Taj Mahal

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Taj Mahal

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Introduction

The Taj's astonishing journey from memorial to monument in the last 375 years is the story of a remarkable building becoming a national icon and of many ways of seeing it. The Taj represented imperial Mughal power at its zenith in the Indian subcontinent and was intended to be a world famous masterpiece of human creation. Built by the Mughal Emperor Shahjahan as a mausoleum for his beloved wife Mumtaz Mahal, its primary function was commemorative, and it became his final resting place as well. The two, passionately in love, became inseparable companions since their marriage in 1612 until Mumtaz's death in 1631 after she gave birth to their fourteenth child. Mumtaz was her husband's confidante and advisor, patron of a riverfront garden in Agra, and was instrumental in supporting indigents and seeking pardon for the condemned (Koch 2006). She and her surviving seven children were the first family; she was bestowed with gifts and titles, and entrusted with the imperial seal even though Shahjahan had two other wives (Carroll 1972; Bano 2013). Shahjahan was devastated on her untimely death and soon after he resolved to build the perfect mausoleum, a replica on earth of Mumtaz's house in paradise. Her body was brought from its temporary burial in a garden on the banks of the River Tapti in Burhanpur to its present site in Agra on the Yamuna Riverfront, not too far from the royal quarters in the fort palace. Construction began in 1632 and Taj was completed in just over a decade, although work on decoration continued until 1648. The first two anniversaries of Mumtaz's death were grandly celebrated by the Emperor and nobles by offering prayers for her soul and distributing money to the poor (Fig. 1). A *waqf* (endowment) was established for the upkeep of the memorial structure in perpetuity with revenues from 30 villages and tax from income generated in the shops and caravanserais of Taj Ganj.

Monument

The Taj outlasted the Mughals and lost its commemorative use with the advent of colonial rule in India. It acquired the status of a monument in keeping with the nineteenth-century European zeitgeist and began to be perceived as an object of great beauty and pinnacle of a historical architectural style. A monument's repertoire of meanings extends beyond its original function as a commemorative entity. The Taj too gathered many meanings over time as a symbol of eternal love of the Emperor Shahjahan for his beloved,

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Taj Mahal, Fig. 1 The Taj Mahal

personification of the Empress Mumtaz Mahal herself, representation of perfect beauty, sacred structure, and symbol of India. Multifaceted meanings have been projected into the edifice that has successfully withstood the ravages of time and has survived natural disasters and social upheavals.

Louis Kahn defines monumentality as a "spiritual quality inherent in a structure which conveys the feeling of its eternity" (Twombly 2003, 21). This quest for perfect harmony, of paradise on earth, was achieved superbly in the Taj through design and workmanship. Koch (2006) interprets the mausoleum to be the earthly version of the house of Mumtaz Mahal in paradise. It was designed in the form an irregular octagon signifying *hasht bihisht* meaning "eight paradises" in Persian with a domed central chamber surrounded by eight halls linked by circumambulatory corridors. The guava-shaped double dome over the central hall is a symbol of the heavenly vault in the Islamic tradition. The *chahar bagh* garden in front of the mausoleum divided into four squares by water channels intersecting in a raised water tank is a also symbol of paradise with its rivers of milk, honey, wine, and water and its flowering trees laden with fruits. At Taj, the four quadrants are further subdivided by cross-axial pathways so that 16 sub-quadrants are formed, the entire complex surrounded by an enclosing wall. The walls of mausoleum have relief carvings of flowering plants and flower vases in marble and sandstone and its two sets of sacrophagi (of Mumtaz Mahal in the center and Shahjahan on its west) on two floors are ornamented with flowers in inlaid semi-precious stones in *pietra dura* technique. Thus the symbolism of paradise garden is extended to architectural facades and cenotaphs.

Begley (1996) interprets the Taj plan as an allegory for paradise and believes it to be inspired by the cosmological diagram in the thirteenth-century Sufi treatise *Futuhat al-Makkiyya*. The mausoleum is the symbolic throne of God and the raised marble tank is the replica of the celestial tank of abundance where Prophet Muhammad will stand before God on the Day of Judgment to

intercede on behalf of the faithful for their entry into paradise. The 36th *sura* of the Qur'an recited to the dying is inscribed around the central arched opening on all four sides of the building. The inscription on the southern gateway ends with the final words of *Sura* 89 from the Qur'an – "Enter thou my paradise!"

The Taj was a culmination of building experimentation over half a century in seeking perfection in visual symmetry and balance. It is a magnificent complex consisting of mausoleum and its two flanking buildings, mosque and its counterpart, *mihman khana* (guest house), two garden pavilions (*naubat khana*) located at the ends of east-west water channel, and the entry forecourt (*Jilaukhana*) with its four gateways, caravan serais, and tomb gardens. To the south is Taj Ganj, originally designed for housing caravan serais and bazaars, whose layout mirrored the quadripartite plan of the Taj garden. To the north across the river another riverfront garden, Mahtab Bagh (moonlight garden) was built, whose dimensions echoed that of the Taj garden.

The ideal of harmony is achieved through perfect bilateral symmetry and compositional balance through triadic division in plans, elevations, and architectural ornamentation of buildings (Koch 2006). Bilateral symmetry is produced in the layout of the entire complex with buildings, pavilions, towers, and gateways reflecting each other along the main north-south axis that culminates in the centrally placed marble mausoleum, flanked by mosque and *mihman khana* in a tripartite composition. The plan of the mausoleum, a "baghdadi octagon," created from a square with chamfered corners, is reflected in four identical elevations on the four facades. The soaring marble dome on the high drum over the octagonal central hall is surrounded by four *chattris* (literally umbrellas, octagonal pavilions surmounted by a dome) over the octagonal corner halls. Four minarets, tapering slightly outwards for optical correction, are set at the corners of the platform of the mausoleum.

The buildings and gardens were designed together in a vocabulary of framed alignments that consistently posited the mausoleum as a unified visual composition. Visual unity stemmed from the modular grid layout that integrated building structures and gardens in a complex geometry of visual relationships. This grid extended to coordinate the mausoleum and other buildings on the north and *Jilaukhana* and other structures on the south. It was carried across the river in the planning of Mahtab Bagh whose octagonal pool roughly covers the same area as the mausoleum. Using the *gaz* unit (equal to 80.55 cm) two modules can be discerned in measuring the complex – 23 *gaz* module for garden and riverfront terrace, and 17 *gaz* module for entry court and Taj Ganj. The entire complex fits a 1:3 ratio rectangle made up of three 374 *gaz* squares (Barraud 2006). An alternative system of measurement based upon the traditional Indian units *angulum* (1.763 cm) and *vitasti* (12 angulams = 21.156 cm) also reveals two grid modules – 90 *vitasti* for the mausoleum, riverfront terrace and garden, and 60 *vitasti* for entry court and Taj Ganj – allowing decimal divisions (Balasubramaniam 2009) (Fig. 2).

The long north-south axis provides the most favored orientation for viewing, along which are multiple gateways and thresholds for framing and reflection of Taj. The sighting of the building at each pause, whether at Taj Ganj Gateway or the south gateway, the pool in the center of the garden, or along the axial pathways, is an experience of complete visual unity in spite of perspectival distortions introduced by distance (Lane-Smith 1999). The foreshortening of distance produced at the main south gateway contributes to the astonishing effect the Taj has on the visitor when first glimpsed framed at this entry. The building appears to be much smaller and closer than it actually is because the brilliance of its white marble is heightened in the darkness of the arched opening and the vista shows only half of the distance, the other half being hidden by raised central pool. The plinth of the mausoleum fits perfectly across the arched opening for framing of the mausoleum. A visual unity of building elements, although separated in depth, is perceived frontally along the path of approach. The size and placement of the rear minarets appear to be deceptive closer to the front and smaller so that the visage is flattened as in a painting. The width of the pool along the walkway is such that all of

Taj Mahal, Fig. 2 South gateway

Taj is captured in reflection making it a window in the ground plane. The building's reflection in the central raised and elongated shallow pools doubles the visual experience adding to the viewer's sensation of the Taj as simultaneously floating and rising.

The long north-south axis continued well beyond the river Yamuna in Mahtab Bagh. Here a duplication of visual experiences is likely to have been experienced – both framed and reflected. In the large pool with 25 fountains and in the river, the Taj would have been reflected in its entirety in the still and flowing waters and splintered in the shooting fountain jets. In the arched openings of gateways, the Taj would have been framed giving a feel for its immediacy. Moynihan (2000) believes that the purpose of the moonlight garden was to view the Taj, its reflection in the river and pool, and its splintered image in the fountain jets of the octagonal pool (Fig. 3).

The river Yamuna on the north, flowing west to east, introduced a cross-axial pattern of movement and another frame of reference within which the sky and water were the dominant framing devices. The river was Emperor Shahjahan's path of movement as he traveled by boat from Agra Fort to visit Mumtaz Mahal's tomb. The deliberate location of the mausoleum on the bend in the river ensured long diagonal views, famously framed in Muthamman Burj of the Fort and possibly in the now gone *chattris* and *burjes* (balcony pavilions) of the many gardens that lined the southern bank. An early eighteenth-century map of Agra in the Maharaja Sawai Man Singh II Museum in Jaipur, India, shows 44 gardens adorning both banks of the Yamuna and eyewitness accounts of their existence include descriptions by the Dutch visitor Pelasert, Peter Mundy of the East India Company, the French physician Francois Bernier, and the Frenchman Jean de Thevenot (Koch 2006).

Taj Mahal, Fig. 3 Taj on the Yamuna River

On the northern bank too were many visual possibilities for sighting and framing, beginning with the sudden appearance of the Taj at the point where the river takes an eastward bend.

Monumentality is indicated by size and scale, position in the landscape, as well as materiality, knowledge, skills, and the degree of organizational effort needed to construct the grand edifice (Brunke et al. 2016). Taj, like other royal gardens on the Yamuna River, represented the Mughal waterfront garden prototype, in which the main structure was placed on a high terrace on the riverbank, overlooking the *chahar bagh* garden on the landward side (Koch 2006). To protect the mausoleum from the flooding river, circular wells dug deep into the bedrock supported the foundation of piers connected by arches over which the terrace was built. On the riverside, wooden poles joined together with iron bands rested on the rubble masonry base in wells, to counteract scouring by the river (Sharma et al. 2018; Baig and Mehrotra 2017). The river was the main source of water and the elaborate waterworks are still extant in the adjoining Khan-e-Alam Nursery. To obtain the desired pressure for the fountains, water was lifted and stored in tanks at three levels, each higher than the previous one; from the first storage tank it was raised by Persian wheels turned by bullocks into an open channel on top of an arched aqueduct running north-south to fill the next tank. From there it was raised to another channel over the east-west aqueduct that filled three tanks from where pipes in the garden wall supplied the fountains in the canals and tank (Nath 1972; Koch 2006).

Taj was built by 20,000 men at the total cost of five million rupees, one-fifth of the annual budget of the imperial household on building projects (Tillotson 2008). Stonecutters and stone carvers, bricklayers, lapidaries, and inlayers came from all over India and were supervised by a team of architects who worked closely with Shahjahan. Only three architects are known by their names – Ustad Ahmad Lahauri, Mir Abd-ul Karim and Makramat Khan – as is the calligrapher from Shiraz, Amanat Khan. The mason guilds have

left their marks on the sandstone flooring, both symbols and names, indicating that over 400 teams were employed at the site (Koch 2006). The Taj is built of brick and faced with red sandstone, white marble, and polished lime plaster. The red sandstone from Fatehpur Sikri (40 km from Agra) and white marble from Makrana in Rajasthan (about 400 km away) were hauled on carts drawn by bullocks or buffaloes. The building materials were hoisted over mud ramps, some said to be close to 2 miles in their length. Twenty-eight types of precious and semi-precious stones inlaid into the white marble included agate from Yemen, turquoise from Tibet, lapis lazuli from Afghanistan, amethyst from Persia, sapphire from Ceylon, carnelian from Arabia, oynx from Deccan, and garnets from Bundelkhand (Baig and Mehrotra 2017). Polished plaster (*chuna*), less expensive than marble, was used in upper storey ambulatory rooms and their domes, giving them a white shining surface (Koch 2006). The translucent marble reflects atmospheric light, appearing pinkish in mornings, white at high noon, and orangish at dusk, earning the mausoleum the name "illumined tomb" (*rauza-i-munavvara*) from contemporary Mughal sources (Begley and Desai 1989).

International Perspectives

Visual and textual representations by European travelers from the seventeenth century onwards brought worldwide fame to the Taj. As Pal (1989) points out, the Taj's fame rests upon paintings and photographs, books and essays by European visitors, largely responsible for creating the romance of the Taj by the last quarter of the eighteenth century. It was recognized as the epitome of Mughal architectural style giving it historical value befitting a monument. The ideology of conservation derived from the European cult of the monument in the nineteenth century when appreciation of their historic value led to their legal protection (Riegl 1982). European representations were widely circulated, building its extensive reputation, and spurring efforts for preservation. The "picturesque" aesthetic guided landscape restoration situating the historic monument in an archaeological park.

Lord Curzon, Viceroy of India, declared the Taj to be national monument and took a personal interest in its conservation between 1900 and 1908. He had the Archaeological Survey of India replace missing or deteriorated marble facings, rebuild a wall and arcade in the entry forecourt, and install a new lamp above the sarcophagi that he ordered from Cairo (Tillotson 2008). A small museum was established in the main entrance gateway, but was later shifted to the garden building in the west. The framing of Taj by thick vegetation was weakened with the replacement of the cypress with *ashoka* trees and fruit trees with flowering shrubs and lawn (Bowe 2007; Herbert 2005, 2012). The remnant Mughal garden was now transformed into a colonial version of the English landscape garden.

The Taj Mahal, voted by some 30 million people via internet and mobile phones in 2007 as one of "new Seven Wonders of the World," is now the subject of a global visual culture that allows image to dominate over meaning. The frontal view of the Taj Mahal has been reproduced ad infinitum in print and digital media, and has prevailed over other views. It represents the building as a flattened image, with or without the south garden, with no depth or shadows, always appearing to be taken at high noon. In non-photographic reproductions its visage is reduced to only a few essential lines to communicate its silhouette. In medallions, jewelry, and china, and in small marble models, the Taj is reduced to an item of display, part of the collection of curiosities. As a logo and brand name for selling tea, food items, and fashion accessories, its iconic image lends itself readily to commercial use (Pal 1989).

The Taj became a UNESCO World Heritage Site in 1983 and its popularity as a tourist destination has continued to rise so much so that a visit to India is considered incomplete without seeing the marble mausoleum and it remains a must see for domestic tourists as well. It gets between seven and eight million visitors annually out of which less than a million are from outside India (https://www.tajmahal.gov.in/contact-us.aspx). The sheer number of visitors in the peak tourist season

constrains movement and intrudes on a personal, contemplative experience. Edensor (1998) describes the package tourists' limited path of movement on a guided tour of the Taj. The tourist is usually shepherded by the guide to enter the complex from the entry courtyard, cross into the South Garden and walk along the pools, and directed to gaze and take photographs of the mausoleum at opportune points such as the south gate and central pool. Taj is a cash-cow for Archaeological Survey of India, accounting for half of its total income of Rs 253 million in Agra, of which only Rs 3 million are spent on upkeep of the mausoleum (Baig and Mehrotra 2017).

Key Issues/Current Debates

The Taj complex remains a tourist enclave, cut off from its surroundings, with limited movement patterns of the visitors that result in restricted views and experiences. Divorced from its surroundings, its narrative remains incomplete, with nothing told of either the past or the present landscape in which the Taj was, and is situated. In twenty-first-century post-colonial India, cultural tourism would benefit by expanding the idea of heritage landscape beyond the immediate vicinity of the monument. Monuments can serve as powerful accents in city planning allowing for "new and creative possibilities to emerge" (Giedion et al. 1958, 51). Although the Taj and other monuments in historic Agra were walled from the city, they were open to the river and commanded viewsheds that added greatly to their experience. The landscape context – the Yamuna riverfront lined with Mughal gardens – has radically transformed since the Taj was built. The changed political, social, and economic realities and the pressing demands of cultural tourism warrant a new post-colonial conservation paradigm extending beyond the monument.

Restoration work on the Taj and its gardens by Archaeological Survey of India continued in post-colonial India. Although the building structure has remained sturdy, discoloration, flaking of edges, erosion, cracking, and bulging of marble surfaces have to be taken care of (Agarwal 2002). Dirt deposition, grease from the hands of visitors, stains caused by rusting of iron dowels used for fixing marble, and algae and mosquito excreta have required surface cleaning with chemical detergents and clay packs. Cracks in marble slabs caused by corroding iron dowels and peeling of black stones have led to extensive repair work (https://www.indiatvnews.com/news/india-extensive-repair-work-taj-mahal-minar-begins-534517).

The last three decades have witnessed growing concerns about risks to the Taj from environmental pollution – air and water. The degraded water quality of the Yamuna is a consequence of sewage runoff from the city and effluents from households, crematoria, and minor industries located on the riverfront. The low volume of water in the river, with the exception of monsoon season, results from its flow upstream being diverted through canals for agricultural and urban uses. Transportation and residential combustion – vehicle exhausts and combustion of biogenic fuels such as dung – increase carbon monoxide and hydrocarbons while dust storms from the deserts in Rajasthan to the west increase suspended particulate matter and contribute to air pollution (https://www.indiatoday.in/magazine/cover-story/story/20180730-losing-the-taj-1289803-2018-07-21). Industrial emissions, in particular sulfur dioxide from the oil refinery built in Mathura city, only 40 km from the Taj, when combined with atmospheric moisture produce sulfuric acid causing a corrosive effect on the white marble.

The Supreme Court of India in 1996 in response to a public interest litigation ordered the polluting industries in the city to switch from coal/coke to natural gas, regulated development within 500 m of heritage structures (including a 100 m no-build zone) and asked the Ministry of Environment and Forests to plant a greenbelt around the mausoleum. In "Taj Trapezium" tending over 10,400 sq. km and encompassing Agra, pilgrim towns of Mathura and Vrindavan, Firuzabad, and Bharatpur Bird Sanctuary, industries have complied with the Supreme Court directive to install air pollution control systems and iron foundries have been shifted from Agra.

Under the Yamuna Action Plan, a new sewage treatment plant is slated to be built on the west bank to treat waste from the *nalas* (drainage ditches) that empty untreated sewage from the city. A green belt together with a 1.5–2 km emission free zone around the Taj has been proposed to reduce air pollution. This has occasioned new thinking about the original riverfront landscape in which the Taj was situated, and types and scale of landscape development that would be appropriate in present times.

Future Directions

A system of green open spaces around the Taj would improve air quality and make other heritage sites in the vicinity accessible to the visitors. Many more views of the Taj would be possible so that it is perceived as a "figure in the landscape," as it was meant to be at its inception (Sinha and Harkness 2009). A heritage corridor would encompass the historic gardens and mausoleums on the riverbank, and also green spaces between and around them – including parks, nature trails, nurseries, and farmland. Knitting them together in a continuous system of open spaces would allow conservation and viewshed easements.

Taj views would be the primary determinants of the extent of this heritage landscape that would include not only the original Taj complex but also the riverfront in both directions. A riverfront promenade designed with resting places would introduce pauses at key viewpoints where Taj vision can be framed, reflected, and integrated into landscape design of arrival points from the city. It can be built above the flood plain on the existing embankment creating a public right of way and connect with other heritage sites and public parks through a trail network that a pedestrian, biker, and those on a small vehicle can use (Harkness and Sinha 2004).

A new Taj View garden has been built between the Taj and Agra Fort toward the west, adding to the many view gardens in Shahjahan Park between the two World Heritage Sites, while to the east lies Taj Nature Walk (https://www.newindianexpress.com/nation/2019/may/13/

Taj Mahal, Fig. 4 Taj heritage corridor

controversial-taj-heritage-corridor-takes-new-green-avatar-1976318.html). Mahtab Bagh has been rebuilt and its central pool restored after the site was excavated by Archaeological Survey of India in cooperation with Arthur M. Sackler Gallery, Smithsonian Institution, USA (Moynihan 2000). The eastern bank of Yamuna is being developed into a riverfront promenade with tourist facilities between Ram Bagh to the north and Mahtab Bagh (https://www.indiatoday.in/india/story/land-acquisition-block-taj-riverfront-project-agra-1572707-2019-07-23). These public parks, as part of the greenbelt when completed, will organize and distribute visitor movement over the larger landscape and make possible views that acquire meaning by the variety of cultural landscapes that present themselves to the eye as fore-, middle-, and background to the Taj (Fig. 4).

Cross-References

- ▶ Archaeology and Colonialism
- ▶ Conservation and Management of Archaeological Sites
- ▶ Heritage Landscapes

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