at the tomb of Itmad-ud-Daulah (Figures 2.72, 2.74, 3.14 and 3.16) and Muthamman Burj (Agra Red Fort) (Figures 2.73 and 3.23). These colours are closely related to each other, and each of them contains

certain percentage of yellow pigment. Artisans had applied one dominant colour and the colour close to it to enrich the scheme.

4.2.9.2 Psychology and functionality of colour in inlay designs

"Of all God's gifts to the sighted man, colour is the holiest, the most divine, the most solemn." – John Ruskin (<http://en.proverbia.net/citastema.asp?tematica=202>)

Colour psychology is the study of the effect that colours have on human behavior, particularly the natural instinctive feelings that each colour evokes. Colour preference is subjective; however, colour psychology reveals how each colour creates an emotional, mental and physical response collectively in the people as a whole. For example, red colour will create feelings of warmth, movement, ambition, determination, and sometimes anger. Colours often have different meanings in different cultures. For example, in South Asian culture, it is common that a bride wears red dress. In Islam religion, it is preferred to wear black dress on this occasion (Christa, http://www.ehow.com/facts_5202784_symbolic-meanng-black-wedding-dress.html). In Western culture- a bride traditionally wears white dress on the occasion of marriage (Ralph, 1967, 175). In Indian culture, red, yellow, green and white are considered as auspicious colours. In auspicious designs, the designers prefer these colours.

Colour has always been an important element as it is associated with mood and feeling. In the Mughal architecture, the designs were taken from life and nature. They were lifted with an element of idealism and have direct imitation. Red is considered to be the best colour, if the purpose is to draw attention. It may be the reason that the Mughals used red sandstone in almost every monument at the entrance gateways, which catches full attention of the viewers. It is interesting to note that the main building of the Taj Mahal and the tomb of Itmad-ud-Daulah are of white marble, but their entrances are in red sandstone. It indicates the functionality and the symbolism of red colour. No

doubt, at that time, the availability of red sandstone in this particular area was in abundance. Red and its shades are also used as a symbol of love, and is visible in the flowers inlaid in the Taj Mahal and Diwan-I-Am, Agra Red Fort (Figures 2.19, 2.20, 2.21 and 2.22). Colour from hot reds to pale pinks were found in many flowers, applied at the Taj Mahal, and suggested the feeling of Shah Jahan's love for his wife, Mumtaz. This colour is also used as the sign of determination and attention to the viewers because the colour red stands out against the background of white. The Buland Darwaza (Fatehpur Sikri) in red sandstone indicates the power and victory of Akbar (Fig. 3.21). Presently, red colour is being used in traffic signs because it attracts the attention, and is the most visible colour in daylight.

Black and white colour stones inlaid in red sandstone (as shown in the figures 3.9, 3.10 and 3.21) indicate the importance of white and black colours on red. The design applied on the red base, gains more attention and thinking process of the viewers. For example, *swastika*, sun and *satkona*s inlaid in white colour represent the purity of the design elements and gain the concentration (Figures 2.41, 2.42, 2.45-c and 2.61). These designs are the symbols of purification, spirituality, hope, protection, purity, simplicity, peace, and blessings. It is also the colour of wealth, beauty, and of the goddess Lakshmi in the Indian context (Feisner, 2006, 127). The cenotaphs in Akbar's tomb, tomb of Itmad-ud-Daulah and Taj Mahal are in white marble, and indicate spirituality and peace.

The first influence of the design on the beholder is to give direct sensuous pleasure, through the beauty of the motif or design elements. The figure 2.29 expresses it's the functionality of colour with colourful floral design elements on a white surface. Even the delicate stems are clearly visible. Here, red, green and yellow colours are used in the modified version of *purnakalasa* motif. The aesthetic satisfaction in the harmony of colour, idea and auspicious expression can be seen in the whole composition of the work. Generally, in Indian context the auspicious designs are presented in auspicious colours. Conversely, at the main gateway of Akbar's tomb (Figures 2.45-b and 3.27), the bold *swastikas* in

black and white coloured stones on red base are used. It is an exception in the Mughal monuments where *swastika* is available in black colour. It may be because the black colour is auspicious in Islam religion, and black stands for royalty and power. In the Mughal monuments, *swastika*, star, lotus and *satkona* exist in white colour on red base. White colour stands for purity, honour, and integrity.

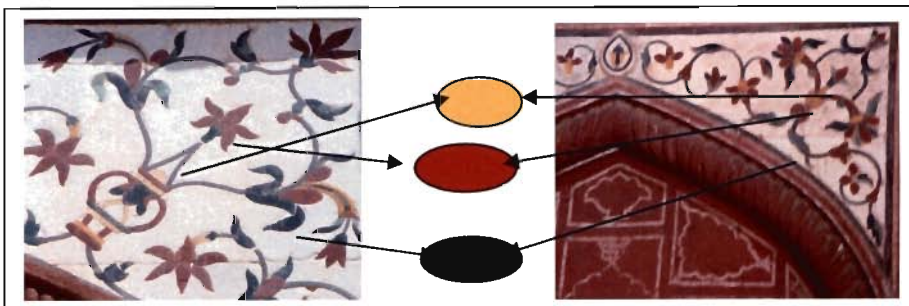


Fig. 3.29 Red, green and yellow colours used at the Taj Mahal

Besides the sensuous and aesthetic pleasure in the beauty of colour and light, the analogous colour scheme was used at the tomb of Itmad-ud- Daulah (Figures 3.14 and 3.16) and Maussarm Burj, Agra Red Fort (Fig. 3.15). It imparts a soothing effect through colour scheme. The Mughals had used a variety of designs in full composition with unity in colour scheme that enhances the comforting and relaxing atmosphere. Otherwise, so many designs can create exasperating results. In the tomb of Itmad-ud-Daulah, the depiction of wine vessels, vases, dishes and fruits are found in a cheerful mood as they depict atmosphere of joy and celebration (Fig. 2.35). On the other hand, wine vessels, vases and dishes on red base, marble with white outline at the sidewalls of the main gateway- do not seem to provide a welcoming and joyful feeling, as the designs on the main building (Fig. 3.9). However, it attracts attention of a viewer, while black colour inlaid on red base does not catch attention as compared to white on red.

The other scheme used is combination of black and white. Such designs represent on and off in the geometrical patterns at the Akbar's tomb gateway and

at the tomb of Itmad-ud-Daulah (Figures 2.15, 2.16 and 2.17). The black and the white colours give monotonous effect. Calligraphy was mostly inlaid with black on white marble base in the Taj Mahal and at the Agra Red Fort (Figures 2.16 and 2.17).

Calligraphy is a part of the holy Qur'an's phrases, for devotees it is a matter of concentration and meditation. The calligraphy that adorns important arches within the monument makes extensive references to paradise. In the Taj Mahal and Agra Fort, the designs create atmosphere of purity with the help of sober background instead of colourful base. Besides, the Mughals left some margin between calligraphy and floral designs to give a breakup that provides a moment of separation in transposing the mind from spiritual to colourful world, where life starts through colourful symbolic designs (Fig. 3.20). The present study finds that yellow, green, and red coloured stones were applied in floral designs, providing harmony of expression through colour.

The objects placed at specific distances from us are certain to overlap in their projection on our retinas. The artisan preferred colours in a design as an overlapped can be seen clearly in the Mughal monuments. For example, a brown tree was overlapping the yellow stem and grey stem was overlapping the brown cypress tree (Fig.3.30). In the Taj Mahal, the overlapping effect was beautifully seen in border designs (as shown in the figures 3.31 and 3.33). This expression is possible only because of colour scheme used.

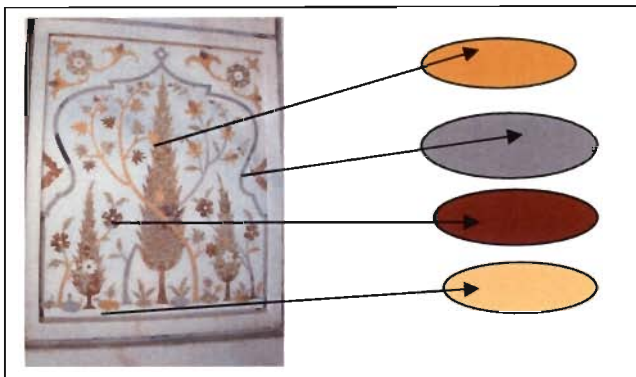


Fig. 3.30 Overlapping effect through colours at the tomb of Itmad-ud-Daulah

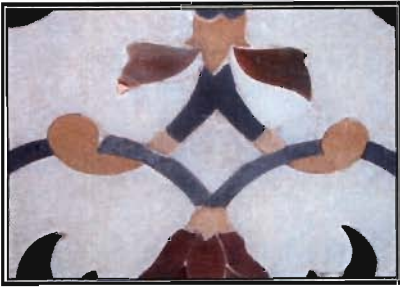


Fig. 3.31 Overlapping effect through colours at the Taj Mahal

The polychromatic colour scheme was applied in a geometrical design (Fig. 3.32). Red, yellow, blue, orange purple, brown, white, gray and black coloured stones were inlaid perfectly. However, the use of white colour base works for its balance and unity in diversity, and follows a basic principle of “Isolation with contrast or white” (Scott, 1951, 98). The area of contrast is reduced by separating the design with neutral light tone and is increased by placing the design with a dark tone line. It may be white or black. It gets the contrast down to manageable limits. It is suggested that neutral light colours in a design should be chosen so that the attention can be relaxed without strain, and is one reason why these colours are restful.

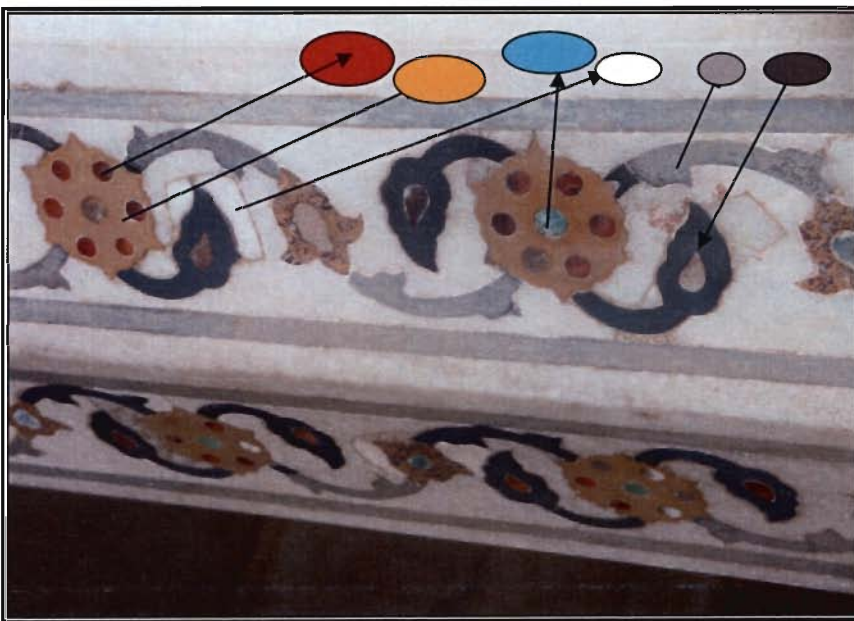


Fig. 3.32 Polychromatic colour scheme at Agra Red Fort

Colours in floral inlay designs, mainly in natural flowers, were beautifully depicted in the Agra Red Fort and Taj Mahal with all possibilities. Artisans used stones to give them a natural look. They give an expression of shading through the texture of the stone as seen in the Taj Mahal (Figures 3.33 and 3.34), tomb of Itmad-ud- Daulah (Fig. 3.35) and Agra Red Fort (Figures 3.2 and 2.55-a). The same is also seen in flower vases, dishes, leaves, and fruits in the tomb of Itmad-ud- Daulah (Figures 2.26 and 2.35). Hence, it can be said that the choice of the colours makes the difference with respect to the texture, shading effect, and natural expression in the Mughal monuments.



Fig. 3.33 Natural colours in flowers at the Taj Mahal



Fig. 3.34

Fig. 3.35

Fig. 3.34 Natural flowers depicted on the screen at Taj Mahal

Fig. 3.35 Nargis flower at the tomb of Itmad-ud-Daulah

4.3 AESTHETIC PHILOSOPHY

Designs enhance the meaningfulness of aesthetic concepts such as *dhvani* (suggestivity), *rasa* (sentiments), *alankara*, *bandha*, *guna* and *reeti* (literary style) (Devy, 2002). Indian sculpture developed a similar concern for the symbolic representation of abstract visual concepts such as fertility (mother goddess figurines), rain (Indra), water (Varuna Ganga-Yamuna), earth (*prithvi*), creation (*lingam-yoni*, Vishnu-Seshashayi, brimming pot or *urnakalasha* etc.), and are identified by their natural visual quality and impact on human life. The inlay designs constitute of form, colour, and content. Form content is composed of rhythm, meaning or purpose and aesthetic pleasure. Inlay designs also includes *bhava*. It conveys some emotions, feelings or *bhavas*.

Historically, it is important to study Mughal ornamentation because of the presence of Hindu, Islamic, Persian and Chinese cultures, and their contribution and recognition is evident in the Mughal decorative arts. These designs influenced the rulers' taste and excited the sensibilities of designers (Sharma *et al.*, 2007). Even the historians of Mughal designs, namely Havel (1912), Brown (1975), Nath (1976), and Koch (1991) have taken note of this development. Aesthetic philosophy played a valuable role in studying decorative motifs from the point of psychology of design, evolution of motif, and its symbolic interpretation. Ornamentation, as a stylistic sensibility in art and literature, has an interesting history for which facts are available equally in archaeological remains and living tradition. Out of this vast vocabulary of ornamentation, one can identify several motifs that have remained unchanged over the centuries, while others have completely modified some of the motifs. With the passage of time, there is possibility to highlight the manner in which artists and artisans created myriad visual representations of some formal concepts in the Mughal history of traditional Indian architectural ornaments. The fundamentals of design used in Agra also appear to be based on the Indian canons. The impact of *Silpa Shastra* was obvious as the Indian craftsmen were traditionally involved in the

construction of Hindu temples and were evident in Sevasi (1485 A.D.), Dhrangadhra (1525 A.D.) and Rampura, Ratala (15th century) in Gujrat– as they follow the six limbs of measurements (Jutta, 1981). The Mughal monuments have secular as well as spiritual motifs, and present the combination of secular with spiritual design elements. At these monuments, the rich tradition of realism in the Indian aesthetic philosophy might have given birth to aesthetics. As the kingdom of the Mughals expanded, they borrowed and familiarized themselves with the older traditional Indian tastes, aesthetic philosophy, thus playing a key role in shaping the most vibrant monuments commissioned by the Mughal rulers (For example, the Taj Mahal).

According to Nath (1986, 19) *rasa* is the cause of *ananda* which leads to creation and sustenance”. In the Indian context, ‘the *rasa* theory’ as stated by Bharata in his *Natya Shastra* (4th century A.D.), has eight *rasas*: *shringara* (delight), *hasya* (laughter), *karuna* (sorrow), *raudra* (anger), *veera* (heroism), *bhayanaka* (fear), *bibhatsa* (disgust), and *adbhut* (wonder). Later, the ninth *rasa* of *shanta* (peace) was also associated (Shastri, 1972). Bharata, the Indian aesthete says that *rasa* is spectator- based art. In other words, *rasa* is created when the spectator is able to identify himself with the character or work of art via the aids of the *vaibhava* (emotive situation in human setting) and *bhavas* (furnishing moods that produce *rasa*). According to Coomaraswamy (1971), art is a metaphysical statement. When *rasa* is applied to art and aesthetic experiences, the word signifies a state of heightened delight or *ananda*, the kind of bliss that can be experienced only by the soul. The *rasa* experience is not a physical understanding of a creation, but of the emotion, or empathy, as opposed to sympathy. The term *rasa* itself has many definitions– from the basic physical definition where *rasa* is the sap or juice of a plant to the non-material finest part to the relish and flavour while experiencing a heightened sense of delight (Pande, 2002, 3)

In the Mughal architecture, craftsmen sought to communicate emotions, feelings, visions, ideas, and images through their designs, symbols, signs, and

motifs. It is a kind of contemplative abstraction in which the inner human feelings suffuse the surrounding world of embodied forms. In the Mughal monuments of Agra, it was observed that the most dominating and predominant *rasas* (aesthetics pleasure or *anandanubhuti*) are: *adbhut*, *veera*, *shringara*, *shanta*, *karuna* and *raudra*.

4.3.1 *Shringara rasa*

Shringara means love or beauty. This *rasa* is described as the king of *rasas*. It is the mood in which one creates a lovely atmosphere. In *shringara*, the word *rasa* literally means 'good taste'. Love and beauty need little attention to enhance the harmony. *Shringara rasa* in a design communicates the feeling of delight to spectators. According to Pepper (1949), "to appreciate an object, it is to find delight in it for just the thing it is in our perception" (page 4) The presence of *shringara rasa* is strongly seen in the inlay art, mainly at the Taj Mahal, Agra Red Fort- Diwan-I-Am, Diwan-I-Khas, and tomb of Itmad-ud-Daulah. They provide satisfaction to the viewer by the appropriate principles of art such as balance, harmony, rhythm and unity. The *shringara rasa* was created at the Taj Mahal and Agra Red Fort by depiction of flowers, flower plants and rhythmic designs (Figures 3.34, 3.23 and 3.15); and at the tomb of Itmad-ud-Daulah by flower vases, wine vessels, dishes with fruits thereby emoting celebration and elegance (Figures 2.35, 2.26, 2.27 and 2.38). The survey results highlighted that the designs and motifs at a tomb, signifies the liking of the person who was buried or the liking of the builder. It was because, as a myth, believed that it is good if we think about the likings of the person who is lying in the grave. It may be possible that Ghyassudin, the father of Nur Jahan was fond of wine. Thus, this motif was used to signify the intense love and enhanced the emotional element in the Mughal architecture (Sharma, Gupta, 2008, 77). The colourful wine vessels depicted with dishes full of fruits, Cypress tree with two creepers (Fig. 2.35), flower vases with full of flower bunches and rhythmic stylized flowers on the borders and dados, create an environment of freshness. The Cypress tree with two creepers and creepers inlaid in the borders depict "squeezing and embracing

position” that directly suggest the feeling of hugging and joint love (Figures 2.27-a, 3.33 and 3.34). The *shringara rasa* in inlay designs resulted in the notion of delightfulness to the spectators.

4.3.2 *Adbhut rasa*

Adbhut rasa means to remain open-minded towards the miracle of life, and can be experienced in everything even in art pieces. Viswanatha laid emphasis on *adbhut rasa*, and explained in verses that followed *Sahitya-Darpana* (Ballantyne, 1994, 2-3):

*“Rasae sarsh chamatkarah sarvtrashyanubhuyatae,
Tachamatkarsartvae sarvatrashayadbhuto rasahai.
Tasmadadbhutmaewah kriti narayano rasam.”*

(The essence of wonder is *rasa*.

This wonder is felt everywhere.

Adhbhut rasa is the best of all *rasas*.

Adhbhut rasa alone is the creation of God Narayana.)

The masterpiece of representation of *adbhut rasa* was evident at the Delhi Gate of Agra Fort. It is a profound depiction of a fabulous animal that has four legs and upright tail similar to those of a lion. This specific animal was a combination of a lion, horse (neck and uprights ears), elephant (mouth without tusks and trunk) and a bird (two wings), and. gives a look of mystification or puzzle (Fig. 3.36). It generates the expression of wonder.



Fig. 3.36 Fabulous animal at Agra Red Fort (source: Nath, 1976)

According to *shastras*, *adhbhuta rasa* (marvellous sentiments) with *vismaya* (wonder or astonishment) is a situation that depicts something which is apparently impossible and beyond one's imagination. A unique building or work that nobody has seen before or an extraordinary and uncommon phenomenon that evokes sentiments of wonder leads to the aesthetic feeling called *adhbhuta* (Nath, 1986, 107). Thus, *vismaya* is created by *chamatkara* (uncommon, unreal or fantastic representation of a worldly phenomenon). According to the Indian aesthetic theory, the Taj Mahal generates a magical, enchanting feeling and evokes wonder or admiration leading to the *adhbhuta rasas* and aesthetic pleasure, and is a good combination of all fine arts. The Taj Mahal, in its classical perfection of space, proportion, shape, combination of monumentality and delicacy, and quality of its decoration, represents the zenith of the Persian elegance at work (Hambly, 1964). Inlay designs extend their beauty and help to create a situation of *adhbhuta* through its colours, design, and surprising sparkling effect of inlaid stones. The Mughal inlay art treated flat surface with line and colour which is full of Indian *bhavas* or *rasas*.

4.3.3 *Shanta rasa*

Real peace comes through meditation. Everybody needs relaxation and peace of mind in a piece of art, and is possible through design elements that can bring peace and tranquility. The Mughal decorative arts applied to the monuments have two ways of *shanta rasa*. First, they depict the design elements or motifs that give a peaceful environment to the viewers. The application of auspicious motifs like bold *swastikas*, *punakalasa*, and *satkona*s with a *bindu* and lotus at the entrance provide *shanta rasa*. According to Parikh (1976, 74), "The square and the circle, and their immediately related shapes are the simplest, most perfect and stable geometrical forms found in nature. These symbolize the perfection of God and His Universe." Thus, geometrical-based designs provide a serene environment for users and spectators. *Swastika* and *satkona*s at the Akbar's tomb, and *satkona*s at the Jahangiri Mahal appear quite suitable at prominent places (Figures 3.12 and 3.27). These design

elements provide a calm and relaxing atmosphere. Second, balancing passive (negative) and active (positive) spaces at the Taj Mahal bring peace and calmness to the observer. The *shanta rasa* is absent in the tomb of Itmad-ud-Daulah as artisans congested all space with different designs, and hence there is not much of negative space for spectators to get relief.

4.3.4 Veera rasa

Veera or courage is the *rasa* of fearlessness, heroism and perfect control of body and mind. Courage is needed by everybody when challenges need to be faced in life. *Veera* is indirectly the feeling of freedom and independence. Sun, star, lotus and *chakra* signify the *veera rasa*. They were present at the entrances of the gateways and appear to be the power and pride of the ruler. Huge sun designs (Fig. 2.61) depicted on both side of the arch at the Jahangiri Mahal emphasize their glorious effect on the spectators. The star design shows superiority and extends its sparkle and glimmer. As Rai Jaswant (1993, 45) emphasized, “the aesthetic vision is further enriched by the inner details and builds up of visual forces in the architectural detailing. In general, overall unity is achieved in the structural system by surface decoration.” The Buland Darwaza, in itself, is an example of *veera rasa* that shows the victory of Akbar over the Deccan part of India.

4.3.5 Raudra Rasa

Raudra means anger or expression of violence. Expressing anger through the *bhavas* or action produces *raudra rasa*. Figure 3.37 at the Delhi Gate of Agra Red Fort shows that the fabulous animal is fighting with seven elephants at once. It signifies the *krodha rupa* (angry form) of the animal through the *raudra rasa*.

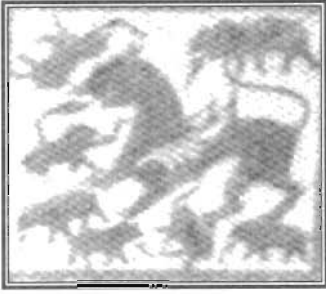


Fig. 3.37 A fabulous animal fighting with seven elephants at the Agra Red Fort (source: Nath, 1976)

4.3.6 *Karuna rasa*

Karuna means sadness in Sanskrit. We feel sadness and sorrow when we lose something precious. The same goes for *karuna* and one might feel sadness when nearing death. We know that the Taj Mahal, tomb of Itmad-ud-Daulah and Akbar's tomb are the graves of Mumtaz, Ghayasudin (Nur Jahan's father), and Akbar, respectively. Such a place itself generates a feeling of sadness and sorrow. The depiction of the cypress tree and wine glasses at the tomb of Itmad-ud-Daulah is a source of mourning and grief. The main entrance (eastern) of the tomb of Itmad-ud-Daulah has wine glasses (Fig. 3.9) that were not applied with other motifs. They were also in red and white colours and were not as colourful as the exterior walls of the main building. It presents an atmosphere of misery and monotony. In the inner chamber of the Taj Mahal, the flower plants symbolize beauty and love, but there were some flower plants on the cenotaph of Mumtaz and on the screen surrounding the cenotaphs observed in the bent down position (Fig. 3.38). It exposes the feeling of melancholy and despair. Each side of the eight angles of the screen was ornamented with five inlaid cartouches with alternate tuberose and fuchsias or honeysuckle, and their inner angles adorned with vibrant red poppies (Koch, 1991, 172). In general, poppies are identified as flowers of suffering and death, and might be intended to associate with the tomb setting (Koch, 1991, 171).



Fig. 3.38 Flower in bent down position at the Taj Mahal

Table 3.1 Indian *rasas* generating moods and emotions through different design elements

Sr. No	Rasas	Attitudes and Sentiments (<i>Sthayi Bhava</i>)	Design Elements	Mood and Emotion
1	<i>Shringara</i>	Attraction (<i>Rati</i>)	Flowers, Flower plants, Flower vases, Cypress tree with creepers and Dishes with fruits	Love and beauty and devotion
2	<i>Adbhut</i>	Bewilderment (<i>Biamaya</i>)	Fabulous animal (<i>Gaja-Vayala</i>)	Wonder, curiosity
3	<i>Shanta</i>	Equanimity (<i>Sama</i>)	<i>Swastika, Satkona</i>	Silence, peace or tranquility
4	<i>Raudra</i>	Anger (<i>Krodha</i>)	Fabulous animal fighting with six elephants	Fury or Violence
5	<i>Veera</i>	Resolution (<i>Utsaha</i>)	Sun, Lotus, Star and <i>chakra</i>	Courageous Valor
6	<i>Karuna</i>	Sorrow (<i>Sonka</i>)	Wine Vessels, Cypress tree and downwarded flower plants	Compassion or Pathos

4.4 APPROPRIATE PLACE AND LOGIC BEHIND THE PLACEMENT OF INLAY DESIGN ELEMENTS

Typically, artists and designers are well aware of the design or figure and background phenomena. A design cannot be perceived without perceiving its background, and depends on the appropriate perception of the ground on which

it stands (Balram, 1998). There are several reasons for the depiction of inlay design elements that were influenced by Persian, Turkish, Iranian, Chinese and Indian art. The personal liking of emperors, inlay craftsmen and designers' skill; the wives of rulers; and sources of other arts like Mughal paintings, textiles and other decorative arts of Mughal period played a vital role in the depiction of inlay design elements (as discussed in the previous chapter). Akbar explained the place of decorative art in his life in *A'in-l- Akbari*. He considered decorativeness as part of the pomp of sovereignty and the care given to decorativeness was treated as divine worship (Abul Fazal, 1872, 48-49). Koch words best described this design aspect, "Akabri architecture developed into a dramatic superregional synthesis characterized by borrowing of features from earlier Timurid, Transoxanian, Indian and Persian styles" (1991, 43). In Jahangir's period, the Persian motifs such as the wine vessel, and floral motifs reached unrivalled heights. These motifs were well known in Indo-Islamic culture and Persian poetry, and were presumably derived from Safavid sources during Jahangir's period (Sharma and Gupta, 2008). Shah Jahan inherited Jahangir's taste for creative sophistication and ornamental exuberance. The best-known aspect of Shah Jahan's patronage was architecture, the imperial art par excellence, and an era of great architectural awareness, that was also reflected in the contemporary sources (Koch, 1991, 96). The Mughal buildings were decorated with auspicious, floral, arabesques and geometrical designs and were placed logically at the monuments. The present study discusses the appropriate placement of inlay designs and logic behind the placement through the primary and secondary data and visual assessment.

4.4.1 Appropriate placement of inlay design elements

In the present study, motifs such as the *swastikas*, *satkonas*, sun, the brimming pot (*purnakalasa*), the arabesque, geometrical, and floral designs were chosen to evaluate their proper and exact location in the selected monuments. These designs represent the most typical motif favored in Hindu, Islamic, Persian and Southeast Asian art. These motifs share a common origin but their

placement, form and purpose have varied greatly across religions and cultures, through different periods. Reproductive power, regeneration, profusion, movement, happiness and prosperity represented by these motifs glorify the dependence of human life on nature. Visually, many of the motifs can be read as decorative patterns but at the source their meanings are quite distinct. The dissemination of one motif type and its adaptation in different monuments over several centuries suggests that the motifs are passed from one generation of craftsmen to another. Further, many of these motifs have remained in oral or mental forms and have not been standardized in a textbook for open reference. However, the basic concept remains the same and design elements might be tailored to suit the design. A total numbers of 85 respondents (artists, architects and research scholars) were interviewed to ascertain their views on appropriate placement of different design elements. Chi-square test was applied to check the level of significance. The results are presented in Table 3.2.

Table 3.2 Respondents' views regarding the placement of floral, auspicious, geometrical and arabesque inlay designs, n = 85 (survey results)

Placement/ Designs	Lower part of the building		Upper part of the building		At entrances		Uppermost part of the building		Chi- square (χ^2) value
	Frequ ency	%	Frequ ency	%	Frequ ency	%	Frequ ency	%	
Floral	32	37.6	39	45.9	24	28.2	19	22.4	3.244 (df=3)
Auspicious			17	20.0	72	84.7	11	12.9	120.584* ** (df=2)
Geometrical	62	71.2	52	59.7	0		63	72.4	1.254 (df=2)
Arabesque	19	22.4	0		62	71.2	0		20.753*** (df=1)

*** 1% significance level, *d.f.* = Degree of freedom

4.4.1.1 Placement of Hindu auspicious design elements

The accession of Akbar in 1556 A.D. marked the beginning of an era, which was noted not only for the tolerant attitude towards non-believing subjects but

also for a sincere and genuine effort to bring about a cultural fusion of the Hindu and Muslim religions by inclusion of the popular beliefs of the Hindu religion (Nath, 1976, 4-5). Its impact was evident in Jahangir's architecture as well. However, monuments during the period of Shah Jahan, carried Hindu auspicious motifs in inlay but in modified style. The placement of auspicious inlay design elements highlighted in the Mughal monuments were: *swastika*, *satkona*, *purnakalasa*, sun and *gavaksa*. These design elements are briefly discussed below:

i) *Swastika*

Swastika, opening in four directions, gives a unique dynamism. The motif represents the fourfold aspects of the cosmos (Agrawal, 1965). *Swastika* based geometrical designs were used at Fatehpur Sikiri on a very large scale incised in stone, *jalis* and stuccowork. According to Nath (1976, 26), this motif was never used symbolically in Fatehpur Sikiri, but used only as an ornamental design. Eight *swastikas* were used prominently in four directions on either façade of the main gateway of Akbar's tomb at Sikandra (Figures 3.10 and 2.45-b). They were hung boldly on the vertical panels around the portal. They were placed valiantly on the entrance gateway. It was the most imperative place, and was single motif in a particular panel, focal to the viewer's attention. At this place, *swastika* bears an individuality of its own and reflects auspicious character, though arranged in geometrical ornamentation. The *swastika* presence shows the likeness and the secular attitude of Akbar. However, the *swastika*, symbolically or ornamentally, was not found at the tomb of Itmad-ud-Daulah and in the other monuments of Shah Jahan.

ii) *Satkona*

In Akbar's building, a six-pointed *satkona* with a *bindu* or a lotus inside, can be seen abundantly and was placed on or near the entrance gateways of monuments (Figures 2.41 and 2.42). The Jahangiri Mahal, Akbar's tomb, Jami Maszid (Fatehpur Sikiri) and Taj Mahal have the same six-pointed star, *satkona* (Figures 2.41-a, 3.39 and 2.41), as discussed in Chapter- 2. Akbar gave intellectual and spiritual freedom to the artists, both Muslims and Hindus (Havell,

1912, 142). As a result, they applied Hindu *satkonas* in the Mughal monuments. The figure 3.12 shows the use of bold *satkonas* at the entrance of Jahangiri Mahal and in Agra Red Fort. A similar finding was provided by Coomaraswamy (1971, 219). It shows the direct impact of Indian culture. Placement of one *satkona* on each side of the gateway and three *sakonas* at the western gateway of Jahangiri Mahal; demonstrate importance of the *satkona* designs in suggestive positions and as an auspicious character. The large size and prominence of the stars suggest that they were *tantric* symbols of the union of *Shakti-Shiva* (Fig. 2.43), and concur with the findings of Nath (1976). It is believed that the depiction of this *tantric* symbol would be auspicious to the emperor, and would ward off evil and protect him from all dangers in battles (Nath, 1976, 44). However, this motif was absent from the tomb of Itmad-ud-Daulah but was seen as a part of arabesque design in the Taj Mahal (Figures 2.44 and 3.39). The *satkonas* in the Taj Mahal were sixty-four in number but comparatively small in size and large in number as compared to Akbar's buildings. It is noteworthy that this design element was always employed at the arch of the entrance gateways. This element was placed very consciously and at a suggestive position. *Satkona* was not purely ornamental in its formation, and placement of the *satkona* shows that the builders, artisans and designers were always aware of its auspicious importance.



Fig. 3.39



Fig. 3.40

Fig. 3.39 *Satkonas* at the northern gateway of Akbar's tomb, Sikandra (Agra)

Fig. 3.40 *Satkonas* at the northern gateway of Taj Mahal

iii) *Purnakalasa*

Purnakalasa in inlay art was not used directly but found indirectly and placed as a part of the arabesque design at the Taj Mahal (Figures 2.56, 2.57, 3.13 and 2.58). However, *purnakalasa* motif was available in relief and carving work as shown in the figures.3.41, 3.42 and 3.43. Although not clearly visualized, if we observe the design precisely, its shape can be identified. The *purnakalasa*, containing coconut and leaves, is applied in ancient Hindu art (Fig 2.54). According to Hindu beliefs, *kalasa* holds *amrita* or elixir of life (Gupte, 1972, 2). It is noteworthy that this design element in inlay was not placed at the base of nooks, shafts and brackets of the sunk, as noted in the relief work of Fatehpur Sikiri (Fig 3.43) and in Agra Red Fort (in carving). However, it was applied in adapted form as a part of arabesque design, mainly in the Taj Mahal (as shown in Fig. 3.13). There were many examples of this motif used in arabesques as well. It is to be noted that in Shah Jahan's buildings, this motif was not liberally used in inlay in comparison to other arts. In painting designs (e.g., inner hall of the Khas-Mahal at Agra Red Fort), stucco (at the Shish Mahal, Agra Red Fort), carved marble (on the square bases of the Diwan-I-Khas pillars, Agra Red Fort and on the dados of the cenotaph hall, at Taj Mahal), *purnakalasa* were used profusely in Shah Jahan period, though not to the extent of observed in Akbar's buildings. In inlay, *purnakalasa* was employed at very prominent places that are archways of the entrances of the Taj Mahal (Fig 3.13) and on the archway of Diwan-I-Am, Agra Red Fort (Figures 3.44 and 3.45). *Purnakalasa* motif is a Hindu design, which gradually developed and inspired by various sources (stucco, relief work and carved marble). Its placement at the archway shows the importance of this motif. Moreover, this design element seems to spread a spiritual feeling and aesthetic harmony with its subordinate design. The present study observed further that the flower vases were available in tomb of the Itmad-ud-Daulah, but were not considered as *purnakalasa* (Fig 2.39-a).



Fig. 3.41

Fig. 3.42

Fig. 3.43

Fig. 3.41 *Purnakalasa*, near the cenotaphs at the inner chamber of Taj Mahal

Fig. 3.42 *Purnakalasa* at the grill near the gateway of Taj Mahal

Fig. 3.43 *Purnakalasa* at Jodhabhai Palace, Fatehpur Sikiri



Fig. 3.44 *Purnakalasa* design at the Diwan-I-Am, Agra Red Fort

iv) **Gavaksa**

The *gavaksa* design element was applied in the monuments of Fatehpur Sikiri on a large scale in relief and carved work; placed mostly at the bases of the pillars (Fig. 3.45). However, in inlay, *gavaksa* was observed as a modified decorative design, particularly at the Taj Mahal and at the Agra Red Fort (Figures 3.46 and 3.47). They were placed on the borders of the dome for a soothing ornamentation look. They were also placed on the boundary wall closer to dome (Fig. 3.47). They were available in two colour schemes, one on red base, and other on white marble base in coloured precious and semi precious stones (Figures 3.46, 2.51-b, 3.47 and 2.49). The placement of this design was just

above the eyelevel. The possible reason may be the sacredness of this design in the Hindu mythology or the demand of design during Mughal period.

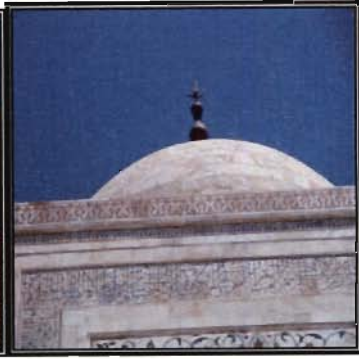


Fig. 3.45

Fig. 3.46

Fig. 3.47

Fig. 3.45 *Gavaksa* at Fatehpur Sikiri (Agra)

Fig. 3.46 *Gavaksa* designs at the upper part of the gateway of Taj Mahal

Fig. 3.47 *Gavaksa* designs at the upper part of the gateway and near the main dome of Taj Mahal

v) Sun

Depiction of the sun design in inlay is present only in the Jahangiri Mahal, Agra Red Fort (Fig 3.48). This motif was prominently inlaid at the archways of the Jahangiri Mahal at the eastern and the southern directions. It was said that Akbar used to offer water to the sun in the morning and was influenced by this motif (Allami, 1972).



Fig. 3.48 Sun motif at northern gateway of Jahangiri Mahal, Agra Red Fort

Based on survey results (Table 3.2), a majority of respondents were of the view that the appropriate place of the auspicious design elements is 'at entrances' (84.7%). No response was obtained in favour of the placement of the auspicious designs at 'lower part of the building'. The same was visualized in the selected Mughal monuments of Agra. This result shows that proper places of auspicious designs are at entrances of the building, and the results were found statistically significant at 1% of significance level.

4.4.1.2 Placement of floral designs

In most cultures, flowers are the main element of decoration and the Mughal designers have made abundant use of floral motif. In the Mughal architectural decoration, artists were inspired by European botanical drawings, as well as Persian traditional flora (Skelton, 1972; Crowe, 1972). These designs might be applied to monochrome panels of white marble with rows of flowering plants exquisitely carved in low relief, alternating with delicately tinted polychrome inlays of precious and hard stones (Dalu, 1978). It is notable that the flora patterns appear alone or in combination with the other major types of ornaments— geometrical, arabesque, calligraphic, and medallions. The natural floral designs aesthetically enhance the natural feeling, and form a balance between realistic and imaginative floral designs. The placement of flowers has gracefully adorned the Mughal monuments and enhanced the natural beauty and freshness to the spectators. The flowers of lily, tulip, narcissus, lotus, iris, chrysanthemum, and hibiscus in carvings were evident on the surface of the Mughal buildings. These floral designs were applied according to the availability of space and suitability of architectural design. The floral inlay designs are available in natural and stylized form.

i) Natural design

Natural flowers were used on a large scale at the Taj Mahal and Diwan-I-Am, Diwan-I-Khas of Agra Red Fort (in particular) and Akbar's tomb and tomb of Itmad-ud-Daulah (in general). They were accompanied with stylized floral

designs in all monuments. Some compositions were totally stylized, without any natural floral form and constitute the finest stylized form in the Mughal inlay art. The arabesques were the combination of natural, stylized floral designs, leaves and twigs. The natural flowers observed and associated with imaginative or stylized flora, gave a beautiful elegant look. This trend demonstrated the creativity of the Mughal inlay artisans, and is associated with necessities of artistic standards. In the placement of natural floral designs, the lotus flowers were generally inlaid on the upper part of the gateways, doorways or entrances and at the middle of the composition or design (Figures 3.2, 3.6, 3.11, 3.17 and 3.40). Lotus is an auspicious Hindu motif that is a symbol of Goddess *Lakshmi* and symbolizes good fortune and prosperity (Agrawal, 1965; Zimmer, 1990). The lotus was depicted from different perspectives. In some, it was inlaid full bloomed in the arabesque designs, and in some only a bud or half-bloomed lotus was placed at the entrance doorways as shown in the figures 2.46, 2.47 and 3.40. Inlay floral design also contained lilies, dahlia, nargis, poppy and many others.

At the inner chamber of the Taj Mahal, surface of both faces of each side of the screen that surrounds the cenotaphs including two high doorways to the north and south, are decorated with floral designs. The borders of the screen have flowering plants and foliage (Figures 3.17 and 3.44). On the outer face, these plants were represented as fully flowering lotuses, also identified as chrysanthemum (Figures 2.20 and 2.22); whereas three tulip buds were symmetrically arranged on either flank of the central bloom. The inner face of the screen has a variety of tuberose. The outer face of screen was adorned with upright flower plants, alternating between lilies. The flowers resemble the fuchsias and hang downwards from their stems. At each side of the eight angles of the screen were five inlaid cartouches ornamented with alternate tuberose and fuchsias or honeysuckle, whereas inner angles were adorned with vibrant red poppies (Koch, 2006, 172). As previously noted, poppies are flowers of suffering and death. The top of the screen was decorated with two types of plant, identifiable as tulips and lotuses – alternated around the entire screen (Fig. 3.17).

The top of the rectangular box was inlaid with calligraphic passages surrounded by floral border. The total surface was adorned with the wave pattern of the floral motif. The downward flowers, poppies and calligraphic passage created express a sense of pessimism and cynicism inside this chamber.

Placement of a flower in the inner chamber at the Taj Mahal expresses the feeling of Shah Jahan, and is an example of how the emotion of love could be created so precisely through the placement of floral designs and multiplication of given floral patterns. The cenotaph's upper part was full of natural or stylized flowers accompanied with calligraphy; and provides the purpose of the flower in the Taj Mahal. Sometimes, the placement of a flower brings a sensation of despondence and gives the feeling of beauty, joy and happiness. For instance, vases full of flower bunches were seen in Diwan-I-Am, Diwan-I-Khas (natural flower plants) and in the tomb of Itmad-ud-Daulah (Figures 2.35, 2.39, 2.55, 2.71, 3.25, 3.35 and 3.50). At the Muthamman Burj (Agra Red Fort), placement of the floral design was done very skillfully. A panel of flower plant was placed on the upper most part of the pillar (Fig. 3.49). The pillars have very minute designs but on its upper most part the flower plant was in a bold form, thus attracting each visitor.

The designers not only remember the symbolic meaning of the design elements but also their size, scale and colour. They were placed according to the demand of the design; users' (who lived in the palaces) and rulers' love for nature. If flowers are represented at the entrance or on the wall to decorate the surface in a cheerful mood, then they create an atmosphere of delight and celebration. However, if flowers are placed at the cenotaphs in a downward posture, they will generate sad emotion (as discussed in the case of the Taj Mahal). The purpose behind the depiction of natural flowers might be decorative, symbolic and logical. During survey, 49.4 % of the respondents were of the view that the natural flowers have been logically been placed (Table 3.3). The Chi-square test also demonstrated that the natural flowers were placed logically at 5% of the significance level.



Fig. 3.49



Fig. 3.50

Fig. 3.49 Natural flower plants at Muthamman Burj, Agra Red Fort

Fig. 3.50 Natural flower plants at Diwan-I-Am, Agra Red Fort

Table 3.3 Respondents' views regarding the purpose of the placement of inlay designs, n = 85 (survey results)

Inlay Design / Purpose of placement		Logically	Ornamentally	Symbolically
Inlay Design	Frequency	30	38	59
	Percentage	35.3	44.7	69.4
	Chi-square (χ^2) value	12.024**(d.f.=2)		
Natural Floral Design	Frequency	42	27	16
	Percentage	49.4	31.8	18.8
	Chi-square (χ^2) value	7.929**(d.f.=2)		

** 5% significance level, d.f.= Degree of freedom

ii) Stylized design

The stylized floral designs were inlaid on almost all parts of the monuments. They were merged with natural floral and geometrical designs. These floral designs were presented in a foliage form with the interplay of geometrical design in arabesques and creeper forms in borders, dadoes and pillars. The medallions were placed when the surface was not a focal point (Figures 3.7, 3.14, 3.16, 3.18, 3.32, 3.51, 3.52 and 3.53-c). They were placed, not to attract the attention of the viewers, but to provide harmony and unity to the design. When these designs were positioned at the upper most part of the

minerate of the Itmad-ud-Daulah's tomb (Figures 3.1 and 3.32), they fascinated the spectator because of the size of medallion designs. However, if the designer keeps the minute design at this height, then no one can see the beauty of the design and would be of no use. All the stylized designs appeared to have been inlaid because of the demand of space. Wherever necessary, the designers placed the stylized designs appropriately, and modified them according to space and demand (Figures 3.51, 3.52 and 3.53-c).

Survey results demonstrated that the floral designs were placed in a majority of the Mughal monuments, except Buland Darwaza. They provided a harmonious effect through the colour and rhythmic lines. It was found that the appropriate place for the floral inlay designs were the upper part (45.9%), the lower part (37.6%) and at the entrances (28.2%) of the building, respectively, as indicated in Table 3.2.



Fig. 3.51

Fig. 3.52

Fig. 3.51 and 3.52 Stylized inlay designs at the tomb of Itmad-ud-Daulah

4.4.1.3 Placement of the geometrical designs

Islamic artists developed geometric patterns with a degree of complexity and sophistication. These patterns exemplify the Islamic interest in repetition, symmetry, and continuous generation of patterns. The efficiency of the Islamic designers was demonstrated by their masterful integration of geometry with optical effects such as the balancing of positive and negative areas, interlaced with forms overlapping, and a skillful use of colour and tone values. Their designs

reached creative peak in the expression of beauty during the Mughal period. Geometrical designs comprised star, hexagon, octagon, isometric grid, interlock, and pentagon patterns. A very common pattern was a star design; and was inlaid in a majority of geometric designs in each monument. Since a star design gives radiant effect, the floral design also can be amalgamated with it. Figures 3.53-a, b, c and d illustrate how the star design is inlaid with different angles in the monuments of Agra.

In the buildings of Akbar– Buland Darwaza, Salim Chisti's tomb, Jahangiri Mahal, the geometrical patterns were placed not only at the lower part of the walls, pillars, doorways and on the floors, but also at the uppermost part of the buildings (Figures 2.4, 2.6, 2.50 and 2.51). Geometric pattern gave a decorative style to other designs. It was also noticed in Akbar's buildings as the geometrical patterns provided a balance with other design elements (Figures 3.5 and 3.7). As shown in the figure 1.1, there was a lot of negative space with geometrical carving and relief designs. Jahangir's buildings, Akbar's tomb and the tomb of Itmad-ud-Daulah have geometrical patterns that can be easily visualized. The geometrical patterns were placed mostly at the lower parts of the buildings (Figures 3.9 and 3.55), on the sides of the doorways and the gateways, and at the uppermost part of building (Fig. 3.21). Also, it can be clearly visualized in the Akbar's tomb (Fig. 3.27). In the tomb of Itmad-ud Daulah, these design elements were not only applied on the sides of the doorways and gateways but also on the long panels of geometrical designs that were bordered with floral creepers (Fig. 3.16). The whole composition gives a harmonious effect as these patterns relieve the monotony. The complex geometrical inlay designs reached its zenith in his buildings. In Shah Jahan's buildings – the Agra Red Fort and the Taj Mahal, geometrical designs were not as visible as compared to Akbar's and Jahangir's buildings. The geometrical designs were very simple in form. At the Taj Mahal, the designs on the pillars, waterfall places and on minarets were seen in angular lines (Figures 2.13 and 3.55). This kind of zigzag pattern of straight lines is called *chevron*, and came from Persia. The *chevron* design is a traditional design used

for architectural ornamentation, probably since the time of the Assyrian culture (Koch, 1991; Grover, 1996 and Nath, 2000). It gives harmonious effect as well as flow and movement (Fig. 3.55). The *chevron* design was also used on pillars at the Akbar's tomb and at the tomb of Itmad-ud- Daulah. However, Shah Jahan's emphasis was mainly on floral designs.

If a pattern is repeatedly used in every design, it can create monotonous effect to the viewers. The main purpose of the depiction of geometrical designs in the monuments is to decorate the surface and relieve monotony. A variety of geometrical designs have been used in Mughal monuments based on the demand of the surface such as on borders, interlacing pattern that could go from one end to another in an unbroken continuity. This pattern shows the intelligent manipulation of the Mughal decorators. The artisans maintained the harmonious effect by using geometrical designs with floral and other designs. Based on the survey results, 72.4% responded the appropriate place of the geometrical designs is the uppermost part of the building with the lower part of the building (71.2%) came second (Table 3.2). It is evident from the sample collected that the most unsuitable place for geometrical designs was the archways at entrances. The Buland Darwaza and the entrance gate of the Akbar's tomb have full geometrical panels from ground to uppermost part. Such arrangement was due to the demand of design.

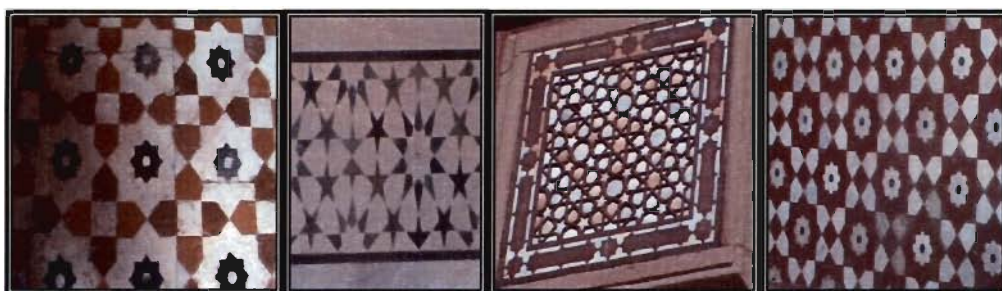


Fig. 3.53 (a), (b), (c) and (d) Star in geometrical patterns



Fig. 3.54

Fig. 3.54 Geometrical designs at Buland Darwaza



Fig. 3.55

Fig. 3.55 Geometrical designs at the lower part of the wall at the Taj Mahal

4.4.1.4 Placement of the arabesque designs

It is noteworthy that all of the three designs of geometrical category-- wave, floral and arabesque-- were used simultaneously for the Mughal architectural decoration. The slight difference between them makes it difficult to distinguish one from the other. Arabesque designs, based on geometric principles with repetitive and reciprocal curved lines, were employed more emphatically on the spandrels of arches. Fundamentally, an arabesque formed either with a geometrical design or through stylization of vegetation pattern is known to be in an order. The arabesque (*kalpalata*) was originated from the concept of the ever-growing creeper of prosperity. The placement of this motif varies in every religious monument. On *stupas* of the Buddhist and Jain temples, arabesques were found twining around a hemispherical dome of the *stupa*. In Hindu temples, *kalpalata* was found on the doorways, walls, plinths and the

perforated windows, and on the Mughal monuments arabesque run all around the facade, the *mihirabs* and the archways.

The Mughal architecture provides a new style of arabesque design, and is different from the Indian *kalpalata*. The theme of the design is the flow of design at a given surface with a rhythmic movement (Figures 3.56 and 3.57). Arabesque designs were situated on the archways, and were placed on the doorways, gateways, and window arches of the monuments (at the Akbar tomb, tomb of Itmad-ud-Daulah, Agra Red Fort and Taj Mahal) (Figures 2.13, 2.14, 2.15 and 2.28). They were also situated on the corners of the fountain floor (Fig. 3.24). This device appears in borders, disclosing repetition of leaf, bud, floral form, usually on parapet and the lower half of the Mughal monuments. The spirit behind the placement of the arabesque is a rhythmic representation with an arched form. It is an effort to create harmony to unite the whole composition in an inseparable belt. However, it is surprising to see that on the sides of the archways in the Mughal monuments, artisans never used pure geometrical designs.

Based on the survey results, the Table 3.2 shows that the most suitable place for arabesque designs is at the entrance (71.2 % of respondents are of this view). However, only few respondents (22.4%) were in favour of their placement on the lower part of the building. The results were checked by the Chi square test, and were found significant (1% significance level). In the Mughal monuments, arabesque designs were mostly placed at the archways of the entrances. At the lower part of the monument, this design was applied in the border corners and at the water-basin at Muthamman Burj.

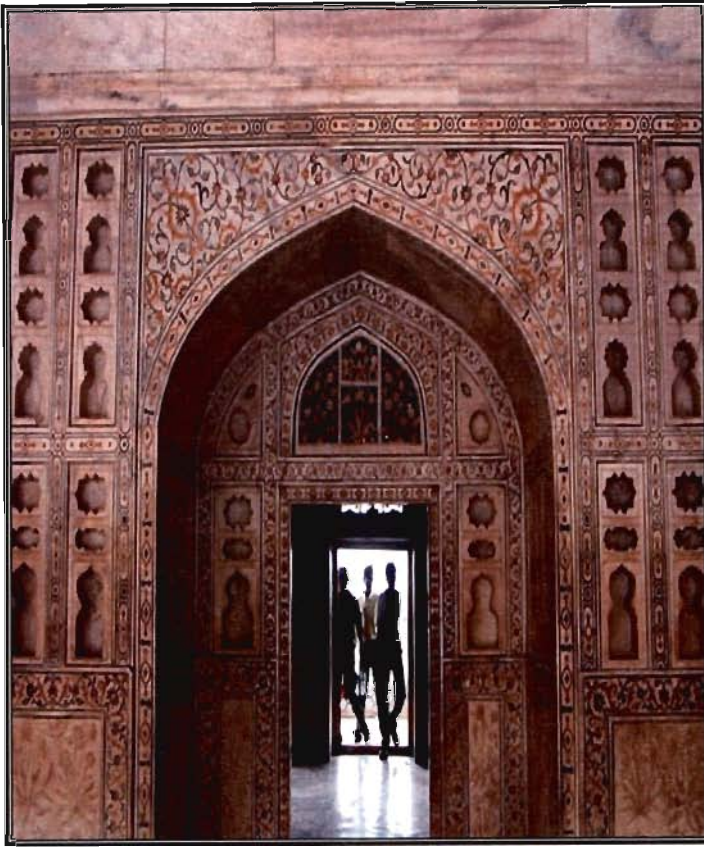


Fig. 3.56

Fig. 3.56 Arabesque design at Muthamman Burj



Fig. 3.57

Fig. 3.57 Arabesque design at the Taj Mahal

4.4.2 Logic behind the placement of inlay designs

In this section, the significance and logic behind the placement of design elements such as geometrical, floral, and Hindu auspicious design elements were studied and analyzed. The placement of patterns and designs unifies the artistic, philosophic, and creative vision of the artisans and designers. The reason behind the depiction of inlay design elements may be logical, ornamental and symbolical. This finding is corroborated with our findings, as shown in Table 3.3. On the basis of survey and visual observation, the designs were found to be symbolical (69.4%), ornamental (44.7%) and logical (35.3%). Chi square test further confirms that there is a significant relationship, and is evident by 5% significance level.

Table 3.4 Possible reasons behind the placement of inlay designs at the walls of the Mughal monuments, n = 85 (survey results)

Reason for the Placement	At Outer Wall		At Inner Wall	
	Frequency	Percentage	Frequency	Percentage
Political Balance	12	14.1	-	-
For Masses	29	34.1	-	-
Ornamentation	9	10.6	29	34.1
Emperor's Taste & Order	12	14.1	9	10.6
Mode of Visual Communication	44	51.8	-	-
User's Interest	-	-	48	56.5
	Chi-square (χ^2) value		82.17***(d.f.=5)	

***1% significance level, *d.f.* = Degree of freedom

The survey further finds the possible reason behind the placement of inlay designs on the outer and inner walls of the monuments. Based on the Table 3.4, inlay designs were placed on outer wall because of 'mode of communication' (51.8%), 'to maintain political balance' (43.5%), 'for masses' (34.1%), 'emperor's taste and order' (14.1%), and 'only for ornamentation' (10.6%). The majority of respondents (56.5%) were in favour of the statement that the designs on inner wall of the monuments were purely according to viewers' interest (Table 3.4). Since the results were found significant at 1% significance level, it can be concluded that the designs placed on outer wall act as a mode of visual communication, whereas the design on inner wall was according to the users' interest.

Table 3.5 Logic behind the placement of inlay designs (*survey results*), $n = 85$

Inlay Designs/ Logic behind Placement	Geometrical		Floral		Auspicious		Arabesque	
	F	%	F	%	F	%	F	%
Only for Decoration	52	61.2	28	32.9	-	-	28	32.9
To Avoid Monotony	17	20.0	-	-	28	32.9	9	10.6
Does not Attracts Viewers Interest	28	32.9	-	-	-	-	-	-
Not as Important as Auspicious Designs	28	32.9	28	32.9	-	-	17	20.0
Welcoming Effect	-	-	52	61.2	-	-	52	61.2
A break from Geometrical Patterns	-	-	9	10.6	-	-	17	20.0
Protect from Evil and Keep Peace	-	-	-	-	48	56.5	-	-
Depict Joy and Happiness	-	-	44	51.8	-	-	48	56.5
For the Sake of Nature	-	-	10	11.8	-	-	28	32.9
Auspiciousness	-	-	-	-	63	74.1	-	-

F stands for Frequency

Table 3.5 shows the logic behind the placement of geometrical, floral, arabesque and auspicious designs. As discussed earlier, geometrical designs were placed at the uppermost and lower part of the buildings. A good number of respondents (61.2%) agreed that the purpose for geometrical designs was for decoration only. The other reason might be that the geometrical designs were not as important as auspicious designs (32.9%). The reason behind the depiction of floral designs seems to be logical, and these designs were depicted at upper, lower part and various entrances of the buildings. The placement of floral designs indicates that floral designs provide welcoming environment (61.2%) and spread joy and happiness (51.8%). The auspicious designs were placed at the prominent places in the monuments because of the auspicious character, and 74.1% respondents respond in this favour (Table 3.5). The other possible logic is

that it protects the viewers from the evil spirit and provides calmness (56.5%). The Table 3.6 shows the religious importance of the auspicious designs. It would be worth mentioning that the auspicious designs have religious importance and a good number of responses were in favour of this logic– strongly agree (34.12%) and agree (41.18%). However, the mean score (3.86) is not high. The arabesque designs were applied mainly at the archways of entrances as they gave welcoming feeling (61.2%), and joy and happiness (56.5%) to the viewers (Table 3.5). However, the geometrical designs were not used at the archways of the entrances, suggesting that the arabesque designs are much more suitable at archways of the entrances. The results (Table 3.7) further demonstrated that the geometrical designs do not have welcoming effect (50.6%) and less attractive than floral (49.4%).

In summary, one could easily infer from these findings that the placement of designs was logical, and the Mughals considered these points very well.

Table 3.6 Placement of auspicious designs showing its religious importance, n = 85 (survey results)

Opinion of the Respondents (on the scale of 1 to 5)										Mean score
Strongly Agree [5]		Agree [4]		Neither agree nor disagree [3]		Disagree [2]		Strongly disagree [1]		
No	%	No.	%	No.	%	No.	%	No.	%	
29	34.12	35	41.18	5	5.88	12	14.12	4	4.71	3.86

Table 3.7 Reasons for not to place geometrical patterns at the archways, n = 85 (survey results)

	Geometrical Forms are less attractive than Floral Designs		Not Symbolized for Welcome Sign		For its Still Character	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
yes	42	49.4	43	50.6	13	15.3

4.4.3 Visual ergonomics in the Mughal inlay designs

The Mughal architecture demonstrated considerable visual ergonomic sense and paid particular attention for placement and aesthetics of a design; both complementing each other. Traditional ergonomics concentrate on and ease-of-use and safety to the user. Visual ergonomics' refers to an aspect of design arrangement that specifically shows concern for good visibility, and examine if these conditions affect our visual efficiency and comfort of the environment (Dennis, 1999, 288). Liu (2003) related ergonomics with metaphysics (Truth), ethics (the Good) and aesthetics (Beauty), and termed this fusion as 'Ergo-aesthetic'—referring both ergonomics (safe, comfortable, usable) and aesthetics. The aesthetic dimension refers to a wider spectrum ranging from negative end (e.g., displeasing, unattractive) through a neutral point (e.g., plain-looking) to the positive end (e.g., pleasing and attractive). This section of the study evaluated if the arrangement of inlay design in the tomb of Itmad-ud-Daulah and the Taj Mahal establishes a clearly recognizable visual ergonomics. 'A few questions arise: First, what values a good design? Second, why a design application appears to be better than others? The present investigator critically examined the tomb of Itmad-ud- Daulah, and recognized that the stylized border and geometrical design are found to be prominent at the lower portion of the ceiling on the first floor of the building (Figures 3.58 a and b). Additionally, the Cypress tree, wine vessels and flower vases and prominent stylized designs observed at the upper most part of the minaret arouse the curiosity of the viewers.

Through the present survey, 68.8% respondents were of the opinion that new designs create curiosity, whereas 41.2% stated that it is very difficult to see these designs at the uppermost part of the building (Table 3.8). Based on ergonomic principles, the placement of these beautiful design elements (Fig. 3.58-b) demand considerable effort from the viewer, specifically affecting neck, back and eyes. Moreover, the building is heavily decorated thereby lacking negative space and not as per the design fundamentals. Design appreciation depends on usability, human capability (i.e., physical, behavioural and

physiological) and pleasure (Chakrabarti, 2008, 557). Interestingly, the designs depicted in the Taj Mahal seem to consider all aspects of visual ergonomics (Fig 3.59). The Table 3.9 indicates that 65.9% of the respondents favoured the placement of inlay designs in the Taj Mahal better than that of observed in the tomb of Itmad-ud-Daulah. However, these findings may not be sufficient to validate the survey results, and require further in-depth study to reach an appropriate conclusion. The simple geometrical designs enhanced the beauty of the Taj Mahal, whereas repetition of floral designs created harmony and rhythm as there was enough negative space on gateways and dome. It is of the present author's opinion that visitors to these monuments get relaxation by the presence of balanced design and harmony in colour and line and do not feel anxiousness and uneasiness. Simple planning and careful selection of conventional designs avoid the stress and give a sensible and aesthetic pleasant feeling to the viewer. Therefore, a designer should consider functional aspects of a design at the conceptual stage itself.

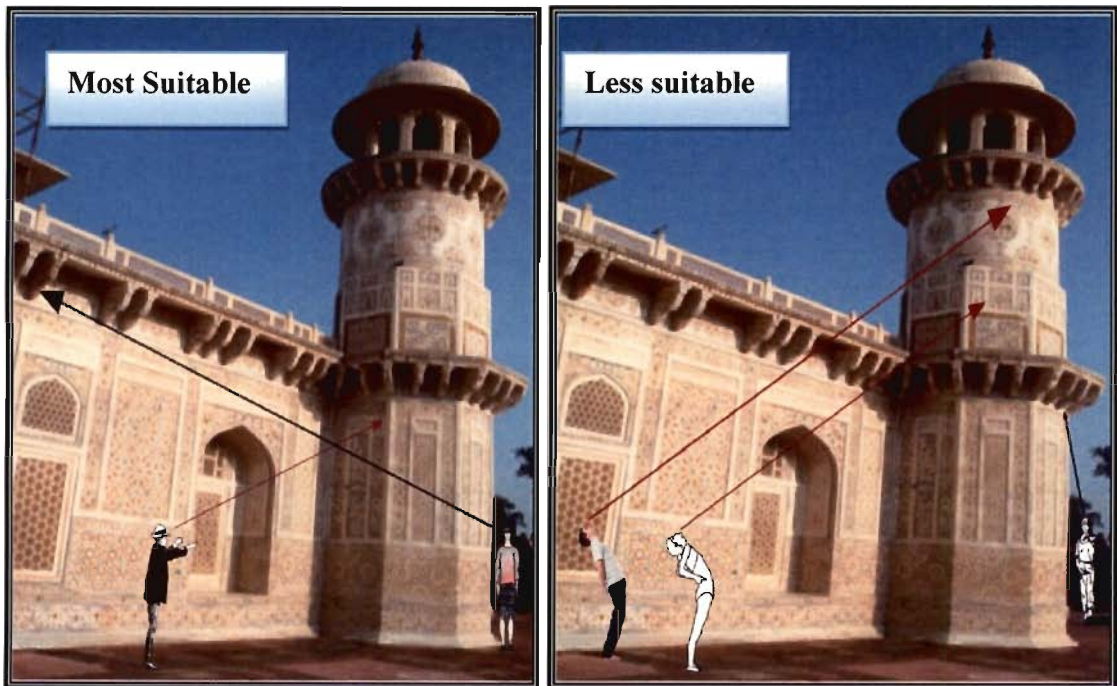


Fig. 3.58 (a)

Fig. 3. 58 (b)

Fig. 3.58 (a) and (b) Inlay designs according to visual ergonomics, tomb of Itmad-ud-Daulah

Table 3.8: Respondents' views regarding designs placed at uppermost part, and on entire monument, the tomb of Itmad-ud-Daulah, n = 85 (*survey results*)

Views Regarding Placement of Designs	Frequency	Percentage
i) New designs create curiosity (For designs placed at upper-most part)	56	68.8
ii) Difficult to see (For designs placed at upper-most part)	35	41.2
iii) Monotonous effect (For designs which covers entire monument)	11	12.9
iv) Look attractive (For designs which covers entire monument)	15	17.6

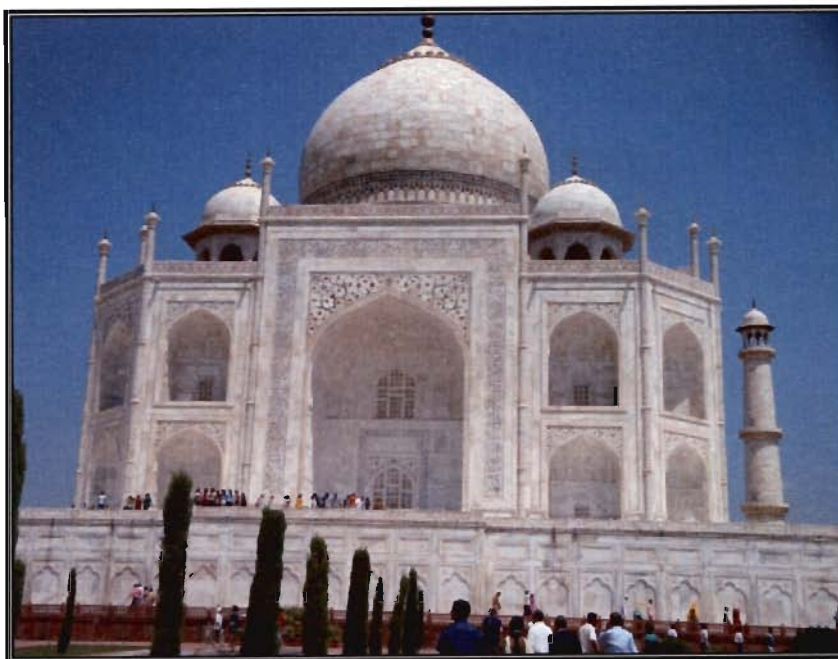


Fig. 3.59 Inlay designs according to visual ergonomics (Taj Mahal)

Table 3.9 Opinion regarding the placement of designs in the Taj Mahal and tomb of Itmad-ud-Daulah, n = 85 (survey results)

Placement of designs	Taj Mahal		Tomb of Itmad-ud-Daulah		Both	
	Frequency	%	Frequency	%	Frequency	%
Yes (better)	56	65.9	7	8.2	16	18.8

4.5 CONCLUDING REMARKS

When we speak of something that creates an aesthetic experience, we are usually talking about some form of art. However, not all works of art necessarily create an aesthetic experience. In the absence of media, an art is regarded as the best means to reflect the ideas and feelings of emperors (Sharma *et.al*, 2008). These authors emphasized that the Mughal inlay art is not merely flat, lifeless and monotonous; but is filled with varied sentiments, feelings, pleasures and sensations. There were many examples of the Hindu auspicious design elements present in the Mughal monuments, as discussed earlier. They were used not only as symbols and icons but also with amendments for creating an aesthetic impression. Thus, the Mughal monuments adopted inlay designs adorned with a deep-rooted sensibility of auspicious symbols from the Indian art, obtaining good fortune and protection from evil. The placement of designs and design elements in these monuments demonstrated the influence of culture, taste and interest, and the purpose behind the application. The development of designs for the growth of an art and the appropriate placement of designs and their elements are a proof of the artistic capability, creativity and incessant efforts of artisans and patronage by the Mughal rulers.

Colour schemes in the Mughal monuments were used to create style and appeal. They used a variety of coloured stones according to their functions, symbolism, and psychology of colour scheme. In the building of Akbar and Jahangir, the general effect required was monochromatic with an emphasis on white marble or red sandstone. The selection of colours in inlay designs of

Jahangir's buildings is more sober as compared to buildings of Shah Jahan. The inlay designs appear more translucent, as it is made of the mother pearl and has a rich polychromatic colour scheme in Shah Jahan's buildings. The artisans used colour schemes that were complementary, monochromatic, analogous and neutral in nature with great perfection and efficiency. The shading effects and folds of petals in natural flowers with the texture of stones were successfully employed. The flower colours and shades were very intelligently chosen and gave a natural look.

The present study finds that the colour application in inlay designs in the Mughal monuments is more sober. It was observed that the artisans preferred and aimed at the overall effect. In other words, the total effect of inlay designs were beautifully depicted with a composition mixed with balance, unity, harmony emphasis, and contrasts. The symmetry can be seen in the application of designs in the whole building. Based on the survey findings, the impact on viewers is appreciable. It can be said that the artisans were very conscious of colour symbolism as evidenced in floral, arabesques, geometrical, calligraphy and the Hindu auspicious designs. In auspicious designs, the Indian auspicious colours were found to be applied in the Mughal monuments except at the Akbar's tomb where black coloured *swastika* was present. Through a colour scheme, the depiction of wine vessels, dishes and vases in the exterior of the main building gave the impact of joy and sorrow on the sidewalls of the entrance gateway of Itmad-ud-Daulah. The overlapping effect through colours is skillfully applied in the Taj Mahal and the tomb of Itmad-ud-Daulah.

The results from the present study suggest that ancient Indian theories have influenced many of the important aspects of aesthetic pleasures in inlay designs in the Mughal monuments of Agra. *Rasa* is created when a spectator is able to identify him/her-self with the character or the work of art via *vaibhava* (emotive situation in human setting) and *bhavas* (furnishing moods which produce *rasa*). The present study identified six predominant *rasas* (aesthetics pleasure or *anandanubhuti*) in the Mughal architecture of Agra, i.e., *adbhut*,

veera, shringara, shanta, karuna and *raudra rasas*.. Furthermore, the inlay art was seen as an intimate relation to different emotions, and was never taken to be as an imaginative exercise only, divorced from moral and social values.

The present results conclusively state that many of the motifs can be read as decorative patterns but at source, their meanings were quite distinct. It can be said that inlay decoration in the Mughal monuments not only serves to please the eyes of the beholder but also fulfils an auspicious purpose; and this can be decided by the importance of design element, placement, scale, and proportion. In auspicious designs, it is remarkable that these design elements have been always placed at prominent places (e.g., above the eye level and boldly in size and proportion). It is worth to mention that the presence of *purnakalasa* in inlay design element of arabesques and in carved design at the Taj Mahal were stylistically different, but the symbolic value was same for both designs. Daring *swastika* at the main gateway of Akbar's tomb and three *satkonas* at the gateway of Jahangiri Mahal recognize auspiciousness.

The study further finds that auspicious motifs (e.g., the sun, *swastika*, *satkona* and *purunakalasa*) were placed on prominent places such as entrances and upper portions of the building at above the eye level. The geometrical designs were kept at the right place in a majority of the buildings, i.e., lower, uppermost or upper part with their gracious and sparkling effect, arousing curiosity and providing harmony and rhythm. The survey results demonstrated that the designs placed at the uppermost part of the tomb of Itmad-ud- Daulah are considered to be less suitable for a viewer's posture. Overall, to viewers' eyes, the Mughal inlay art can appear strikingly ornate, excessively intense, and quite purposeful.

A COMPARATIVE STUDY OF MUGHAL INLAY WITH CONTEMPORARY INLAY ART

5.1 BACKGROUND

“The past is ever with us and all that we are, and that we have, came from the past; we are its product, and we live immersed in it to continue it, with the present, and extend it to the future” (Nehru, 1946).

Marble inlay art is in existence in India since 15th century. From the time of the Mughal inlay art to the present time, the inlay art of marble has travelled a long distance and developed gradually (as discussed in chapter-1). Today, inlay work comes under the category of Indian handicrafts work. “A Handicraft Industry is a cottage or small scale industry, the products of which is artistic in character and requires skill and craftsmanship in their manufacture” (Khale, 1963, 2-3). Presently, crafts show tremendous potential in terms of creating employment and poverty alleviation in India (Maureen, 2004). The full potential of Mughal inlay art played an important role in its development process. Itmad-ud-Daulah is the first structure in India in where white marble replaces red sandstone as the ground for polychrome *pietra dura* inlay. Unlike the *pietra dura* of Italy, in particular Florentine tradition, Indian inlay work was not three-dimensional rather flat (Nath, 2004, 5). According to Blair and Bloom (1994), the modest, jewel-like building was remarkable for its delicate but exuberant decoration and warm tonality. This art was a creation for symbolizing the inner desire and fulfillment of the community. With the exit of the Mughals, the art of marble inlay work also started to decline. The number of craftsmen engaged in this art began to diminish. In the mid-nineteenth century, there were about 100 craftsmen specializing in this work and the art saw its revival in India during 1950s with the set up of organizations

such as Development Commission and the Handicrafts Board (www.india-crafts.com/stone_products/india_marble_stone).

India is renowned for its abundance of historical monuments as well as for the stone craftsmanship that is exhibited in several historic places, marble inlay emporiums and contemporary buildings in the region. This craftsmanship has created a niche for itself in the global market. Today, apart from Florence in Italy, Agra is the only place in the world where any kind of marble inlay work is being performed. The marble inlay work is found on large and small boxes, pill boxes, plates, table tops, and decorative articles, small hangings and in contemporary buildings. Inlay works executed by contemporary artists, are undertaken as per the architectural plan in modern buildings. The basic characteristics of the contemporary inlay art are that work is done by hand, and the resultant products have artistic and aesthetic value (Khale, 1963). These inlay pieces are objects of utility as well as of decoration.

As my study is the analysis of the Mughal inlay design, it is essential to analyze these Mughal designs according to the present scenario. This chapter is focused on the application of inlay in contemporary buildings that is Holy *Samadh* Dayal Bagh (Agra), Oberoi Hotel and Resort (Agra), Shri Durga Mata Mandir, (Ludhiana) and various farm houses and residences in Delhi. The very purpose of the study is to find out which inlay design elements are being used in contemporary buildings. The purpose of inlay designs, use of colour symbolism and factors related to inlay designing were analyzed through survey data (interviews, discussions, and conversations with craftsmen, contractors, and emporium owners). The total sample size of artisans covered during the study was 40. In addition to visual assessment of the contemporary buildings, contemporary architects, ergonomist and artists were interviewed during this research.

5.2 TECHNIQUES OF INLAY ART

Inlay art flowered, transformed, and gave expression to many styles known today as the Mughal and the Indo-Muslim inlay art. Most of the stone artisans draw much of their inspiration from the Mughal monuments and learnt this technique from generation to generation. There is no formal institute, which imparts training for skill development of the artisan in the surveyed area. It was evident from the survey that traditional marble inlay craftsmen have lack of knowledge and means to increase the quality and productivity, especially in the areas design input. Prahlad Agarwal, Chairman, UP Handicraft Development Center, said that the artisans trained their successors by themselves and as a result, the new generation of handicrafts artisans also used the same old technology, leaving no room for the latest technology (Sharma, 2008). The traditional technique of inlay has changed; opus sectile, marble intarsia of various colours have been replaced by *pietra dura*, in which hard and rare stones such as lapis, onyx, jasper, topaz, carnelian and agate are embedded in the marble. The inlay art process mainly consists of different bases and stone materials, which are described as below:

5.2.1 Bases and marble stones used

Red sand stone, white marble and black stone were used as base in the Mughal monuments. However, in contemporary buildings different type of bases, that is white marble (Makrana, Rajasthan, India), red sand stone, black stone (Kadappa, this is sandstone), crema marble (Italy), pink, yellow and other variegated colours of distinct shades were frequently used depending upon the buyer's requirement. Inlay on white marble gives a royal touch whereas black stone gives a very attractive look. Besides, soft soap stone, gaurara stone, paleva, alawastar stone, black stone and kora stone are used for making different items.

Various types of precious and semiprecious marbles stones such as green jade, malachite, coral, lapis lazuli, pnakhuni, cornelian, turquoise, sangmusa, summog, sukh, maquatis, and pai- zahar were used during the Mughal period. Presently, there were almost 30 types of colour stones, i.e. white jasper, chocolate stone, green marble, sang-a-mariam, tiger stone, red jasper, lapis, green aventurine, brown bidasar, black onyx, yellow aventurine, green bidasar, yellow bidasar, cobra stone, malachite, ruby, jaiselmer red (heated), dark green bidasar, crema marble, jaiselmer yellow, qalikantak, green laventure, torques (firoza), amethyst were available and used for the purpose of inlay design. All of these are natural stones. Craftsmen are also using synthetic stones in contemporary inlay work. A heat treatment is given to particular stone to get a shading effect; for instance, heating of yellow Jaisalmer stone to get a red colour.

5.2.2 Sources of different stone material

In India, marble stones had been imported from mainly Russia, Italy, China, Iran, South Africa, Afghanistan, Arabia and Tibet, besides domestic source of collection from Jaipur, Surat, Gwalior, Jabalpur and Patna during the Mughal period (Map 2.2). In present scenario, marble deposits are most widespread in Jaisalmer, Amba Ji, Makrana (Rajasthan) and Baroda (Gujarat). These stones are also found in Andhra Pradesh, Madhya Pradesh, Jammu and Kashmir, Haryana and Maharashtra. Semi precious stones for inlay work are procured from the beds of various rivers such as Narbada, and quarries in Gujrat and South India. Alawastar, popularly known as Italian marble is being imported from Italy, Lapis lazuli from Afghanistan, Malachite from Africa, Turquoise from Iran, while Black stone and Kora stone are imported from Belgium and Germany respectively (www.marble-krafts.com/). Some of the real stones being used in *Pachchikari* for decoration are also imported from Italy, Belgium and Russia, while others are procured from Jaipur, Madras and Hyderabad. In spite of this, there is a variety in stones accessible in the local market. During survey and discussion with Dr. Pardeep Sharma (Artist), it was realized that artisans are not fully conscious about the raw material from where it is coming.

The demand of stone had a great market few years back, but it has suddenly lost its charm. The reasons for this are: first, the introduction of new materials (i.e., ceramic tiles and alucobond), as a substitute of stone; second, architects, engineers and others are trying their hands on these newly available materials in the buildings. It is evident from literature that age-old materials such as stones that are more energy efficient and climate friendly to India need to be revived for contemporary application.

5.2.3 Inlay design making process

The inlay art is a closely protected traditional art and the tools used remain more or less the same as those used in the Mughal period. Nonetheless, some machines used to cut the stones were introduced in the later period. The delicate process of inlay involves cutting and engraving marble shapes manually. The process of marble inlay design (Fig. 4.1) begins by careful planning of designs and setting the selected colour patterns. A floral or geometrical motif is cut out on a brass sheet. After placing it on marble, it is drawn and then the marble is carved out. A careful selection of various shades of semiprecious stones is done to give the right gradation and shading to the flowers and other motifs. The selected stones are then shaped with the help of especially made wheels. Each part of the design is shaped individually, which requires a lot of patience. After all the stones are shaped, different groups of artisans inlay the stone motifs in marble. They cut grooves in marble with a help of an iron chisel. These grooves are of the same size for the stone to fit perfectly. The stones are set in the grooves with paste that is a mixture of oil, lead oxide, and wax made into white putty. The marble articles are then hand-polished with the help of a traditional polishing powder applied on the surface with a soft muslin cloth. For slicing pieces of stone to be inlaid, a bow saw strung with copper wire of up to five strands was used during the Mughal time. Separation between strands set the thickness of the slices of stone and the same method is used even today. The whole process calls for sharp, dexterous hands, patience and highly accurate.

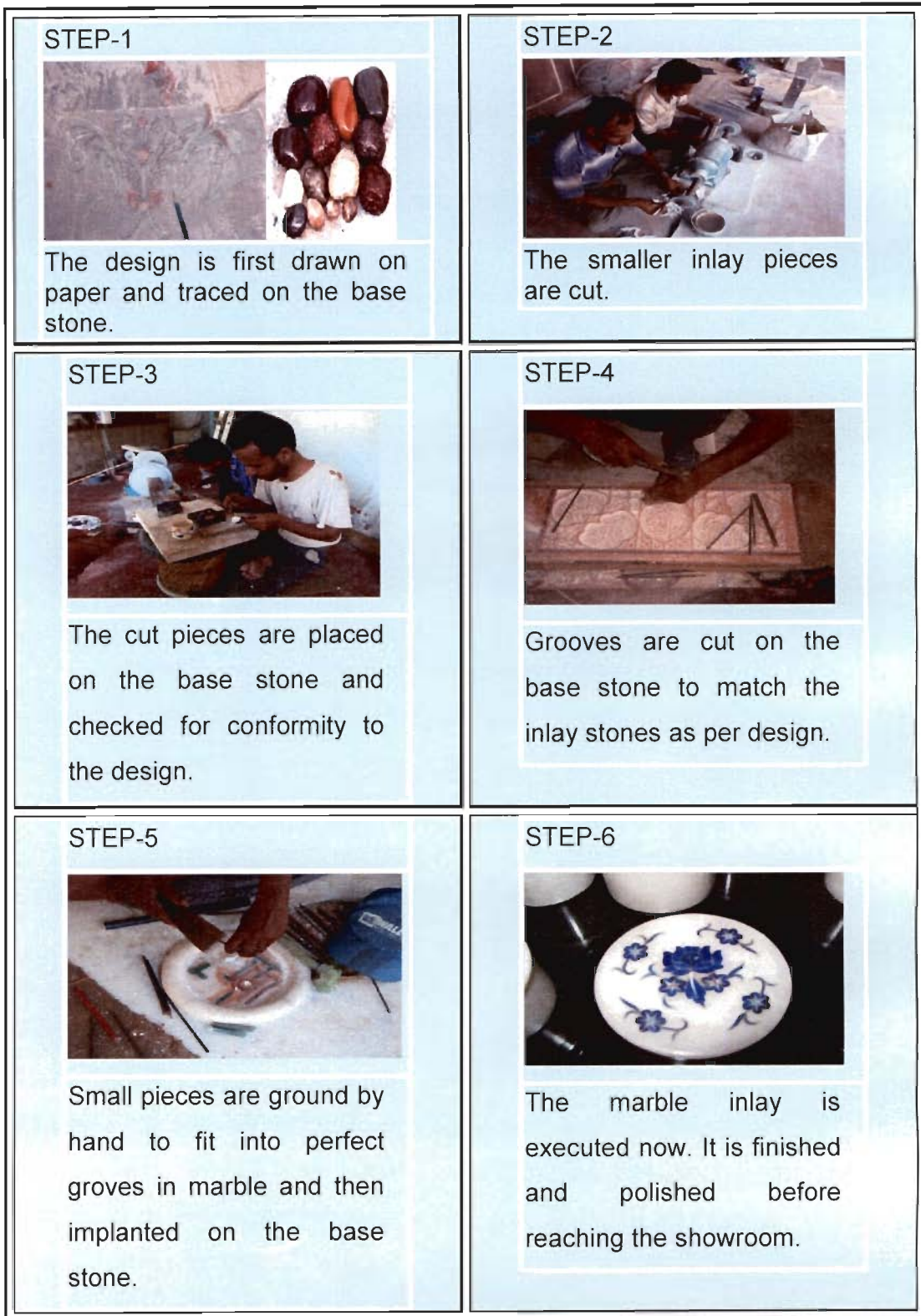


Fig. 4.1 Process of inlay design

It is interesting to note that this process was in refined form at the time of Taj Mahal. Then all the works were done by hands and only hammer and chisel were used at their disposal. But with the passage of time exporters and manufactures have started using mechanized stone-cutter (diamond cutter). These machines require a very skillful manipulation of chisel and hammer to bring out curvilinear patterns and designs. Grinding and polishing is a multi-stage process, using graded grit of hard stone, followed by continuous rubbing with pigments and wax.

There are two main categories of inlay artisans– *sadakars* and *pachikars*. The basic work of the stone craft– which involves cutting of stone shaping, engraving, netting, finishing and polishing is done by skilled *sadakars*. The other type of work is called *pachchikari* or inlays work, which is finer, more artistic and time taking process. This exclusive inlay work, requiring the expertise similar to cutting and polishing of jewelry stones using chisels and grinding stones– is done by experienced *pachikars*. It can be interpreted from the survey results that inlay technique (sequence of steps) remains the same with a little difference by way of cutting and engraving the stone.

During an interview with the well-known architect, Mr. V. N. Srivastva, the clients demand modernity in inlay designs, which require new materials and thus the contemporary inlay is entirely different from the Mughal style. He is of the view that the combination of kota stone, black granite and sand stone with handmade tiles, make the difference. The similarity was found only in geometrical patterns used in floor (Fig. 4.34). During, conversation with Dr. Prabhjot (an architect), it was realized that time is a very important factor these days and applying the old techniques of inlay work is neither possible nor advisable on this account. New computerized machines (incorporating CAD) and cutters (diamond) have come in the market, which are very helpful to produce desired results in a given time. In the post globalized and internet era, clients, specially the affluent ones, are demanding intricate and artistic work for their buildings. But it is not the same as is used in the ancient time. According to Saroj

Bhargav, an eminent artist, the stylized designs are inspired by the Mughal style in many religious buildings; for example inlay work in Holy *Samadh* of Dayal Bagh, Agra is in traditional style. The inference can be drawn that the beauty of inlay art is to recognize the amalgamation of traditional and modern concepts and techniques.

5.3 INLAY DESIGNS

During the Mughal reign, traditional geometrical, floral, and arabesques designs were combined with representational motifs of drinking cups, vases with flowers, trees, and visual descriptions of paradise from the Holy Qur'an. The sophisticated inlay in yellow, brown, gray and black, contrasting with the smooth white marble, prefigures the later phase of white marble garnished with gold and precious stones that marks the most profligate buildings constructed under later Mughal patronage. The changes occurring in style is evident in contemporary buildings. In present time, a variety of inlay designs are available in inlay market. Designs are produced according to demand and supply. According to A.C. Gupta, an inlay designer, "Now the customer has become increasingly quality conscious that makes us constantly spruce our quality and our future experimentations which depend upon the customer's demand" (www.novica.com/artistdetail/index.cfm?faid=2313). There is a huge business of manufacturer and exporter of marble inlay handicraft items. The well-known manufacturer and exporter are Marble Krafts (Agra), Monarch Crafts (Jaipur), and Rukmani Arts and Exports (Udaipur) etc. In traditional buildings, the Mughal floral, natural and stylized designs are observed in abundance. 'The Holy *Samadh*,' Dayal Bagh (Agra) is not only a traditional building (constructed in 1904) but also a venerable place for practicing meditation, contemplation and recitation of the great name "Radhasoami". This contemporary building represents four religious structures (e.g., Temple, Mosque, Church and *Gurudwara*). The inlay motifs are depicted on panels, wall and arches to strike a realistic line, having been borrowed freely from nature. The designer ignored the auspicious designs and give full preference to natural designs. It has a variety of

natural flowers (rose, marigold, poppy, sunflower, lotus, hibiscus, lily etc.), and *rangoli* designs (geometrical and stylized floral). These flowers have been beautifully inculcated into stone, true to nature. In calligraphy, use of the four languages, stand for four religions. Hindu temple— Shri Durga Mata Mandir (Ludhiana) was built in 1960 and rejuvenation was undertaken in early twenty first century. The temple is dotted with different decorative arts like mosaic, stained glass painting, carving, relief and inlay work. Inlay art adorns the temple and attracts the attention of the devotees. The auspicious designs such as *swastika*, *om*, pipal leaf and *purnakalasa* were used with floral and geometrical patterns. The religious design elements are also predominately depicted.

The Oberoi Amarvilas Hotel (Agra) has the air of a medieval Indian palace; it was completed in 2001 at a cost of \$3.6 million. It was designed by P.G. Patki and Associates of Bangkok, incorporating styles inspired by the Islamic architecture. The Oberoi Amarvilas is located 600 meters from the Taj Mahal and all its rooms, suites, lobby and lounge, offer breathtaking views of the great monument. The main purpose of using inlay is to attract the tourists and give a feeling of the similar atmosphere as in the Taj Mahal; that is why it was built in a style inspired by Moorish and Mughal architectures. The floral, geometrical and banyan tree were inlaid. The study also includes the farm houses designed by Ar. V.N. Srivastava. These farmhouses include mainly geometrical and abstract designs. It was observed that in official buildings geometrical and abstract forms are preferred. But in residential buildings, a variety in designs is evident. Floral, geometrical, abstract forms and auspicious designs were chosen by the clients (owner of the building) according to their taste and demand of the space. In flooring and on stairs, geometrical and stylized floral (*rangoli*) designs were preferred. Birds and animals were rarely used in buildings, but were mostly found on furniture and decorative articles. Inlay designs range from flora and fauna designs, simple monograms, patterns

(Geometrical), for elaborating the scenes of natural landscapes and history. These inlay designs are further discussed in detail.

5.3.1 Floral Designs

Flowers, plants and trees were used as the design elements for the ornamentation of textile, articles and buildings. The designs that are being used had always a feeling of the combination of man-made and natural motifs. Designers prefer both types of floral motifs as explained below:

5.3.1.1 Natural floral designs

i) Flower Designs

Natural flowers are used both in the Mughal and contemporary architecture with the same enthusiasm. Artisans reproduced nature with a great accuracy. In contemporary buildings, natural flowers are found in numerous forms. The depiction of natural flowers in full variety is observed at the Holy *Samadh* (main building) and all around the building (Fig. 4.2). They are in natural form and artisans showed their skill quite perfectly. They are placed beautifully at proper places, and panels also have the names of those flowers.

The demand for natural flowers is always in trend since the Mughal period to the present time. Natural flowers evoke the freshness and good feelings to the viewers and users. The figure 4.7-b shows that the traditional artisans are producing the same floral designs as present on the cenotaphs of Mumtaz at the Taj Mahal (Fig. 2.23-b). The wall panel is a copy of floral designs and is also reminding of the love of Shah Jahan (Figures 3.17 and 3.38). Today, designers prefer rose (Fig. 4.7-a), lotus (Fig. 4.4), hibiscus (Fig. 4.3), poppy, nargis and tulip (Fig. 4.5) etc. The artisans were very much conscious to give them a natural look by giving preference to the stones according to the demand of the depth and shade. The various shapes of these natural flowers were used in pillars, borders, creepers, wall panels and on the side archways of the gateways and spread a

fragrance in architecture. The purpose of depiction of natural flowers was the same as in the Mughal period; that is love for nature, freshness, welcome, and aesthetic beauty. It also enhanced the beauty of the space. The natural floral, stylized, and geometrical designs were composed together and provided the most magnificent combination within a panel (Fig. 4.5). It is a good example of designers' imagination.

The driving concept in the border design in a residence is to connect the whole room as a unit and is lively and pleasantly displayed with the help of natural flora (Fig. 4.6). They breathe with life and motion. The autumn leaf at the floor is giving a beautiful concept of colour combination of a family that creates harmony. Besides, these beautiful leaves (fall) show that we must start to build new and better deeds. "There is a harmony in autumn, and a lusture in its sky, which through the summer is not heard or seen, as if it could not be, as if it had not been!" (Shelley, 1907).

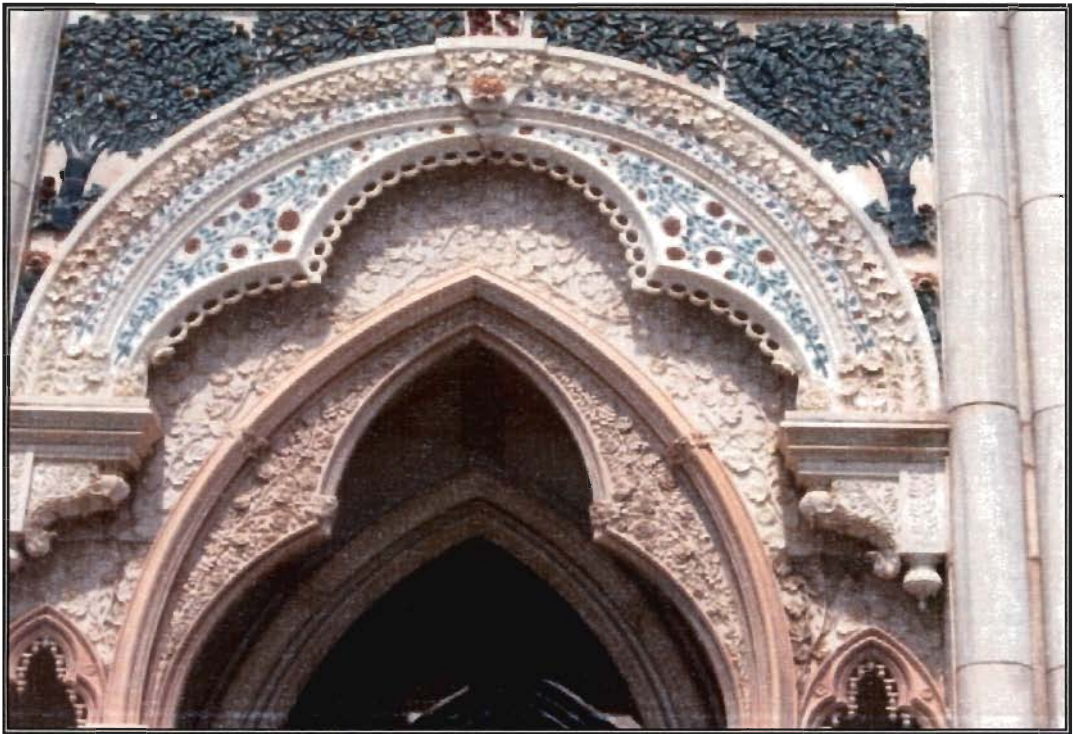


Fig. 4.2 Floral inlay designs at the archways of the Holy *Samadh* Dayal Bagh

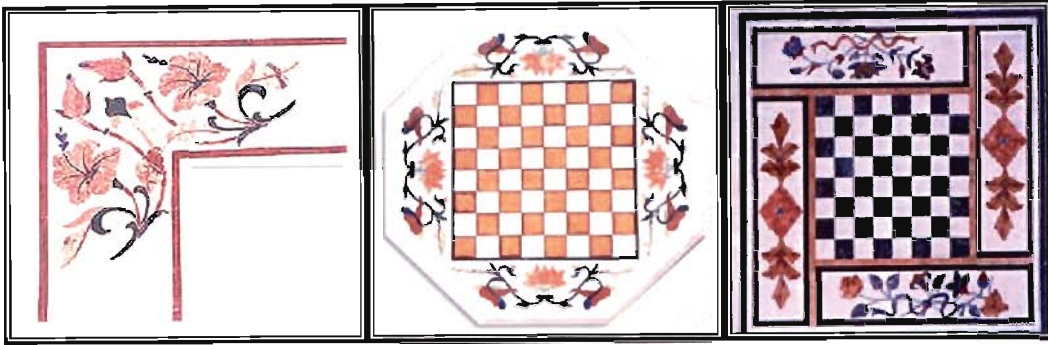


Fig. 4.3

Fig. 4.4

Fig. 4.5

Fig. 4.3 Natural flower (hibiscus) decoration at wall panel

Fig. 4.4 Lotus flower at table top

Fig. 4.5 Geometrical, natural and stylized floral design at table top

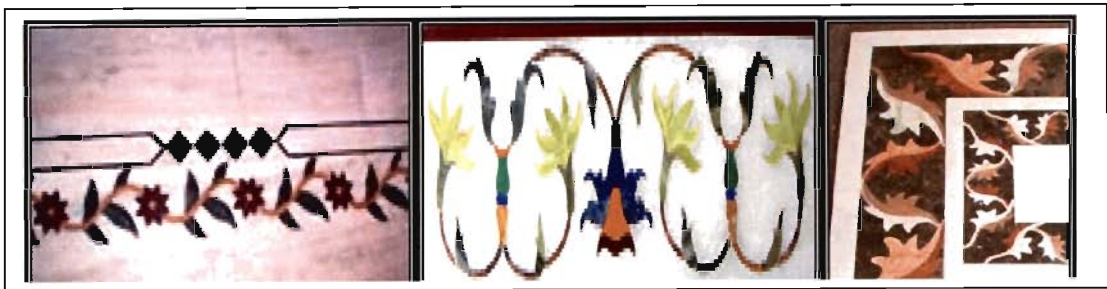


Fig. 4.6 Nargis flower, lily (border design) and autumn leaf at floor

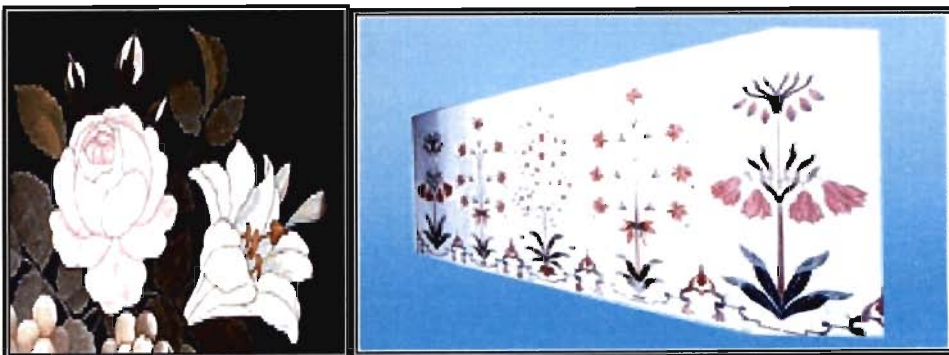


Fig. 4.7 (a)

Fig. 4.7 (b)

Fig. 4.7 (a) and (b) Rose flower and traditional natural flowers at wall panels

(Fig. 4.7-a, source: <http://www.bennettauctions.com/2003/052903>)

(Fig. 4.7-b, source: <http://www.tilohandicrafts.com/index.html>)

ii) Trees and fruits

Nowadays, a variety of trees are available in decorative inlay articles, whereas they were rarely applied in the Mughal monuments, except cypress tree at the tomb of Itmad-ud-Daulah. There are contemporary buildings, which have trees like banyan and Asoka (Fig 4.10). The banyan tree was applied nicely in inlay work at the Oberoi Amarvilas, Agra (Fig 4.8). The same banyan tree was found in Mural form (designed by Satish Gujral) at the British Council building, New Delhi (Fig 4.9). The purpose of this design is representing symbolic character and winning the attention of the viewers because of the bold form in both the buildings, though the technique is different. Of course, it has a lot of significance in Indian culture and is not observed in the Mughal monuments. It presents the modern form with traditional concept and these two styles influence each other. It attracts the attention of the viewers, as its representation is unique. The Asoka tree was used in religious as well as in decorative objects. It is the recurring elements in Indian art, often found at the gates of Buddhist and Hindu temples and is also associated with *Kamadeva*, the Hindu god of love.



Fig. 4.8

Fig. 4.8 Banyan tree at Oberoi Amarvilas (Agra)

(source: <http://www.amarvilas.com/Hotel/Hotel-Overview.aspx>)



Fig. 4.9

Fig. 4.9 Banyan tree at British Council building (Delhi)



Fig. 4.10

Fig. 4.10 Asoka tree at wall panel



Fig. 4.11-a

Fig.4.11-b

Fig. 4.11 (a) and (b) Fruits depiction at wall panels

(Fig. 4.11-b, source: <http://www.gatewayantiques.co.>)

It is noteworthy to understand that the depiction of fruits-- grapes and pomegranate-- only in the buildings of Jahangir (tomb of Itmad-ud-Daulah)-- shows the fondness of the ruler. He liked to eat grapes and pomegranates and imported them from Persia. The application of fruits in wall panel (contemporary inlay) presents the exciting environment as they evoke hunger. The overflowing profusion and lavish basketful of a variety of fruits (Fig. 4.11), suggests harvest, plenty, freshness, and imperial delight.

iii) **Landscape**

Landscape in Mughal painting was the favourite subject of that time, though it was not produced in inlay work. It may be for the reason that at that time the whole process of inlay work was done by hand and it was difficult to assemble all the stones in the absence of machines and diamond cutters. Landscape comprises the visible features of the area of land, including physical elements such as landforms, living elements of flora and fauna, and human elements like human activity and the built environment. It provides the natural scene with a perspective, which enhances the freshness and beauty of the surface. The proportioned landscape was manufactured at the wall panels in residential buildings (Fig. 4.12) for decoration purpose.



Fig. 4.12 Landscape at a wall panel

5.3.1.2 Stylized floral designs

i) Stylized Flowers

The application of stylized designs in the present time has increased and came up with diversity as a result of the imagination of designers. Stylized designs were preferred in *rangoli* and border (creeper) designs and frequently used in the Holy *Samadh*, Dayal Bagh (Figures 4.13 and 4.14), Oberoi Amarvilas (Fig. 4.16-c) and Shri Durga Mata Mandir (Fig. 4.18). Shri Durga Mata Mandir (Ludhiana) has the stylized floral inlay scrolls as also depicted in the Mughal buildings (Figures 4.15 and 3.63). Scroll pattern was considered as a link between the soul and the creator (Papadopaulo, 1980). The present study finds that the stylized designs in contemporary buildings have the same mode of harmony, rhythm, and perfection as in case of the Mughal monuments. The main purpose of stylized design was decoration and ornamentation of the space. The beauty of stylized design depends upon the designer's imagination and creative ideas. In figures 4.16 (a and b), the beautiful marble inlay stylized forms have been crafted keeping in mind the aesthetics of modern day décor with an eye on the intricacies of classic marble inlay work. It is reminiscent of the Mughal days of leisure and pleasure, depicting the rich tradition of complicated but attractive inlay designs.



Fig. 4.13 Stylized floral design (*rangoli*) at the Holy *Samadh* Dayal Bagh (Agra)



Fig. 4.14

Fig. 4.14 Stylized floral design (*rangoli* and border design) at the Holy *Samadh* Dayal Bagh (Agra)

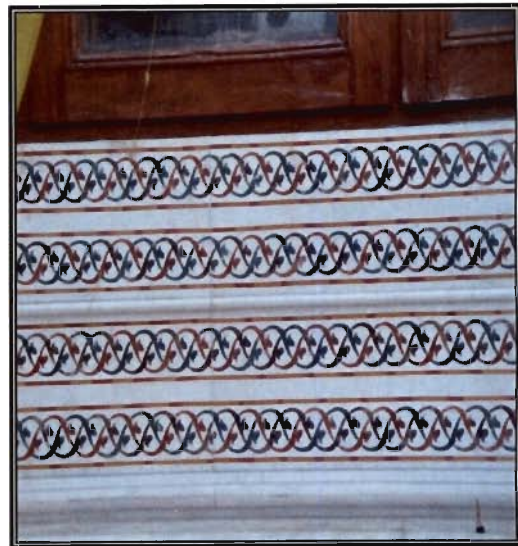


Fig 4.15

Fig 4.15 Stylized floral scrolls on the wall at Durga Mata Mandir (Ludhiana)



Fig 4.16-a



Fig 4.16-b

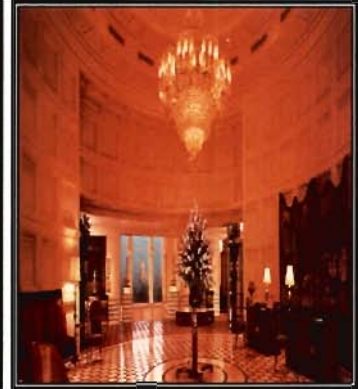


Fig 4.16-c

Fig 4.16 (a) and (b) Stylized floral design (*rangoli* design) at residential building (Delhi) (source: http://www.inlaymosaic.com/wallinlay/Cat_Index.asp)

Fig 4.16 (c) Stylized floral design (*rangoli* design) at Oberoi Amarvilas (Agra) (source: <http://www.amarvilas.com/Hotel/Hotel-Overview.aspx>)

ii) Arabesques and creepers

The full bloom of arabesques design marked their presence in the Mughal monuments and thereafter these designs did not flourish much. No doubt arabesques are applied in decorative items such as table-tops, wall panels (Fig. 4.17) but very little application is there in buildings. The arabesque form was evident on the floor at Shri Durga Mata Mandir (Fig. 4.18) and at the main building of the Holy *Samadh* (Fig 4.2). The splendid arch contained natural forms with its tender stems and twigs. It was spread within the arch and enriches the beauty of the entrance with amiable and pleasing effect. They were presented in the same style and are spreading the same fragrance as in the Mughal time. The creepers were mostly used in border designs on the floor as well as on the wall. Arabesque designs in the religious and traditional buildings depict its welcoming purpose. These unique designs add a cool look, showing the owner's love for mixing the conventional colours inter-changeable with practical colours. The study further highlights that these inlay floors bordering with multi-coloured floral details, lend a lively and vivacious feel to the surroundings.

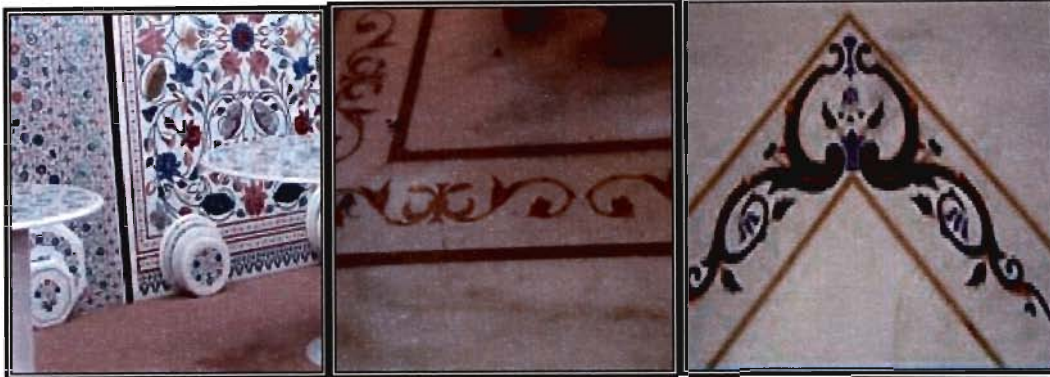


Fig. 4.17

Fig. 4.18

Fig. 4.19

Fig. 4.17 Arabesque design in wall panel

Fig. 4.18 Arabesque on floor at Durga Mata Mandir (Ludhiana)

Fig. 4.19 Arabesque on floor at residential building (Delhi)

5.3.2 Fauna designs

5.3.2.1 Birds and animals

Mughal rarely depicted birds and animals but it depended upon the choice of the ruler of that period. Swan bird, elephant, and fabulous animal were depicted in monuments of Agra. The birds' depiction saw at Diwan-I-Am (Delhi Red Fort), during Shah Jahan's period (Fig. 4.24). In present scenario, the animals (elephant, deer, lion, rabbit, and tortoise) and birds (swan, sparrow, peacock, duck, eagle and parrot) are freely illustrated. In addition, fishes, dolphin, *ajgar* and butterflies were exhibited according to the demand. The purpose is symbolic as well as decorative, depending upon the placement. Figures 4.20 and 4.23 shows the wall panels is composed with fruits, leaves, flowers, birds on black marble. These were chosen to impersonate the natural colours of the scene- for example blue lapis lazuli is used for some of the birds' feathers. The panels have the similarity with the depiction of birds in Diwan-I-Am. On critically going through the figures 4.21 and 4.22, it is found that these wall panels were beautifully composed with flowers, birds, animals, and tree by making a balance of designs. These designs seem to be more attractive, providing natural scenic beauty and freshness. No doubt these compositions

were inspired from the Mughal inlay. The designers are nowadays using marble inlay composed on wooden surface with modernity in shape, form, line, and colour (Fig. 4.25). This is a new trend in inlay.

The graceful shapes and splendid composition of animals with stylized design were used as a medallion design. There are stylized elephants and dolphins arranged in an amulet patterns with movement (Figures 4.26 and 4.27). These are the excellent examples that show healthy blend of modern and stylized form. However, some examples of pure modernity were also noticed, for example the portrait of Bengal tiger (Fig. 4.28). Here, the designers use the patch-work with sharp colour contrast. It indicated the simplicity in form and boldness in expression.



Fig. 4.20

Fig. 4.21

Fig. 4.22

Fig. 4.23

Fig. 4.20 Sparrow bird at the wall panel

Fig. 4.21 Birds on the walls of the inner sanctum of Sach Khand Sri Hazoor Sahib, Nanded, Maharashtra

Fig. 4.22 Deer and peacock at Sach Khand Sri Hazoor Sahib, Maharashtra
source (Figures 4.21 and 4.22):

<http://www.flickr.com/photos/chitrakari/335626895/in/photostream/>

Fig. 4.23 A pair of peagon on the wall panel



Fig. 4.24

Fig. 4.24 Birds depiction in Diwan-I-Am, Red Fort Delhi



Fig. 4.25

Fig. 4.25 Ducks design on table top (*source: www.billingswoodworking.com*)



Fig. 4.26

Fig. 4.26 Elephant design, table top

(*source: http://www.inlaymosaic.com/wallinlay/Cat_Index.asp*)



Fig. 4.27

Fig. 4.27 Dolphin design, floor design



Fig. 4.28

Fig. 4.28 Bengal tiger design, a wall panel

5.3.2.2 Human figures

The depiction of human figures in inlay depends upon the skill of the artisans. Only skilled master craftsman with a lot of passion can inlay the human figures, because subtle proportions and expressions are required. In contemporary period, these are available in wall panel that has inlaid on wall directly. Artisans has inlaid the human figures in realistic style as well as in simpler form (Figures 4.29 and 4.30). No doubt, realistic form requires more time, labour, stone and passions but it creates expression and emotion. The figure

4.29 shows the realistic form decorated with natural flower, which express romance and love. Nowadays, the simpler human forms are increasingly used as signs and symbols at public places to communicate. The figure 4.30 is showing two male figures with jumping action, which indicate joy and happiness. It is interesting to note that such types of human figures are not observed in the selected monuments of Agra. However, only one human figure was inlaid in Delhi Red Fort, built during Shah Jahan's period.



Fig. 4.29



Fig. 4.30

Fig. 4.29 Human figures in realistic form at a wall panel

(source: http://www.inlaymosaic.com/wallinlay/Cat_Index.asp)

Fig. 4.30 Human figures in simpler form at a wall panel

5.3.3 Geometrical designs

Geometrical patterns were also in fashion since the Mughal period to the present-day. Its trend is increasingly preferred by most of the clients. These designs are considered to be evergreen and are being used in simpler forms to typical patterns in almost all types of buildings. The geometrical designs are easy to compose and handle, and require less labour and cost. The architect Srivastava, who had applied geometrical and abstract forms of inlay designs in twenty five buildings in Delhi, informed that the purpose was adornment and beautification of space as shown in the figures 4.31 and 4.33. In these modern farm-houses, natural light enriches geometrical designs on the floor. The figure 4.32-a, is showing a combination of stylized and geometrical design. This design provides a look of carpet. The geometrical design at the floor of the Central

Library (IIT Roorkee) enhances the harmony and provides a revolving and inspiring environment for the students and scholars (Fig. 4.32-b). The marble inlays came in a mélange of designs and vibrant colors and offer a variety of forms with optical effects according to the client's aesthetic tastes (Fig. 4.34). With exquisite designs and precise finish, these marble inlays came in a wide plethora of geometrical designs.



Fig. 4.31

Fig. 4.32- a

Fig. 4.32- b

Fig. 4.31 Geometrical pattern (*rangoli* design) at Sh. Mukesh Jain's farm house (1994-95), Mehrauli (Delhi)

Fig. 4.32 (a) Geometrical pattern (carpet design)

(source: www.tajmahalhandicraft.com/aboutus.html)

Fig. 4.32 (b) Geometrical pattern (*rangoli* design) at central library, IITR, Roorkee



Fig 4.33

Fig 4.34

Fig. 4.33 Geometrical design (*rangoli* design) at bathroom

(source: www.tajmahalhandicraft.com/aboutus.html)

Fig 4.34 Geometrical design (*rangoli* design) at floor in farm house (Delhi)

5.3.4 Auspicious designs

Hindu auspicious inlay designs were observed in the Mughal monuments as also discussed in chapter 3. During Akbar's period auspicious designs were freely used by the artisans, while during the time of Jahangir and Shah Jahan, auspicious designs were seldom used. Nowadays, a great variety of auspicious designs are included in the contemporary religious buildings. These design elements depend upon the nature of building, for example, *swastika*, *satkonas*, *Ganesha*, *shankh*, *om*, pipal leaf and *purnakalasa* etc. were freely applied in the Hindu temples (Figures 4.35, 4.36 and 4.37). The symbolic meaning of these designs is auspiciousness and good luck. According to Saroj Bhargav, 'People are very much aware of symbolic designs and understand its importance'. It is noteworthy to understand that the Hindu motifs (*purnakalsa* and *gavaksa*) are available in modified version in the Mughal monuments as discussed in chapter 3. However, in temples every Hindu motif is in original form reflecting its very purpose.

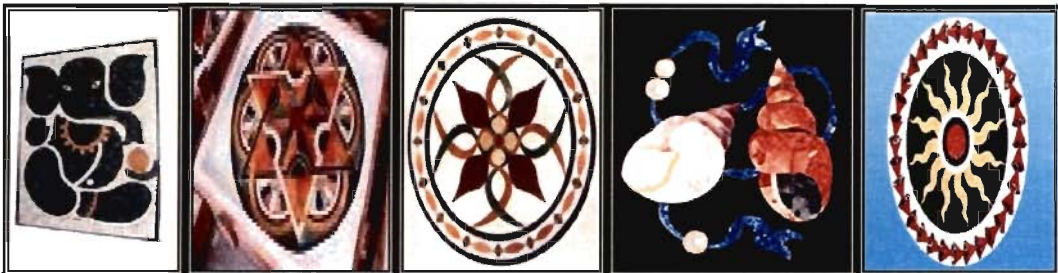


Fig.4.35 Ganesha, Satkona, Swastika, Shankh, Sun, respectively at wall panels
(Ganesha source: http://www.inlaymosaic.com/wallinlay/Cat_Index.asp),
(Satkona source: www.monarchcrafts.com/marble-inlay-work.htm),
(Shankh source: <http://k12bilkent.edu.tr/edweb.gsn.org/india.htm>.)



Fig. 4.36



Fig. 4.37

Fig. 4.36 Bold *om*, pipal leaf and *purnakalasa* at Durga Mata Mandir (Ludhiana)

Fig. 4.37 Bold *swastika* at the arches of Durga Mata Mandir (Ludhiana)

5.3.5 Abstract designs

In the Mughal monuments, abstract forms were infrequently used. Artisans applied them to fill the space, not to attract the attention of the viewers. But in contemporary buildings, mainly in offices, hotel and residential buildings, there are abstract designs to attract the whole attention of viewers (Figures 4.38 and 4.39). They are dominated by contrast of forms, representing modern trends. In abstract design, the theme is hidden in the design itself and the designer is the only person to express its theme, meaning and beauty. The designer created the abstract forms with emphasis on texture to enhance the beauty of the surface and give time to viewers to think something new in these forms. The bold modest forms are in demand, particularly in commercial buildings.



Fig. 4.38-a

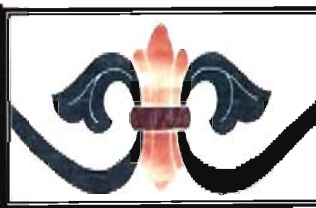


Fig.4.38-b



Fig.4.38-c

Fig. 4.38 (a), (b) and (c) Abstract forms at border designs



Fig. 4.39- a

Fig. 4.39-b

Fig. 4.39- c

Fig. 4.39 (a), (b) and (c) Abstract forms at wall panels

(Fig. 4.39-b, Source:www.monarchcrafts.com/marble-inlay-work.htm)

5.3.6 Miscellaneous designs

5.3.6.1 Flower vases

The flower vase was considered to be the influence of Persia during the period of Jahangir. The contemporary designers are creating flower vases with full-bloomed flowers. They give a look of whole painting and enhanced the beauty and cheerfulness (Fig. 4.40). These wall panels were designed with rich coloured flowers and birds, which make them very attractive. These are widely known for their availability in assortment of designs and shapes and used for enhancing interior as well as exterior of traditional and residential buildings. It recapitulates the feeling of the Mughal era.



Fig. 4.40-a

Fig. 4.40- b

Fig. 4.40-c

Fig. 4.40- d

Fig. 4.40 (a), (b), (c) and (d) Flower vases on wall panels

(Fig. 4.40 (a) source: http://www.inlaymosaic.com/wallinlay/Cat_Index.asp)

(Fig.4.40-d, source: <http://www.flickr.com/photos/chitrakari/335626895/in/photostream/>)

5.3.6.2 Musical instrument

In contemporary buildings the subject matter has no limit. The composed musical instruments were also inlaid in wall panel (Fig. 4.41). This piece of inlay will be the beauty of any musical palace or residence of music admirer and will definitely be preferred by music lover. The fully composed musical instrument is supposed to enhance the beauty of the surface and has symbolic character. This kind of unique design is executed on demand.



Fig. 4.41 Musical instruments composition on a wall panel

5.3.6.3 Signs and symbols

Signs and symbols are used to communicate the message in simpler and effective manner to the different group of users. These inlay designs are found to be increasingly used in public places. The figure 4.42, white marble symbols (drinking water and camera locker) inlaid on red sandstone in the Taj compound are catching the attention of the users and self- expressive in purpose. The bold and well-organized forms are used symbolically and presented aesthetically.



Fig. 4.42 (a) and (b) Symbols of water tap and camera locker in the Taj Mahal's compound

5.4 APPLICATION AND PURPOSE OF CONTEMPORARY INLAY

Nowadays, inlay work is being applied in consumer goods and decorative articles of everyday use (Boxes, trays, coaster sets, chessboards, beck gammon boards, pen holders, card holders, ashtrays, paperweights, candle stand, table tops, furniture, bowls and plates, wine cups and flower vase). Besides, the application of inlay is profusely displayed in various buildings such as religious, educational, commercial, public, and residential buildings. The application of different design elements and their purposes is discussed in Table 4.1. The present study finds that geometrical motifs are more prominently used in contemporary period followed by floral motifs, plants and trees, calligraphy and stylized forms. The Chinese cloud and *gavaksa* designs appeared in the Mughal inlay but were not noticed in contemporary inlay. Majority of the respondents favour this statement. Besides, some respondents' share that abstract form, landscapes, human figures, Ganesha, creepers and *rangoli* designs are in fashion nowadays. The study further pointed out that many new designs are added to the vocabulary of the contemporary inlay designs, whereas some designs have disappeared in contemporary context. It was also noticed that in traditional and religious buildings, designer used the same Mughal inlay design but with diversity. The purpose of religious design elements (the sun, *swastika*,

purnakalasa, satkona, etc.) and calligraphy designs are symbolic as in the Mughal buildings. The findings reiterate that signs and symbols (in inlay) are being used with symbolic meaning at public places (Fig. 4.42). The survey results highlight that 60% respondents were of the opinion that the designs such as geometrical, stylized floral, arabesque, and abstract have decorative purpose, as they are enhancing the surface decoration. Remaining 40 % of the respondents favoured that natural flowers, birds, animals, fruits, flower vases and human figures were used for decorative as well as symbolic purpose. Therefore, it can be stated that the inlay designs speak with silent and subtle beauty. The study further reveals that the geometrical, abstract, and stylized designs are much in demand and the purpose of inlay designs has changed from symbolic to decorative during the contemporary period. The probable reasons for such a change are: i) the presence of various modes of communication, ii) secular and democratic environment that allows the designers and users to use designs freely, and the influence of contemporary trends.

5.4.1 Factors responsible for contemporary inlay designs

The opinion of the respondents shed some light on the factors responsible for application of inlay designs in the contemporary context. These are mentioned as:

5.4.1.1 User's taste and nature

Personal taste and nature of the user is decisive factor for application of the designs in the buildings. They are as:

Nature loving– Natural floral, trees, plants, landscapes designs

Casual– Geometrical designs

Romantic– Figurative, flower vases, and floral designs

Table 4.1 Application and purpose of contemporary inlay designs, n=40, (survey results)

Inlay designs	Application					Purpose*		
	Decorative Objects	Buildings				D	S	D and S
		Religious	Residential	Pubic places / Hotel	Official			
Geometrical	√	√	√	√	√			
Calligraphy		√					√	
Natural flowers	√	√	√	√			√	
Landscape	√				√			
Stylized flowers	√	√	√	√	√			
Border and <i>Rangoli</i>	√	√	√	√	√			
Creepers	√	√	√	√	√			
Arabesques	√	√					√	
Trees								
Banyan tree		√		√			√	
Cypress tree	√						√	
Asoka tree	√	√					√	
Fruits	√	√	√				√	
Birds								
Swan	√	√					√	
Duck	√						√	
Peacock	√	√	√				√	
Parrot	√		√				√	
Sparrow	√						√	
Pigeon	√		√				√	
Animals								
Elephant	√		√				√	
Lion	√		√				√	

Table 4.1 contd./-

Tiger	√		√					√
Rabbit	√							√
Deer	√		√					√
Dolphin	√							√
Fish	√							√
Ajgar	√							√
Human figure	√	√						√
Flower vases	√	√	√					√
Wine vessels	x	x	x	x	x	x	x	x
Auspicious designs								
Star	√	√	√	√				√
Sun	√	√					√	
<i>Purnakalasa</i>		√					√	
<i>Swastika</i>	√	√	√				√	
<i>Satkona</i>	√	√	√				√	
<i>Shankh</i>	√	√					√	
<i>Gavaksa</i>	√	√	√				√	
Lotus	√	√	√					√
<i>Piple leaf</i>		√					√	
<i>Om</i>		√	√				√	
Abstract designs	√		√	√	√	√		
Musical instruments	√							√
Chinese cloud form	x	x	x	x	x	x	x	x
Signs and symbols				√			√	

* D stands for decorative and S stands for symbolic

5.4.1.2 Style of the building

The inlay designs reflected the purpose of the building and at the same time their application is conditioned by nature of the building.

- i) Traditional and classical buildings– Natural and stylized floral, arabesques and geometrical designs
- ii) Modern buildings– Abstract, geometrical and stylized designs
- iii) Religious buildings– Auspicious, *swastika*, *satkona*, star, lotus, *purnakalasa*, banyan tree, *Om*, *pipal*, and *tulsi* leaf etc.

5.4.1.3 Artisans/designers/manufacturers

Views of artisans play a vital role in the depiction of any design and are directly linked to the artisans' choice. After reviewing the existing artisans, it is also possible to characteristically classify them under three main categories based on the inlay artisanship:

i) **Historically established artisans**

The traditional marble inlay craftspeople of Inderpuri, Taj Ganj area of Agra practicing with inherited, indigenous knowledge, are using traditional materials and techniques to produce new products of their own traditional designs by using hand operated tools. Artisans are copying the designs; indeed, traditional artisans learn by copying. A new design is often an interpretation of an older one. Since the traditional design base often spreads throughout a region, or even throughout the entire country, registering individual innovations of this traditional base becomes highly complex.

ii) **Recently cultivated group of artisans in *Karkhana***

The *Karkhana* type units with a majority of hired workers, are larger establishments. They also work for others, such as whole sellers/ dealers and exporters. Market ambitious groups are using more recent methodologies,

templates, and design patterns from trendy catalogue. Inlay art needs a group of persons who are perfect in dealing different tasks of inlay designing. They work together to create “fusion” products. This category leads to the innovation in designs.

iii) Designers/manufacturers

Designers provide particular inlay designs to skilled artisans. The most thrilling and imaginative new uses of traditional designs are being explored by this category. Many Indian designers have established international reputation and are responsible inventing new inlay designs. It is safe to say that the contemporary Indian designers have played an important role in meeting the changing requirements of customers according to the contemporary trends. Through exchange of knowledge and technology, this art is heading towards universality and it would create a healthy trend. In fact, they are providing a secure frame to flourish new designs with new materials and styles. These designs are attractive but costly. Manufacturers have adopted modern technology by using power-operated machines for stone cutting, drilling, grinding and polishing. This has resulted in a significant increase in productivity. However, due to the use of new technology they are able to produce only such selected articles, which can be shaped by machines.

iv) Availability of the material and demand of the design

The availability of the raw material and demand of the design are considered to be the influencing factors for contemporary inlay designs. Survey results based on 40 responses, depict that 62.5% of artisans preferred to apply the designs, which are in demand, whereas, 37.5% of the artisans were of the view final designs depend upon availability of material and design. The results further demonstrate that 55% artisans made

necessary changes in the design according their convenience depending upon the availability of space and other conditions.

5.5 PLACEMENT OF INLAY DESIGNS

Designer often consider the aesthetic, functional, placement and many other aspects of a design, which usually require considerable research, thought, modeling, interactive adjustment, and re-designing. Placement of inlay design element depends upon space, purpose and logic of the article and building. Contemporary inlay artisans also placed the designs according to demand of the design and space, as in case of the Mughal inlay (discussed in chapter 4). For example, Hindu auspicious designs are placed and arranged above the eye level, boldly, and in symbolic colours.



Fig. 4.43 Placement of floral design at front of the Holy *Samadh* Dayal Bagh

In Shri Durga Mata Mandir, *om*, *swastika*, *puṇakalasa* and *pipal* leaves were applied at the arch ways of the durbar. *Swastika* and *om* were applied boldly at both side of the arches as *satkona*s applied in the Jahangiri Mahal. *Puṇakalasa* was placed just below the *swastika* and *om* (Fig. 4.36). In creeper they used *pipal* leaves, which are also a Hindu auspicious symbol in Hindu mythology. All these auspicious design elements were composed above the eye level and symbolic in colour (red, green and yellow). The whole design is fulfilling the symbolic purpose of the space and is providing calm and peaceful atmosphere. On the other side, *Ganesha* is placed at the prominent places such as centre of the gateway, arch of the entrance and become the centre of attraction for the viewers (Fig. 4.45). It wins the whole attention of the devotees. In Hindu religion, *Ganesha* is to be prayed first among all gods. The sides of the archways are just bordered; no arabesque design was used at this place, as used in the Mughal buildings. This place was bordered with a creeper design, enhancing the overall beauty. There is no scope of interruption to see the figure of *Ganesha*. In this way placement of the design makes a difference. The purpose of creeper is only decoration and it is placed at the outer wall below the window. The contemporary artists preferred to apply four strips, which were inspired by the Mughal style as shown in the figure 4.15. In the similar fashion, stylized floral design borders and *rangoli* designs were inlaid in the floor (Fig. 4.33) and enchant the viewers with the bold geometrical forms and colours. This way, it can be said that the auspicious designs are placed at the entrances and at the archways because of the auspiciousness of the designs. The stylized floral and geometrical designs are kept at the floor and/or in border design and their purpose is decoration alone.

In the Holy *Samadh*, Dayalbagh, natural floral designs were depicted on the archways of entrance gateway and all around the building (Figures 4.2 and 4.44). Natural floral designs were applied at the eye level and are providing good viewing condition (Fig. 4.43). The viewers can easily be delighted by the beauty of natural flowers without any stress and also can read the names of the flowers,

which were inlaid with every flower plant. In this way, floral designs are placed at eye level and at the entrances archways. This building represents four religions; that are Hindu, Christian, Islam, and Sikh. No auspicious inlay design was placed except calligraphy- 'Radha Swami' was mentioned in four languages. The calligraphy was kept at the centre of the arches and above the eye level. The geometrical and stylized floral designs were available in the borders and in *rangoli*, which were placed at the floor (Figures 4.13 and 4.14).

In the farm- houses (Figures 4.31 and 4.32), the geometrical forms were applied on the floor of the entrance door of the building. In the interior of farm houses (as shown in Fig 4.31) and in Durga Mata Mandir (Fig 4.33), the bold geometrical patterns were composed to make a carpet design on the floor just at the entrance which enhances the charm for the entrants and is a sign of welcome. The placement of geometrical designs was kept mostly at the uppermost part and the lower part of the building, as the aim is decoration.

In this way, it was found that in contemporary inlay, the designs were not only used according to nature of design but also according to the type and use of the building. For example, *swastika*, *satkona*, *purnakalasa* and other Hindu auspicious designs were found at religious (temples) and residential buildings. The study finds that auspicious designs were explicitly placed at prominent places that are on the entrances and at the upper part of the buildings (Figures 4.45 and 4.36).

In commercial buildings, only geometrical, abstract and stylized floral designs were noticed. Geometrical designs were placed on floors and stairs (Fig. 4.16). There were no auspicious designs like *swastika*, *purnakalasa*, *gavaksa* observed in the commercial buildings.

In the Mughal monuments auspicious motifs were evident at the entrances of tombs and at forts. During the Mughal period, the designs were placed according to the nature of design, as there was no effective means for

communication. The design elements were used to communicate with the masses and to make political balance; besides, they were a good source for the expression of feelings. The visual communication has gained strong hold over a period of time.

The other inlay designs were placed according to the demand of the space in building and user's preference. Floral designs were applied at lower entrances and upper part of the buildings for example on the floor in *rangoli* designs, in borders, creepers, and at the archways of the buildings.

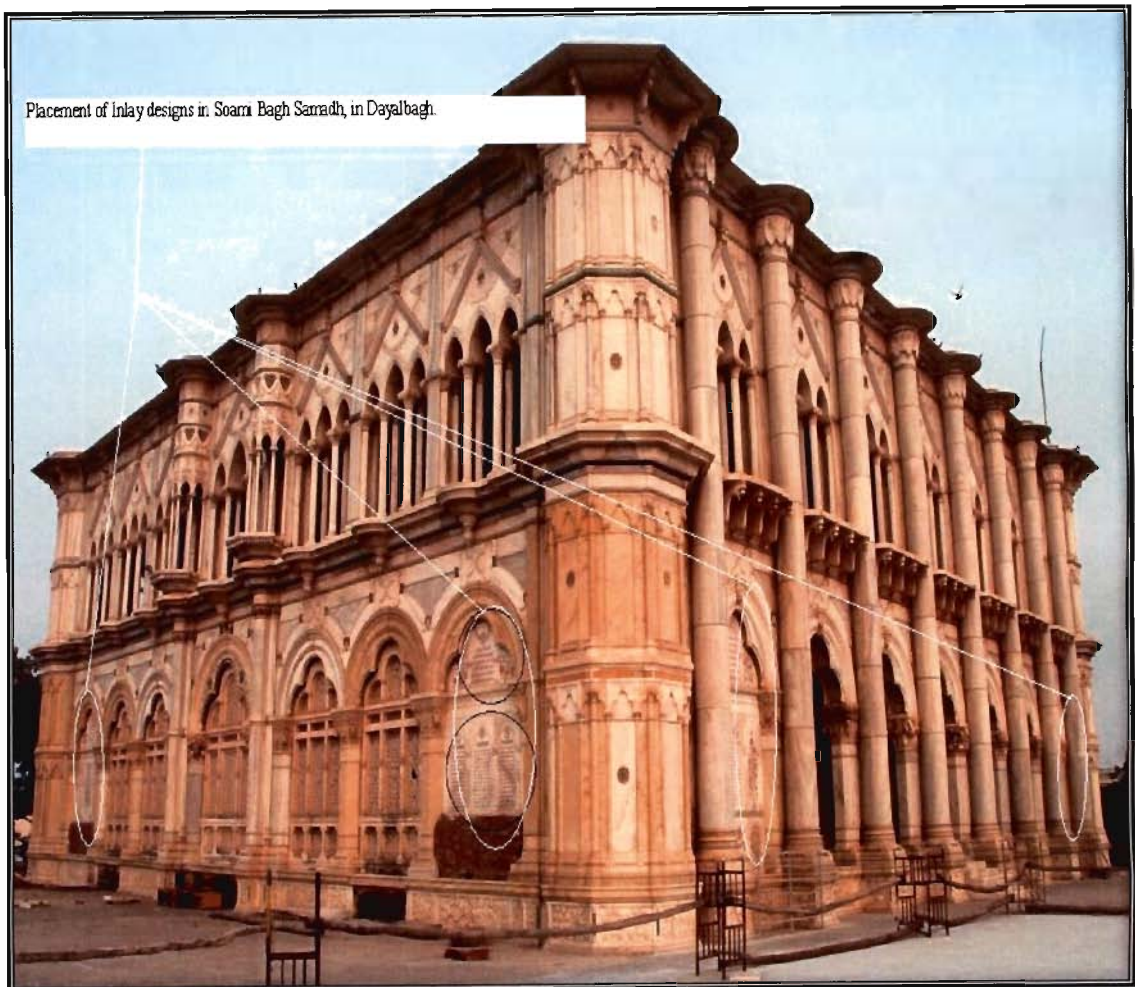


Fig. 4.44 Placement of floral inlay designs at the back of the Holy *Samadh*, Dayal Bagh, Agra

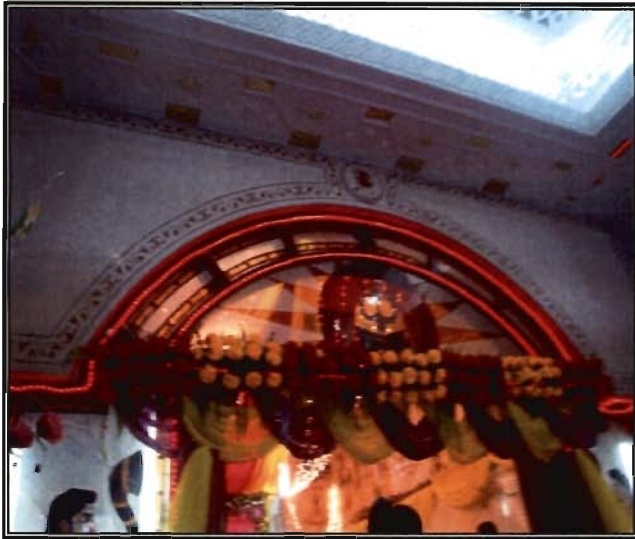


Fig. 4.45 Ganesha with stylized designs at Durga Mata Mandir (Ludhiana)

5.6 CONCLUDING REMARKS

The art of marble inlay (*pachchikari or pietre dura*) has passed from a generation to a generation, for example, from the craftsmen who made the Taj Mahal and Fatehpur Sikri to the present time. The traditional Inlay artists were making traditional objects, whereas designers and manufactures included a number of new designs that are fascinating to the customers. Traditional artisans generally have lack of knowledge and/or means to increase the quality and productivity of design input (to meet typical market requirements). However, it is a matter of pride that these craftsmen were playing an important role to preserve the high ideals of the master-craftsmen who brought honour and prestige to the Indian decorative art through the ages. The manufacturers and exporters have improved the quality through exchange of knowledge and technology. For example, manufacturers and exporters are utilizing diamond cutters and machines, thereby able to provide and modify designs according to change in demand from the customer.

The present study demonstrates that inlay technique, in majority is kept intact over a period of time, except for the introduction of some new tools, cutters, machines and materials. The manufacturers and exporters utilized

modern technology, resulting in a significant increase in productivity. It is a fact that in the present time, designers are known for incorporating bold modern colours, abstract shapes, and unique contemporary designs. But the demand for Mughal inlay designs is still evident. In contemporary inlay designs, a variety of traditional, modern and contemporary trends are prominent. It is found that some designs, such as Chinese cloud form and *gavaksa* of the Mughal inlay were absent in contemporary inlay works, whereas new designs were added to the vocabulary of contemporary inlay design (e.g., landscapes, musical instruments, birds (peacock, parrot, eagle, pigeon), animals (lion, tiger, rabbit, deer), fish, Dolphin, trees (banyan and Asoka), fruits (banana, apple, pineapple, cherry), auspicious designs (Ganesha, Shiva, *om*, *pipal* leaf), human figures, abstract forms, signs and symbols). The appearance of new designs in the contemporary inlay was due to wider choice of the clients, secular and democratic environment, and improvement in the application of new design.

During the Mughal period, in the absence of other effective means of communication, inlay designs acted as a good visual communicator. With the advent of various modes of communication, the purpose of inlay designs has experienced a change from symbolic to decorative in the present buildings. No doubt, these inlay designs are still being used as visual communicator but not to a great extent. Furthermore, the study finds that various factors such as user's taste, style of the building, artisans' skill and attitude, availability of raw material, domestic and export demands are responsible for contemporary inlay designs. The findings also reveal that auspicious symbols were placed on the prominent places, particularly on arches of entrances, whereas geometrical designs expressing decorative purpose were mostly kept at the uppermost and lower parts of the religious buildings. Geometrical, abstract, and stylized floral designs were found to be increasingly used in commercial and residential buildings, as these new forms energized the imagination of users and viewers.

FINDINGS AND RECOMMENDATIONS

6.1 FINDINGS

Historically, the importance of Mughal ornamentation influenced the Hindu, Islamic, Persian, and Chinese artists, and their contribution to the recognition is evident in the Mughal inlay art. The importance of these Mughal monuments is directly linked to their aesthetic appeal and the structures appear to be grand and pleasing to eyes. In previous chapters, the artistic and aesthetic effect of inlay designs, were discussed in detail. This chapter summarizes the important findings of this research.

- Chapters 1 and 2 introduced the Mughal inlay art, and the facts related to its origin and development, including the visit of Jahangir and his wife (Nur Jahan) to Mandu (Madhya Pradesh, India). The fascinating inlay work of the Mausoleum in the Ashrafi Mahal and at the Tower of Victory in Mandu impressed Jahangir and his wife. Continuous refinement of this inlay work, subsequently is evident in the tombs he built, i.e., Akbar's tomb, Salim Chisti's tomb and the tomb of Itmad-ud-Daulah. Based on the critical review of the facts, it was concluded that the Mughal inlay is an indigenous Indian art, and was developed rapidly in the period of Jahangir rather than that of Shah Jahan.
- The third chapter discussed the factors responsible for inlay designs. In general, an emperor's taste for art, personal interest, and inspiration are reflected in inlay designs. Akbar's religious and secular nature and influence of Indian art can be seen in the motifs depicted in the monuments he built. He openly accepted the fusion of arts; thus Persian, Chinese, and Hindu elements were implemented in the inlay designs. Jahangir's love for nature, drinking habits and family (Persian wife) influences were reflected in his monuments. In inlay designs, geometrical, arabesques, Persian, Chinese, and Hindu elements were also noticed in

Jahangir's period. Shah Jahan was inspired by the Persian and Islamic art, and their influence was evident in floral decoration and calligraphy, respectively.

- 1) During the period of Akbar, geometrical designs were used extensively, whereas arabesques depictions were less frequently used. Design elements such as *hamsa* bird, *gaja-vyalas* (composite animals with elephant head) fabulous animal, the sun, and *satkona* were depicted at major places in architectural decoration, and these design elements might have been applied to represent auspicious and symbolic characters. The abstract forms, geometrical patterns, and medallions were used only for decorative purpose and had limited application in inlay.
- 2) Inlay art appears to have developed and refined rapidly during Jahangir's era. He had introduced a variety of motifs in inlay such as Hindu inlay designs *swastikas*, *satkona*, lotus and Chinese cloud band. In addition, a range of Iranian or Persian motifs like vases and vessels, floral, fruits, cypress, birds, arabesque and geometrical motifs were introduced. The Hindu motifs - *swastikas* and *satkona* - that represent symbolic meaning, were found in Akbar's tomb only. These motifs might have been depicted because of his father's interest and not of Jahangir's own interest. A motif-*shanku* as a part of geometrical pattern was also observed in the tomb of Akbar. In the tomb of Itmad-ud- Daulah, there were symbols of Persian or Iranian motifs and Chinese cloud forms, however Hindu auspicious motifs were absent. Interestingly, the lotus flower, as a part of arabesque, was evident in the tomb of Akbar and tomb of Itmad-ud- Daulah. Presence of inlay designs in Jahangir's buildings demonstrates characteristics of his age; and his liking for the drinking of wine and bird paintings, love for nature and, overall, his appreciation of the Persian culture.

There was a wide range of arabesques and geometrical patterns during the reign of emperor Jahangir. The geometrical designs were preferred in his building and the developed geometric pattern reached a degree of complexity and sophistication, which was previously unknown in India. These geometric patterns exemplify the interest and taste of Jahangir

in repetition, symmetry, and continuous generation of patterns. The harmonious blending of colours, the Persian style of flowers and curling stems were evident in inlay decoration. For the first time, arabesque design was significantly represented in inlay work at the tomb of Akbar.

- 3) In Shah Jahan's buildings, a full range of flower-motifs can be seen. The natural and realistic flowers like hibiscus, lily, lotus, rose and poppy, as well as stylized flowers and conventionalized designs were evident in the border and archways. These motifs gave calm, joy, glossy, and blooming effect to the viewers, spreading a message of love. In geometrical designs, presence of *chevrons* brought a rhythmic effect. Calligraphy in inlay art was seen only in Shah Jahan's buildings. A great variety of arabesques with natural and stylized floral designs and leaves were also seen in his monuments. It is very surprising to note that the modified version of *burnakalasa* and *gavaksa* were noticed in the Shah Jahan's buildings, and might imply the interest of the inlay craftsmen in these particular designs. This important finding further highlights the fact that the inlay artisans, in majority were Hindus.
- 4) During the analysis of inlay design elements, some modified inlay design elements were recognized. They were *burnakalasa*, *gavaksa*, and *shanku*. At the Akbar's tomb, the *shanku* design, with flying birds, was observed. This design element was found to be inspired by the Mughal paintings, and the inlay artisans created this element with symbolic reference to flying – to attain the height. The depiction of modified *burnakalasa* and *gavaksa* designs in Shah Jahan buildings might be due to the personal choice of the chief mosaicist (Chiranji Lal from Delhi) and his artisans, as majority of them were Hindus. This finding suggests that geometrical, arabesques and floral designs were used for decorative purpose only. At the same time, greater parts of the designs were for symbolic purpose. The bird-*hamsa*, wine vessels, fabulous animal, *burnakalasa*, *swastika*, *gavaksa*, star, the sun, lotus, calligraphy, *satkona*, Chinese cloud, fruits (pomegranate and grapes), and cypress tree were symbolically used in the Mughal monuments of Agra.

These inferences indicate that the inlay designs applied on monuments have a great importance, as they give impression, idea, and message.

➤ Chapter 4 narrated that the Mughal inlay designs represented the basic assumptions of an art design. This chapter also dealt with the arrangements of inlay elements in any given space or surface. The inlay designs demonstrated balance, point of emphasis or dominance, unity, contrast, visual movement, rhythm, harmony or gradation, repetition, and a variety within designs.

1) The artisans during the Mughal dynasty were very conscious of colour symbolism. They used values, complementary, monochromatic, analogous and neutral colour schemes with great perfection and efficiency. In the buildings of Akbar and Jahangir, the general effect required was monochromatic with an emphasis on white marble and red sandstone. Jahangir's buildings were more sober in colour selection as compared to Shah Jahan's colour preference in inlay designs. The present study found that the colour application in inlay designs in the Mughal monuments is more sober than that of monuments in Iran. In auspicious designs, Indian auspicious colours were found to be applied in the Mughal monuments, except at the Akbar's tomb that has black coloured *swastika*. Through a colour scheme, the depiction of wine vessels, dishes and vases in the exterior of the main building gave the impact of joy whereas the sidewalls of entrance gateway reflected sorrow. The overlapping effect, texture creation, and natural shades were given to the design perfectly.

2) It was found that the Mughal inlay designs are not merely a flat, lifeless, and monotonous art, but are filled with different sentiments, feelings, pleasures, and sensations. The present study also found six predominant *rasas* (aesthetics pleasure or *anandanubhuti*) in inlay designs, *adbhut*, *veera*, *shringara*, *shanta*, *karuna* and *raudra rasas*, in the Mughal monuments of Agra. Artisans were capable of presenting the most abstract forms into concrete and real terms that evoked *rasas* and *bhavas* to the viewers.

3) The placement of the designs and design elements in the Mughal monuments suggests influences of culture, taste, and interests of the specific emperor.

The survey results from artisans point out that geometrical designs were found to be more suitable at the lower and the uppermost part of the building, but considered unsuitable at the entrance of a monument. Arabesque designs were most suitable for archways of the gateways, as they enhance welcoming effect, joy and happiness. The opinion of the respondents regarding the most appropriate place for auspicious designs (e.g., *swastika*, *satkonas*, *burnakalasa*, and the sun) is 'at entrance'. None of the responses received were in favour of the placement of auspicious designs on 'the lower part of the building'. It was concluded that placement of the majority of the inlay designs fulfils good visual conditions.

- Based on the fifth chapter, it was found that in a contemporary inlay design, a variety of traditional, modern, and contemporary trends were available. Contemporary designers are known for featuring bold modern colour, abstract shapes, and unique inlay designs. It is noteworthy that similarities in contemporary buildings and in the Mughal monuments were found with respect to the placement of auspicious, geometrical, arabesques and floral designs. The present study further demonstrates that designs and placement in contemporary buildings were according to demand and desire of the user, availability of readymade designs, type and nature of the building. The contemporary inlay art conveyed decorative purpose and aesthetic value explicitly. The results from the survey reveal that the auspicious symbols were placed on prominent places, particularly on the arches of entrances in contemporary religious buildings. The geometrical designs were usually kept at the uppermost and lower parts of the building, and expressed its decorative purpose. Geometrical, abstract, and stylized floral designs were the immediate and intimate sources of inspiration, and were freely implemented in contemporary buildings. The application of emerging new trends (geometrical, abstract, and stylized floral designs), particularly in commercial and residential buildings, appeals to the artistic imagination.

6.2 RECOMMENDATIONS

The Mughal monuments are of historical interest, and their art reflects unique expressions of the artistic and cultural heritage. Their presence in Indian history partly shaped the present and futuristic design elements as evidenced in the contemporary buildings of India.

However, the pathetic conditions and lack of preservation and care of some historical monuments (e.g., tomb of Itmad-ud-Daulah, Akbar's Tomb, and Buland Darwaza) made the investigator disappointed. Following observations were made during her visit to the selected monuments of Agra:

- i) The monuments are being blemished and mishandled by the visitors. The figures 5.6 and 5.7 are an example of destruction caused by vandals.
- ii) The figure 5.8 shows the destroyed part of the monuments by insects and birds that made the environment dirty and polluted with bad smell, leading to an uncomfortable atmosphere.
- iii) Some inlay designs were not cleaned properly and covered with dust (Fig. 5.7).
- iv) Hanging of a wire on the pillar at the Taj Mahal (Fig. 5.4) is an example that adversely affects the aesthetic values.
- v) The renovation of the monuments was limited to only plastering of the walls and the inlay work was not being restored to its original form (Fig. 5.1).
- vi) The entrance of the tomb of Itmad-ud-Daulah is not attractive. Additionally, the external environment is not so impressive and appealing and do not attract the attention of the visitors.
- vii) In the tomb of Itmad-ud-Daulah, interior designs were difficult to recognize in the absence of proper lighting.
- viii) Some inlay panels and pillars were found unattended and left without any definite purpose in the compound of Agra Red Fort (Fig. 5.5).

The above observations strongly call upon to rejuvenate and restore the Mughal monuments of Agra. Furthermore, the art of inlay needs to be preserved and popularized with the help of modern technology and proper management. The following points are suggested by the investigator:

- The rejuvenation and restoration of the Mughal monuments need to be taken up on a high priority basis by Archeology department (Government of India) with due consideration to maintain the originality, particularly of inlay work (Figures 5.2 and 5.3).
- Proper cleaning and washing of the inlay designs is equally important.
- There must be avoidance of any imitations that would affect their artistic and historic values.
- The proper provision of lighting on interior and exterior of the monuments will positively enhance the beauty of these designs.
- The concerned government department should record documentary on techniques and processes of inlay and display them on the LCD projector, fulfilling the aspiration of the future design students, perceptive tourists and visitors.
- The light and music shows related to the Mughal court and the Mughal assembly will enhance and captivate the visitors' appreciation.



Fig. 5.1

Fig. 5.2

Fig. 5.3

Fig. 5.1 Destroyed portion of designs repaired with plaster at the gateway of Taj Mahal

Figures 5.2 and 5.3 Inlay designs need repair in the Taj Mahal



Fig. 5.4

Fig. 5.4 Wire pointlessly hanging at the Taj Mahal



Fig. 5.5

Fig. 5.5 Inlaid broken panel placed in an unorganized manner in Agra Red Fort

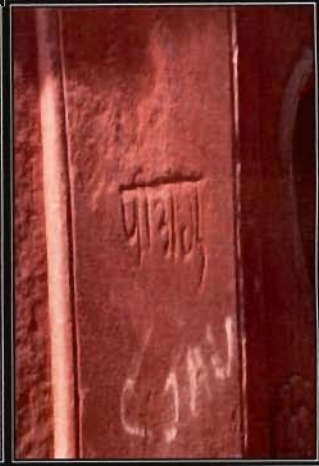


Fig. 5.6

Fig. 5.6 Wall of the Akbar's tomb damaged by vandals



Fig. 5.7

Fig. 5.7 Inlay design filled with dirt on a wall at the Red Fort, Agra



Fig. 5.8

Fig. 5.8 Part of the Akbar tomb destroyed by insects



Fig. 5.9

Fig. 5.9 Inlay designs need repair in the tomb of Itmad-ud-Daulah

5.3 LIMITATIONS OF THE STUDY

- Keeping in view of the time and cost parameters, the study was limited to the dynasty period that ranged from the Mughal ruler Akbar to Shah Jahan (1556 to 1658 A.D). The current study covered various

dimensions of decorative inlay art present only in the five Mughal monuments built at Agra.

- The investigator approached only a few contemporary buildings (religious buildings, hotel and private farm houses) because they have a variety of inlay designs that were comparable with the Mughal inlay.
- Though the investigator put all her efforts to collect the most representative sample regarding the Mughal inlay (e.g., sending questionnaire to a sample of 150 artists and architects by post and e-mails to 759 artists and architects), only 85 responses were received.
- Despite three personal visits to Agra, the investigator was able to ascertain only 35 responses of artisans pertaining to contemporary designs and techniques. This is because most of the inlay artisans were illiterate; some of them are very conservative and unable to respond; and some busy in their work. More importantly, although the present research effort was sincere, inlay artisans were not able to understand fully the purpose of this study.

It is concluded that the studies pertaining to the potential and scope of contemporary inlay art, and improvement of inlay art should be further investigated. The contemporary inlay design elements should be compared with other decorative arts of the Mughal period. Also, there is a great scope for studying fresco paintings (wall painting made of plaster) in the Mughal monuments.

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GLOSSARY

Abacus: In architecture, a flat slab on top of a capital, beneath an architrave.

Aesthetic experience: Experience of intrinsic features of things or events traditionally recognized as worthy of attention and reflection, such as literal, visual, and expressive qualities, which are studied during the art criticism process.

Aesthetic value: The value (worth) a thing or event has due to its capacity to evoke pleasure that is recognized as arising from features in the object traditionally considered worthy of attention.

Abstract: Unrecognizable forms and layouts. In an art, the word "abstract" is used to describe a nonobjective motif that cannot be described any other way.

Achromatic: Colour without chroma- black, white and grays made by mixing black and white. All other colours employ chromatic pigments.

Allover: A layout, in which motifs are fairly close and evenly distributed as opposed to stripes, borders, plaids, and engineered designs. Another term is overall.

Amalaka: Crown of the *Sikhara* used on domes; it has a cog rim with ribs of ring shapes; it is crowned by the *kalasa*-finial.

Animation: Depiction of living beings in art, paintings or such architectural elements such as peacock and elephant shaped brackets.

Anand: Enjoy

Arabesques: It is a rhythmic design of curved lines, spread over a surface, with reciprocal repetitions of vegetation designs and formed geometrically as adapted by Muslim artisans about A.D. 1000, it became highly formalized.

Arch: A structure that spans a space while supporting weight (e.g. a doorway in a stone wall). Arches appeared as early as the 2nd millennium BC in Mesopotamian brick architecture, but their systematic use started with the

Ancient Romans who were the first to apply the technique to a wide range of structures.

Art Deco: A style of decorative art typical of the 1920s and 1930s. The name was derived from the 1925 International Exhibition in Paris that showed "des Arts Decoratifs".

Artisans: A skilled manual worker who crafts items that may be functional or strictly decorative. Manufacture by hand and with hand tools imparts unique and individual qualities to artisanal products, in contrast to mass produced goods where every one is nearly identical.

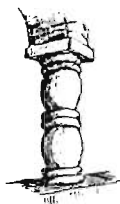
Background: The part of a design, picture or scene that appears to be farthest away from the viewer, usually nearest the horizon. This is the opposite of the foreground. Between background and foreground is the middle ground.

Bagh: A pleasure Garden.

Balance: A principle of design, balance refers to the way the elements of art are arranged to create a feeling of stability in a work; a pleasing or harmonious arrangement or proportion of parts or areas in a design or composition.

Balanced stripes: A symmetrical layout, in which colored bands are arranged around a "center."

Baluster Column: A column shaped somewhat like a baluster, with a short, massive shaft.



Baluster column

BC or B.C.: Abbreviation for "Before Christ". Conventionally placed after a number standing for a year computed by counting back from the year once thought to be the year Christ was born.

Border design: A pattern designed to run lengthwise along the edge of the surface and area.

Botanical: A design showing realistic representation of herbs, garden plants, and other botanical objects.

Bracket: A bracket is an architectural member made of wood, stone, or metal that overhangs a wall to support or carry weight. It may also support a statue, the spring of an arch, a beam, or a shelf. Brackets are often in the form of scrolls, and can be carved, cast, or molded. They can be entirely ornamental and serve no supporting purpose.

Brahma: A creator god, with four heads to overlook each of the four directions. Often just three heads are shown. Brahma is found both in Hindu and early Buddhist sculpture.

Burj: Tower, usually in a fortificatory context

Buddha and Buddhism: A Hindu prince (conventionally dated 563 BC - 483 BC) who renounced the worldly life, became a wandering ascetic, achieved enlightenment, and founded the Buddhist religion. Buddha means "The Enlightened One" and is an honorific title. His personal name is Siddhartha Gautama. He is also called Shakyamuni, "The Sage of the Shakyas" (his birth clan). Technically the Buddha is not a god, but he is often worshiped as divine.

Calligraphy: The art of writing or inscribing Arabic and Persian scripts ornamentally; used originally in manuscripts and paintings and then, for architectural ornamentation.

Canopy: An ornamental roof-like structure.

Capital: In architecture, crowning member of a column, pier, anta, pilaster, or other columnar form, providing a structural support for the horizontal member (entablature) or arch above.

Cenotaph: A mausoleum without a burial (literally, an "empty tomb").

Charar-Bagh (Chr-bagh): Four quartered garden; generally enclosed, dividing into four quarters by canals, each having pathways, with a pavilion or building, e.g., a tomb at the central point.

Chabutra: Raised platform.

Chevron: A regular zig-zag pattern of straight lines generally disposed horizontally on pilasters in Mughal building.

Column: An upright pillar or post. Columns may support a roof or a beam, or they may be purely decorative. The lower portion of a column is called the base. The upper portion of a column is called the capital.

Contemporary: A design with simple, extremely stylized motifs.

Conversational: A design with recognizable objects in the motif.

Cakra or Chakra: The revolving wheel of time which symbolized the cyclical rhythms of the cosmos; "wheel," a solar symbol; Vishnu's discus, a weapon; a supposed center of psychic energy in the human body.

Chhajja: A Mughal angled roof eave.

Dado: Lower portion of the wall from pavement to approximately waist height reserved for decoration e.g., by base-relief; also section of a pedestal between the bases and crown.

Dargah: The place or complex where the *mazar* or *maqbarah* of a Muslim saint (Sufi) is situated and where the people assemble for religious merit once a week or a year.

Darshan: "Seeing," the devotional viewing of an image during worship, or the ceremonial viewing of a ruler during public audience.

Darwaza: A gateway or portal.

Daulat Khana: Residences; personal place of the king; it is in the common sense and *Khass-Mahal* in respect of palatial architecture.

Decorative design: Artwork created for use in exterior and interior decoration.

Design: It is the planning that lays the basis for the making of every object; drawing; pattern; sketch; formal arrangement of elements that make up a work of art. It can be used both as a noun and as a verb and, in a broader way; it means applied arts and engineering. As a verb, "to design" refers to the process of originating and developing a plan for a product, structure, system, or component with intention. As a noun, "a design" is used for either the final (solution) plan.

Designer: The person designing is called a designer, also a term used for people who work professionally in one of the various design areas. Designing often requires a designer to consider the aesthetic, functional, and many other aspects of an object or a process, which usually requires considerable research, thought, modeling, interactive, adjustment, and re-design.

Diwan-I-Am: Hall of public audience; ceremonial place for the general assembly.

Diwan-I-Khas: Hall of private audience reserved for important nobles, to conduct confidential and important business of the state.

Dome: A dome is a structural element of architecture that resembles the hollow upper half of a sphere. Dome structures made of various materials have a long architectural lineage extending into prehistory.

Ergonomics: It is the science of designing the job, equipment, and workplace to fit the worker.

Façade: A facade or *façade* is generally one side of the exterior of a building, especially the front or frontal elevation of a building, one full front side of a building facing the other open space. In architecture, the facade of a building is often the most important from a design standpoint, as it sets the tone for the rest of the building.

Figurative: A type of conversational design using human figures.

Floral: Vegetation; a flowing design with twigs; leaves, flowers and other similar motifs for surface decoration.

Floriated: A design having floral ornaments or a floral form.

Foliage: To form (as an arch) into foils; to ornament with foliage; resembling a floral design.

Fresco: The term originally applied to painting on a wall executed while the plaster is wet but often now used for any wall painting (not in oil colour).

Frieze: In architecture the frieze is the wide central section part of an entablature and may be plain or—in the Ionic or Corinthian order—decorated with bas-reliefs. Even when neither columns nor pilasters are expressed, on an

astylar wall it lies upon the architrave ('main beam') and is capped by the moldings of the cornice.

Fringe: A continuous, garland-like series along the intrados of an arch either of spear-heads or of lotus bud.

Ganesh: (also Ganesha), the elephant-headed god who overcomes all obstacles with the force of an elephant crashing through the jungle. The son of Parvati, Ganesh removes every difficulty and is invoked at the start of any new enterprise. His attributes include an elephant goad, his broken-off tusk that he used as a pen to write the *Mahabharata*, a lasso, and a bowl of sweets. He rides a mouse or rat and is a jolly, good-natured god.

Ganj: A market or a market centre.

Gavaksa: Sometimes understood to be the third eye. It is the ubiquitous, circular, or horseshoe-shaped arch, which decorates Indian temples and shrines. This arch is shaped like the cross-section of a barrel vault (*shala*). *Chandrashala* is the term most often used for this kind of arch. It is called a *chaitya* arch when used on the facade of a *chaitya* hall. It may also be called a *gavaksa* (or kudu, in Tamil) when applied as a decoration to structural temples.

Geometric: A motif, pattern, or design depicting abstract, nonrepresentational shapes such as lines, circles, ellipses, triangles, rectangles, and polygons.

Geometric design: A design based on a geometric pattern, often contrasted with representational designs, such as floral or conversational.

Ground: The surface of a design or textile onto which motifs are applied.

Indra: A sky god, king of the gods in Vedic times who was later "demoted" to a *dikpala* as guardian of the eastern direction. His primary attribute is the *vajra* (thunderbolt). He rides an elephant, symbolic of thunderclouds and royal power. Indra is often paired with Brahma in Buddhist iconography.

Incised: Low or deep undercutting in plaster or stone for surface decoration; sort of engraving on flat surface.

Inlay: The art of inlay involves cutting out a design on the stone slabs, making of grooves on the surface, shaping of semi-precious stones using

emery wheels to fit into the grooves and finally "inlaying" of the stones on the marble surface. Semi-precious stones like Agate, Amethyst, Blue & Green Aventurine, Cornelian, Jasper, Lapis-Lazuli, Malachite, Moss-Agate, Tiger's Eye, Serpentine, Chalcedony, White Jasper, Hematite, and Onyx-Marble are shaped and polished and then laid into the marble with adhesive.

Jali: A stone lattice or pierced screen.

Jharoka: A Mughal projecting balcony with a domed or vaulted roof. It is supported on two or four brackets or two pillars and pyramidal roof.

Kama: The god of love.

Kalpavriksha and Kalpalata: The wish-fulfillment creeper or tree that were also symbols of imagination and creativity.

Kirtimukha: Pediment with the face of Glory; a popular ornamental motif of Buddhist and Brahmanical architecture. This protective motif in Indian temples is derived from the much earlier Chinese t'ao-t'ieh. In India, the monster often has the features of a horned lion.

Lakshmi: Goddess of prosperity, originally a water goddess, consort of Vishnu. Another popular iconographic image pairs her with Sarasvati, accompanying Vishnu.

Lattice: A jali or perforated screen.

Lattice window: A window divided into small panels arranged diagonally.

Mahal: A Mughal palace, pavilion, or hall.

Makara: A sea-monster, with a crocodile body and various other fanciful parts. Vehicle of Ganga and Varuna.

Mandala: A mystical diagram of the cosmos. Mandalas are a type of yantra.

Mandapa: A columned hall in a temple.

Masjid: Place for Islamic worship or a mosque.

Mausoleum: A building that is dedicated to the memory of a deceased person and contains his or her tomb.

Mihrab: A niche in the wall inside a mosque, which indicates the direction of prayer (towards Mecca). In India the mihrab is in the west wall.

Mosque: A Muslim place of worship. Congregational mosques for public worship are called Jami Masjid ("Friday Mosques"). Two important parts of a mosque are the mihrab (prayer niche) and the mimbar (pulpit).

Medallions: A medallion is a piece of metal, usually carved or engraved; circular (like a coin) and large, that is used as a work of art.

Minar: A tall, slender Islamic tower. Usually, minar is also called a minaret in English.

Monument: Architectural memorial; a formal building erected either over a sepulcher or elsewhere as memorial.

Mosaic: A pattern constructed from small coloured pieces. Mosaic is the art of creating images with an assemblage of small pieces of colored glass, stone, or other material. It may be a technique of decorative art, an aspect of interior decoration or of cultural and spiritual significance as in a cathedral. Small pieces, normally roughly cubic, of stone or glass of different colors, known as *tesserae*, (diminutive *tessellae*), are used to create a pattern or picture.

Motif: One or many distinctive and recurring elements, forms, shapes, or figures that make up a design.

Mughal: A dynasty of Muslim conquerors in northern and central India who ruled between 1526 and 1748 A.D are Mughal.

Naturalistic: A design with realistic depictions of organic or non-organic forms.

Negative space: The area between motifs in a layout.

Optical art: An abstract art that creates the illusion of movement, vibrating effects, moire (moiré) patterns, an exaggerated sense of depth, and other visual effects.

Overall: A layout, in which motifs are fairly close and evenly distributed as opposed to stripes, borders, plaids, and engineered designs. Another term is allover.

Padma: The lotus symbol which embodied the prime symbol of creation - of the universal creative force that springs from the bosom of the earth.

Pattern: A design for decorating a surface composed of a number of elements arranged in a regular or formal manner.

Purnakalasa: It is the full vase or *urn* is deeply rooted in Indian culture and religious ceremony. It is the overflowing flower pot - a symbol of creativity and prosperity. It is a visible symbol of the Hindu mythology. It may also be used as a column base, or be held as an attribute by certain gods.

Quran: The Quran is the central religious text of Islam. Muslim believes in the Quran (the book of divine guidance and direction for mankind, and consider the original Arabic text to be the final revelation of God).

Rajput: A line of Hindu rulers in Rajasthan and Madhya Pradesh, from before the Muslim invasions until Independence in the 20th century.

Repeat: The horizontal or vertical distance between identical elements of a pattern design.

Satkona: A hexagram or six pointed star, symbolizing the union of Shiva.

Scale: The relative size of a motif or layout.

Scroll: A ribbon-like motif in the shape of a partly rolled scroll of paper.

Shades: Colours to which black has been added.

Shakti: The female aspect of a god, representing the god's creative energy.

Shiva (noun), Shaiva (adjective): One of three great gods in India, the others being Vishnu and Brahma. Shiva's attributes in North India are the trident and snake; in the South, an antelope and axe. His mount is the bull, Nandi. Shiva is a god of the wild mountains and forests. He is the god of outsiders, yogis, wandering ascetics, and hermits, who do not fit into organized society. His wife is Parvati, with whom he lives in the Himalayas.

Surya: The sun god. He holds a lotus in both hands,, and drives a chariot pulled by seven horses representing the seven days of the week.

Stylized: A design with modified or abstracted elements that give the design a more decorative look.

Swastika: Representing the four-fold aspects of creation and motion.

Tantra (noun); Tantric (adjective): An unorthodox form of Hindu worship, involving acts and substances which are normally forbidden.

Theme: A subject matter for a design or collection.

Tile: A tile is a manufactured piece of hard-wearing material such as ceramic, stone, metal, or even glass.

Tomb: Mausoleum; formal room vault or building containing the grave; funeral memorial.

Torana: A free-standing ceremonial gateway; originally, a gateway with posts and crosspieces, sometimes elaborately decorated and carved, in front of a Buddhist stupa. Surviving toranas are made of stone, in imitation of earlier wooden architecture.

Vase and Foliage: Full vase with over- flowing vegetation.

Vastu: The Sanskrit word *vastu*, "any really existing or abiding substance or essence, thing, object, article", and also "goods, wealth, property". The *vrddhi*, *vāstu* takes the meaning of "the site or foundation of a house, site, ground, building or dwelling-place, habitation, homestead, house".

Visual Ergonomics: Allows users to stimulate and analyze the interaction between any product and its lighting environment, taking into account physiological aspects of human perception.

Vyala: Fabulous, mythical or composite animals for surface decoration, mostly inlaid, as at the Delhi Gate of Agra Red Fort.

QUESTIONNAIRE/ SCHEDULE 'I'

I take this opportunity to introduce myself as a Ph.D Scholar, Department of Humanities & Social Sciences, IIT Roorkee, India, and working on the research topic entitled as 'A Critical Analysis of Inlay Designs in the Monuments of Agra (India)'. I have selected five Mughal monuments of Agra, that are Agra Red Fort, Taj Mahal, Tomb of Itmad-ud-Daulah, Akbar's Tomb, and Fatehpur Sikiri. In this regard, to solicit views about various inlay design elements applied in these monuments, a comprehensive survey questionnaire have been prepared by me and attached here.

All information that is obtained from the survey will be treated as confidential, and used only for the academic research purpose. If you have any queries pertaining to the questionnaire, please do not hesitate to contact me at <poojasharma.iitr@gmail.com>, dixitdhs@iitr.ernet.in

The questionnaire is also available in the link-

<http://spreadsheets.google.com/viewform?key=p4a6mzqbh7KdFkVxAKsUsKw>

Pooja Sharma

Research Scholar, Dept HSS, IITR, Roorkee

+91-9411176228, email: poojasharma.iitr@gmail.com

Name of the respondent:

Age of the respondent:

Name of the institute and address:

Educational qualification:

Research experience (years):

Q1. What are the purpose of Inlay designs in the monuments of Agra and what inference can be drawn from these motifs?

Sl. No.	Motifs	Please, mention the inference/ meaning in brief	
		Inference	Write 'S'-for symbolic meaning and 'D'- decorative meaning, or both
a	Floral		
b	Arabesques		
c	Geometrical		
d	Calligraphy		
e	Bird- Swan		
f	Wine Vessels		
g	Fabulous Animal		
h	Cypress tree		
i	Star		
j	<i>Swastika</i>		
k	<i>Purnakalasa</i>		
l	lotus		
m	<i>Satkona</i>		
n	Fruits-Pomegranate, grapes		

- Q2. What is the logic behind the placement of geometrical pattern on the upper and lower part of the wall? Tick (✓)
- Geometrical pattern as only for decoration purpose
 - To Avoid Monotony
 - Geometrical designs are not much important as auspicious designs & floral designs
 - Does not attract the much interest of viewers
 - Other....
- Q3. What is the most appropriate place for auspicious designs like *swastika*, *satkonas*, *purnakalasa*, sun etc.? Tick (✓)
- Lower part of the building
 - Upper part of the building
 - At entrances
 - Uppermost part of the building
 - Other
- Q4. What is the most appropriate place for geometrical designs? Tick (✓)
- Lower part of the building

- b) Upper part of the building
 - c) At entrances
 - d) Uppermost part of the building
 - e) other
- Q5. What is the most appropriate place for floral designs? Tick (√)
- a) Lower part of the building
 - b) Upper part of the building
 - c) At entrances
 - d) Uppermost part of the building
 - e) other
- Q6. What is the logic behind the placement of auspicious design elements at entrances, above the eye level? Tick (√)
- a) political balance
 - b) Its auspiciousness
 - c) not intentionally
 - d) only for ornamentation
 - e) other
- Q7. What is the logic behind the placement of floral designs? Tick (√)
- a) Decoration
 - b) Symbolically
 - c) logically
- Q8. What is the impact of designs placed at the uppermost part or covered the entire monument like tomb of Itmad-ud-Daulah on viewers?
- a) Very difficult to see the designs at uppermost part of the monument
 - b) Monotonous effect
 - c) look attractive
 - d) not providing good seeing condition
 - e) any other
- Q9. What is your opinion regarding the placement of designs? Are they much better in Taj Mahal than tomb of Itmad-ud- Daulah?
- a) Taj Mahal
 - b) Tomb of Itmad-ud-Daulah
 - c) Both
- Q10. The inlay designs depicted on the outer wall of the monuments bring:
- a) Political balance
 - b) For Masses
 - c) Emperor's taste
 - d) Ornamentation

e) Mode of visual communication

Q11. What is the logic behind the placement of floral designs on the both sides of the arches gateways, doors and windows?

- a) Welcoming effect
- b) A break from geometrical patterns
- c) Depict joy and Happiness
- d) For the sake of nature

Q12. Why geometrical patterns are not placed at the archways, instead of arabesques designs?

- a) Geometrical forms are less attractive than floral designs
- b) Not symbolized for welcome sign
For its still character
- c) Any other

Q13. The inlay motifs like arabesques and auspicious motifs- *satkona*, *swastika* and *purnakalasa* used at the entrances of different gateway of monument. Do you feel these motifs have religious importance?

1	2	3	4	5
Strongly agreed	Agreed	Neither agree nor disagree	Disagree	Strongly disagreed

Q14. Were the Mughal rulers believed in Hindu astrology as they used some Hindu inlay motifs such as *swastika*, *satkona*, *purnakalasa*, *gavaksa*, star, etc.?

1	2	3	4	5
Strongly agreed	Agreed	Neither agree nor disagree	Disagree	Strongly disagreed

Q15. Do you feel that these Hindu inlay motifs were used by craftsman/ artist, as most of them were Hindu?

- a) Yes
- b) No

Q16. Were the motif depicted on the inner wall or chamber, purely on the users interest?

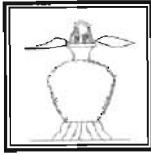
- a) Yes
- b) No

- Q17. Is repetition of design elements of Inlay has any negative effect on the viewer's eye?
 a) Yes
 b) No
- Q18. If yes, what kind of negative effect
- Q19. Why wine vessels are prominently used in Jahangir's period monuments (i.e. Itmad-ud- Daulah tomb and Akbar tomb)?
 a) Jahangir was fond of drinking
 b) Itmad-ud- Daulah liking
 c) Itmad-ud- Daulah disliking
 d) Persian impact because his wife belongs to Persian family
 e) Depict celebration/ joy
 f) Depict sorrow
 g) Artist interest
 h) any other
- Q20. Whether colorful wine vessels with fruit dishes are the symbol of happiness or Celebration in Itmad-ud-daula Tomb?
 a) Yes
 b) No
- Q21. Whether analogous wine vessels with empty dishes are the symbol of sadness or sorrow in Itmad-ud-Daulah Tomb?
 a) Yes
 b) No
- Q22. Whether down warded flowers depicted on or around the cenotaphs of Mumtaj in the Taj Mahal, are the symbol of sadness or sorrow?
 a) Yes
 b) No
- Q23. This motif resembles like? Tick (✓)



- I) Floral ornamentation
 II) *Purna kalasa*- A vase with flower, leaf and coconut
 III) A decorative Flower
 IV) Any other...

Q24. Is this motif (*Purnakalasa*- A vase with flower, leaf and coconut) is similar to the motifs shown in Q 23?

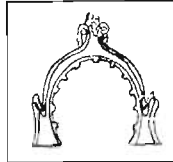


Yes/ No.

Q25. The Motif (a) resembles motif (b)



(a)



(b) Typical Hindu Gavaksa

Yes/ No.

If no, it (a) resembles..... Tick (✓)

- i) *Gavaksa*
- ii) *Decorative panel*
- Any other

Q26. This motif resembles... Tick (✓)



- i) *Shanku with flying bird*
- ii) *Geometrical pattern*
- iii) *Bell*
- iv) *Any other*

Q27. What is the name of this flower– lotus, rose or any other?



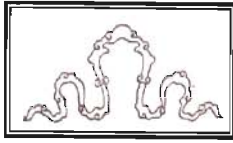
.....

Q28. What is the name of this flower– hibiscus and tulip flowers or any other?



.....

Q29. What is the name of this motif- Chinese cloud band or a part of arabesques or any other?



Q30. What is the name of this motif- Crown, *gavaksa* or decorative pattern?



Q31. Is this flower is giving the look of *cakra*, *star with six arms*, *typical flower*?



Q32. Any comment

QUESTIONNAIRE/ SCHEDULE 'II'

This survey is being conducted as part of my doctoral research work on “A Critical Analysis of the Mughal Inlay Art in the Monuments of Agra”. This questionnaire is designed to obtain informations related to contemporary inlay from artisans, contractors, and emporium owners.

Name of the investigator	:	Pooja Sharma Research Scholar (Fine Arts) Department of Humanities and Social Science Indian Institute of Technology Roorkee
E-mail	:	dixitdhs@ernet.iitr.in, poojanilwe@gmail.com

A. General information's about the respondent

1.	Name of the respondent	:	
2.	Age	:	
3.	Address	:	
4.	Educational qualification	:	
5.	Field Experience (years)	:	
6.	Any other	:	

Q.1 Which motifs are being used in contemporary inlay art? Tick (√) in the most appropriate column.

Sl. No.	Name of the motif	Contemporary Inlay Motifs
A	Birds	
B	Wine vessels	
C	Animals	
D	Floral motif	
E	Star	
F	<i>Swastika</i>	
G	<i>Purnakalasa</i>	
H	Geometrical motif	
I	Plants and trees	
J	Fruits	
K	Flower vases	
L	<i>Satkona</i>	
M	Calligraphy	
N	Arabesques	
O	Stylized	
P	Chinese cloud	
Q	<i>Gavaksa</i>	
R	Any other (specify, please)	

Q2 Is there any difference between the Mughal inlay technique and contemporary inlay technique?

A Yes/ No

Q3 If yes, pl. explain

A

Q4 Name the buildings where inlay designs art applied?

A

- Q5 In how many buildings, they applied this art
A
- Q6 In which decorative articles, you are using inlay?
A
- Q7 Where from you learnt inlay technique?
A
- Q8 Do you know any institute or workshop, where this technique can be learned?
A
- Q9 Where from you got the raw material?
A
- Q10 Are you getting any stone from abroad?
A Yes/ No
- Q11 If yes, which are the stones, please, name them.
A
- Q12 Do you have any idea about art fundamentals?
A Yes/ No
- Q13 Do you have any idea about Indian *rasas*?
A Yes/ No
- Q14 What is the purpose of inlay designs?
A i) Decorative
ii) Symbolic
iii) Some time both
iv) Any other
- Q15 Have you used the design according to demand or availability?
A
- Q16 What do you think about the scope of this art?
A
- Q17 How this art can be popularized?
A
- Q18 Do you consider the symbolic aspect of colours, when you applied?
A Yes/ No

SEMI STRUCTURED QUESTIONNAIRE/ SCHEDULE 'III'

This is utilized to take interview of the experts, working in contemporary inlay.

1. What type of inlay designs (geometrical, floral, abstract, auspicious design elements or any other) and material are being used in contemporary buildings?
2. Is there any difference in style and technique of contemporary inlay with respect to Mughal inlay?
3. What is the purpose of contemporary inlay designs?
4. Are designs applied according to the nature of the buildings?
5. What is the logic behind the placement of different designs i.e. geometrical, floral, abstract, and auspicious in contemporary buildings?
6. In how many buildings, you have applied inlay. Kindly provide their details of the buildings.
7. What type of response you are getting from the clients?
8. Please suggest how to popularize this art.

Detailed Address of Experts

Sl. No.	Name	Address
1.	Prof. Debkumar Chakrabarti	Department of Design Indian Institute of Technology Guwahati IIT, Guwahati, Assam, India
2.	Ar. V.N. Srivastva	Architect, New Delhi, India
3.	Prof. S.S. Bhati	Former Principal, College of Architecture, Chandigarh, 3314, Sector 15-D, Chandigarh- 160015
4.	Dr. Prabhjot Kaur	G.Z.S. College of Engineering and Tech. Bathinda, Punjab, India
5.	Prof. Saroj Bhargav	Retired Principal Lalit Kala Sansthan, Agra, U.P., India
6.	Dr. Pradeep Sharma	Artist, Agra

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