

and you can do the same from shaded eyries on the mausoleum itself. (Fathepur Sikri, a nearby city founded by Akbar, is also famous for its breeze-catching architecture.)

The next notable Mughul tomb was built at Agra on the banks of the Jumna, during the reign of Jahangir, for I'timad-ud-Daula. This is not a royal tomb. I'timad-ud-Daula was a Persian, Jahangir's prime minister, and father of Jahangir's wife Nur Jahan, who supervised the construction.

Here, since royal grandeur was not required, the contradiction of scale could be resolved by reducing the mausoleum rather than by enlarging the surrounding *chahar bagh*. The mausoleum becomes a delicate marble miniature, consisting of a square stone platform, raised upon a low plinth, topped by a canopied pavilion containing the cenotaphs of I'timad-ud-Daula and his wife. Octagonal towers stand at each corner of the mausoleum and also at the corners of the outer enclosing wall. As usual, pavilions mark the intersections of the cross axes with the outer walls. The east pavilion is the gatehouse, and the rest are false gates. Since the *chahar bagh* is quite small (about five hundred feet on edge), in scale with the mausoleum, a recursive network of canals is unnecessary. Canals along the two axes and around the perimeter suffice to ensure that no part of the garden is far from water.

The tombs of Humayun and Akbar are surfaced in red sandstone and white marble, but the mausoleum of I'timad-ud-Daula is startlingly different; it is completely covered with *pietra-dura* work—semiprecious stones inlaid in marble to form intricate patterns—and the openings are screened with delicate marble latticework. This dematerializes the surface and allows it to change with the colors of the sky, so that the mausoleum seems not a great, splendid mass, but a tiny fragile thing.

There is another striking difference. This garden does not stand upon a uniform plain, but, like other Mughul gardens in Agra, backs to the River Jumna. The main axis runs from the gate to the river. Three sides of the garden are enclosed by walls, and the fourth is formed by a high terrace from which you can look out over the broad muddy waters to the city.

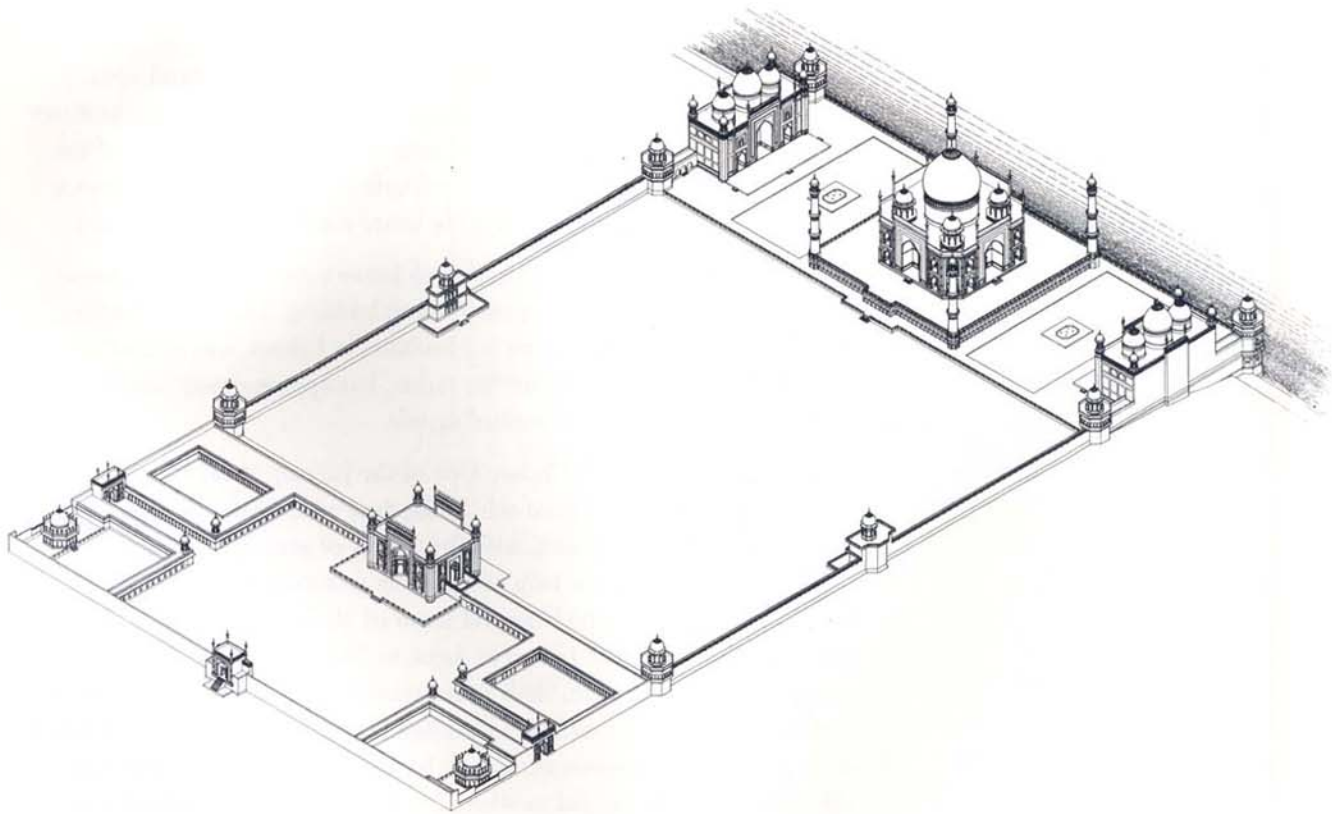
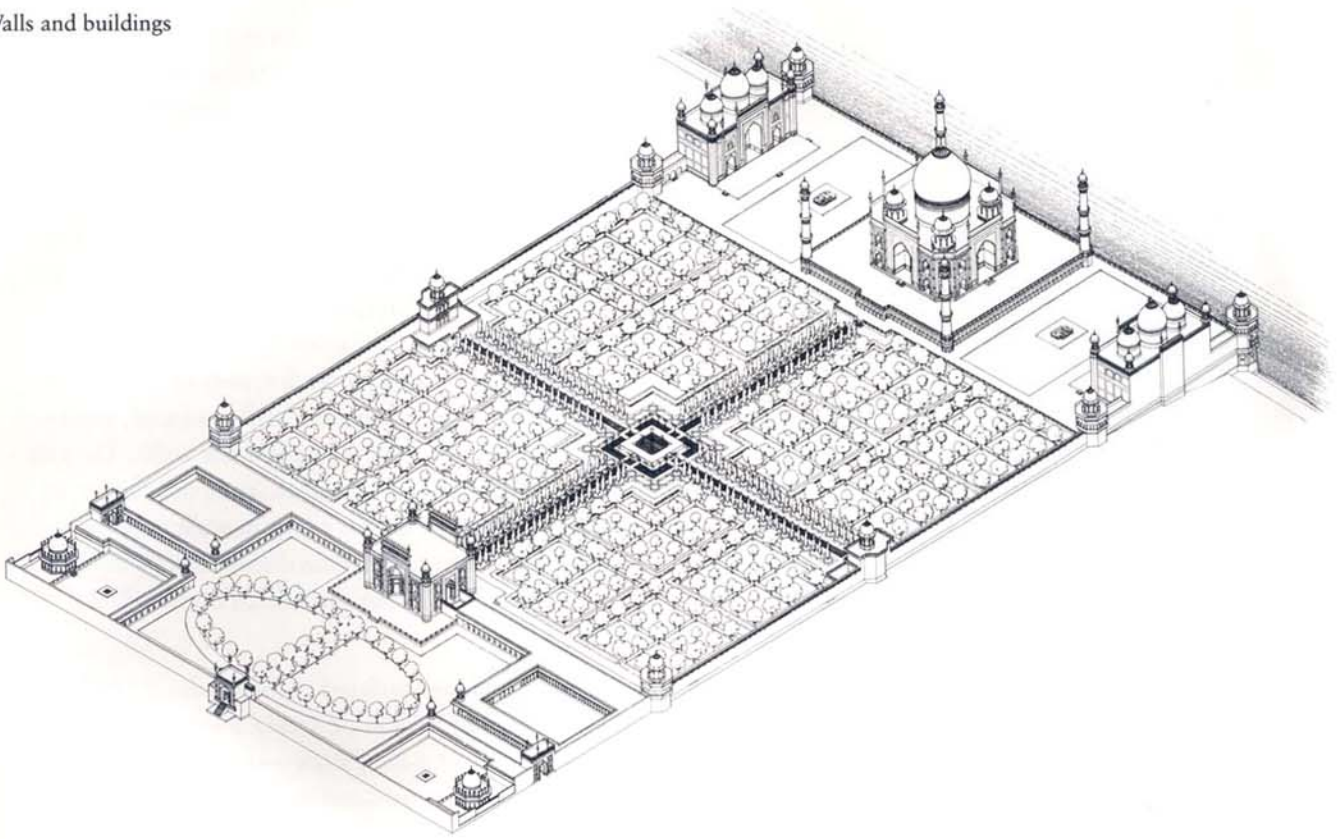
After Jahangir's death in 1627 and Shah Jahan's accession to the throne, the widowed Nur Jahan set again to tomb building. The white marble mausoleum that she erected for her husband in Lahore was similar in style to that which she had made for her father, but appropriately larger. The garden is yet another canal-scribed square.

In 1631 Mumtaz Mahal (Chosen One of the Palace), wife of Shah Jahan and granddaughter of I'timad-ud-Daula, died while giving birth to her fourteenth child. Shah Jahan, with the energy of great grief, the resources of a great empire, and the help of a mature architectural tradition, built her the most splendid and beautiful tomb of all—the Taj Mahal. Work began, on the banks of the Jumna in Agra, in 1632. Sixteen years later the mausoleum was complete. Shah Jahan was eventually deposed by his son Aurangzeb and imprisoned in Agra's Red Fort, to spend his last sad years staring at the white domes across the Jumna's waters. When he died in 1666, his body was carried to where his thoughts had long rested, and he

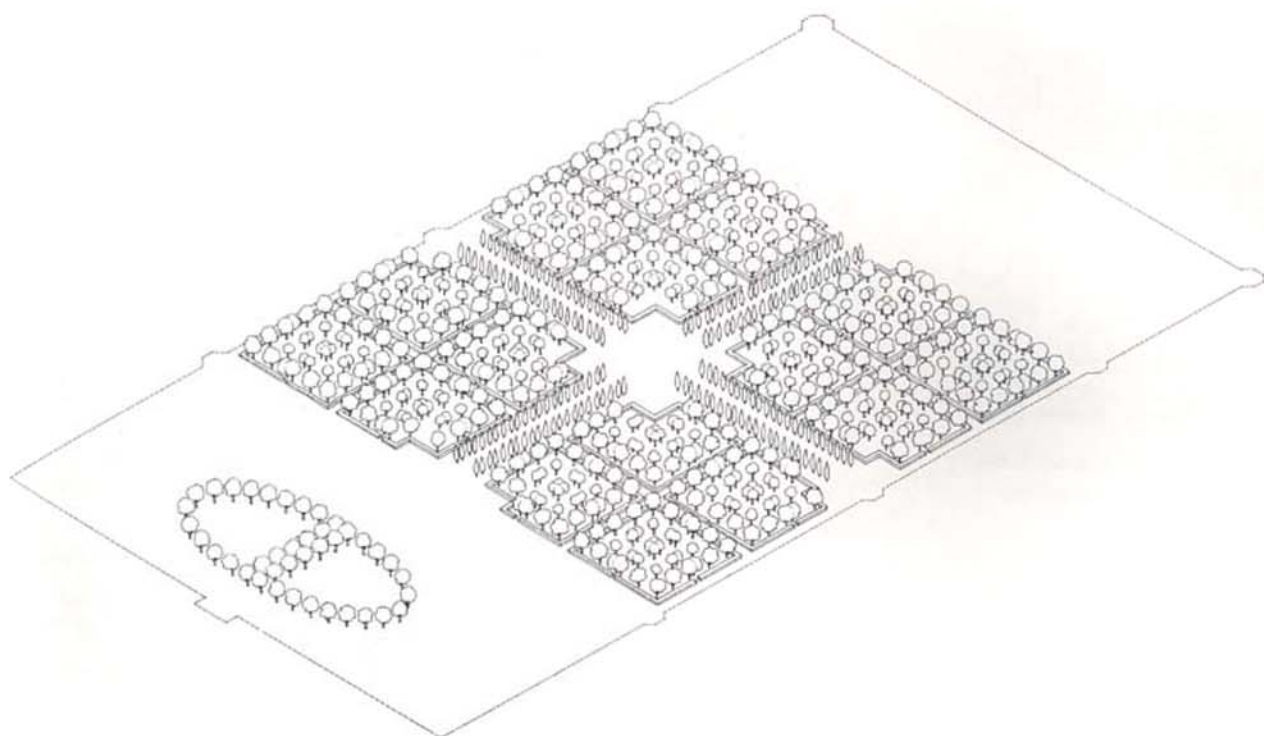
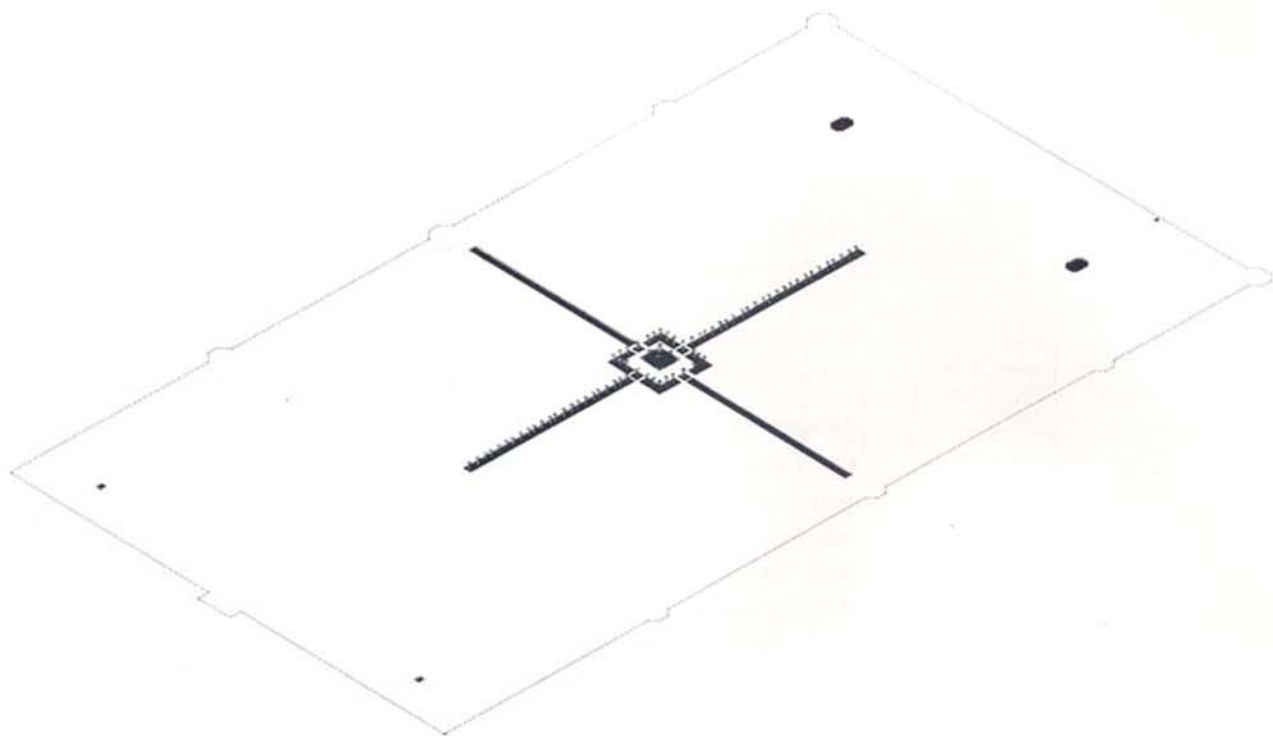
THE TAJ MAHAL

· Overview

· Walls and buildings



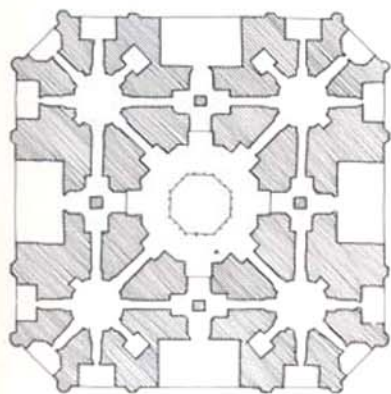
Water
Planting



was buried beside his wife. The French traveler Jean-Baptiste Tavernier embellished this ending with a report (for which no evidence can be found) that Shah Jahan had planned for himself, on the opposite bank, a black marble replica of the Taj. But the parsimonious Aurangzeb, so the story goes, declined to print that three-dimensional negative.

It is hard to look past the accretions of anecdote and to see afresh a building whose image is so often repeated (even on the labels of beer sold in Indian restaurants), but it is worth trying, for the Taj is a remarkable architectural innovation. Its siting on the Jumna is similar to that of the tomb of I'timad-ud-Daula, and so is its construction of marble and *pietra-dura*. The relation of the mausoleum to the *chahar bagh*, though, comes as a breathtaking surprise. Here the mausoleum has been shifted from the crossing of the axes to the riverbank terrace, and the crossing is celebrated simply by a small reflecting tank. This neat sidestep breaks the connection between the size of the mausoleum and that of the *chahar bagh*, so that the troublesome contradiction simply disappears.

The *chahar bagh* is roughly one thousand feet square. It is divided into four quarters by the conventional axial causeways, then each quarter is redivided by smaller causeways. In the garden as it exists today the process of recursive subdivision stops here. But the plan of the garden prepared by the Surveyor General of India in 1828 shows that the process of division was originally repeated twice more, so that the *parti* was a grid of 256 squares, constructed by a recursion four levels deep. Position in the recursive scheme was indicated by breadth of the division between squares. The main cross axes have broad canals with fountains, a parterre on either side, then paved walks at the outer walls with narrow irrigation canals at the sides. The next level of division was formed by simple, narrow walks, and the final level appears to have consisted of little more than lines on the surface of the ground.



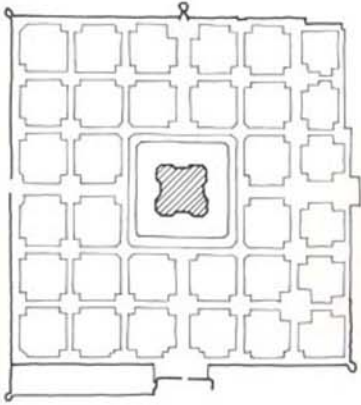
Recursive subdivision of space in the plan of the Taj Mahal mausoleum

Repeating this theme, the plan of the mausoleum itself is recursively constructed. A square (with corners cut off) is divided into quarters by axial passages, and an octagonal space is located at their intersection. Then each quarter is in turn divided by crossed passages with an octagonal space at the center.

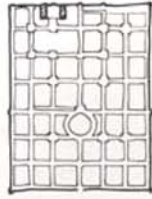
Worth noting is that the tall minarets, which we might expect to be at the corners of the mausoleum itself, are moved to the corners of the wide rectangular terrace. This increases the apparent size of the mausoleum without adding to its weightiness (so that it almost appears to float above the garden), matches the width of the mausoleum to the width of the garden, and captures a patch of sky to serve as the mausoleum's setting.

The earlier Mughul tomb gardens straightforwardly combined the four-fold plan symmetry of the *chahar bagh* with the infinite symmetry of a dome about its vertical axis and the bilateral elevational symmetry of the mausoleum. The symmetries of the Taj, though, are more complex and subtle. The garden and the mausoleum each have fourfold symmetry about their own (now noncoincident) central axes. The mausoleum stands upon a rectangular platform, with its minarets shifted to the corners; this

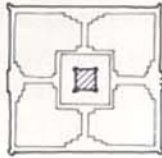
The tomb garden game: plans drawn to the same scale



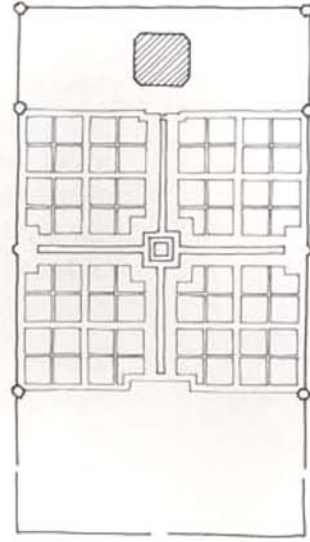
Humayun's tomb



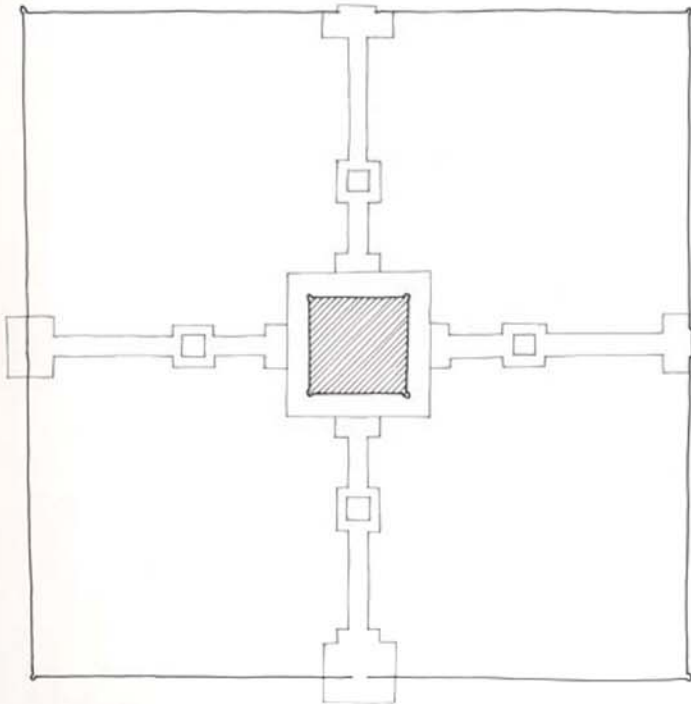
The Ram Bagh



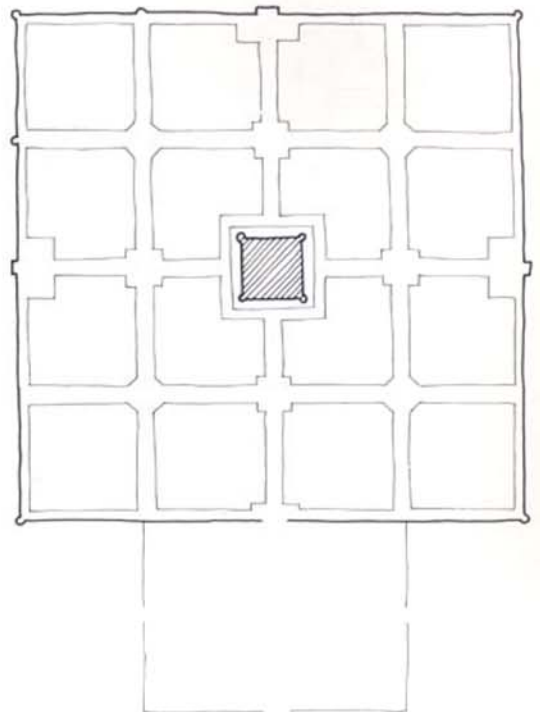
Tomb of I'timad-ud-Daula



The Taj Mahal



Akbar's tomb



Jahangir's tomb

ensemble has two axes of symmetry. The whole composition is bilaterally symmetrical about a single central axis, which also forms the axis of movement from the entry to the reflective pool, the mausoleum, and eventually the view of the Jumna. However, we don't walk quite *on* the axis, but to the side of the water, and the stairs up to the terrace go off to the sides as well; conspicuous avoidance gives the axis added importance. Finally, there is symmetry about the ground plane, as the mausoleum is reflected in the pool and so is brought back, inverted and immaterial, to the heart of the garden from which it had been removed.

When Aurangzeb's turn at tomb building came, he constructed, for *his* wife, a mausoleum that was much like the Taj, but without the same generosity of proportion or felicity of composition. Like Babur he ordered that his own resting place should be a simple, earth-covered grave, open to the sky. This brought the cycle of great garden tomb building to an end, although there were to be eleven more Mughul emperors before the last of them was removed by the British after the revolt of 1857.

Perhaps, though, it wasn't quite the end. When Sir Edwin Lutyens designed the great Viceroy's House as the focal point for the capital of the British Raj at New Delhi, he chose (despite his open contempt for Mughul architecture) a subtle transformation of the *parti* of the Taj. He was put up to it by Lady Hardinge, wife of a former viceroy, who had fond memories of Mughul gardens in Kashmir.

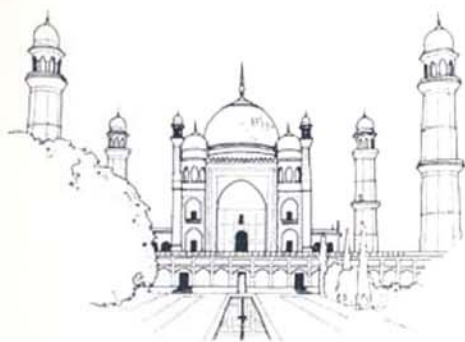
The Viceroy's House designed by Lutyens now stands at the termination of the major formal axis of the city. The axis becomes a magnificent street lined with canals, so that the approach to the symmetrical, pink sandstone house recalls the garden approaches to the Mughul tombs, but the scale is much vaster. Surprisingly, the axis continues through the house, and threaded upon it are, first, an elaborate garden in the Mughul style (known as the Rashtrapati Bhavan), then echelons of tennis courts, and finally a pretty little circular flower garden. Thus the house and the garden stand in much the same relation as the mausoleum and garden at the Taj, except that the house turns its back on the garden, so that the garden now provides a destination rather than an approach. Not only is the house much larger in scale than any Mughul mausoleum (as the British Raj surpassed the greatest heights of the Mughul empire), but the recursive subdivision of the garden also exceeds in sheer intricacy that of any of its predecessors. There are bougainvilleas and flower beds and over four hundred varieties of roses. But at its center, a place that had been occupied by the tombs of great emperors, then dramatically vacated at the Taj, there is nothing but a simple square of alien English lawn.

This has been a story of (to adapt a phrase of Sir John Summerson's) an aesthetic adventure, provoked by a problem that had to be solved. Such adventures become possible, and interesting, because designers agree (at least for a while) to certain conventions of vocabulary and syntax, and the internal logic of the conventions generates a design problem, just as some set of axioms and inference rules may generate a mathematical problem. It's not the conventions themselves that are interesting, but the adventures of the imagination they set going.

Mausoleum and minarets



The Taj Mahal



Tomb of Aurangzeb's wife