

### 3. INDIAN ARCHITECTURE

India is a land of veritable treasures, at once interesting to the tourist as well as to an enquiring student of Indian architecture. India has been the birth place of three major religions of the world-Hinduism, Buddhism and Jainism; these have inspired most of her art. India's artistic traditions are ancient and deeply rooted in religion. While at various times in her long history, foreign races and cultures exercised some influence on Indian art forms, the main aesthetic currents remained predominantly Indian.



**Lion capital from Ashoka Stambha, Stone, Sarnath, Uttar Pradesh**

The character of Indian art is best described as plastic, organic and sculptural. This is well symbolized by the nature of Indian architecture—primarily a sculptural mass rather than a space enclosure. Though sculpture is the Indian art par excellence, it is in architecture that the national genius has shown its most unquestionable originality and much of the greatest Indian sculpture was produced in connection with, indeed as an art of, architecture. Broadly speaking, architecture has been described as an art of organizing space, functionally and beautifully.



**Sculptured Panels : Female figures and mythical Animals, Adhinatha Temple, Khajuraho, Madhya Pradesh**

A great architect clothes his well spatial structure with a form of beauty, not an extraneous superimposed beauty but inherent in all the structure, in every part, making the whole. The "dominance" of the sculptural mode in India is due to the Indian propensity, stronger than that of any other culture, for carving sculptural caves and temples out of the living rock, of mountain escarpment or outcropping. Also in

ancient India, the arts were not separated as they unfortunately are today the architect; the sculptor and the painter were often one man. Sculptures were invariably painted in colour and the sculpture generally was not free-standing, but formed part of the temple structure. In this way architecture, sculpture and painting were in fact, much more intimately connected than they are today and much of this was a happy combination.



**Surya, Vaital Deul Temple, Bhubaneswar, Orissa**

India occupies an exalted position in the realm of art of the ancient world. If the Greeks excelled in the portrayal of the physical charm of the human body, the Egyptians in the grandeur of their pyramids and the Chinese in the beauty of their landscapes, the Indians were unsurpassed in transmitting the spiritual contents into their plastic forms embodying the high ideals and the common beliefs of the people. The Indian artists visualized the qualities of various gods and goddesses as mentioned in their scriptures and infused these qualities into their images whose proportions they based on the idealised figures of man and woman. Indian art is deeply rooted in religion and it conduces to fulfilling the ultimate aim of life, moksha or release from the cycle of birth and death. There were two qualities about which the Indian artists cared more than about anything else, namely, a feeling for volume and vivid representation, even at the risk of sacrificing, at times, anatomical truth or perspective. A sense of narrative a taste for decoration, keenness of observations are clearly brought out in each sculpture. Indian art is a wholesome, youthful and delicate art, a blend of symbolism and reality, spirituality and sensuality. Indian art may well be said to bear in itself the greatest lesson an exemplary continuity from pre-historic times to the present age, together with an exceptional coherence. We said earlier that Indian art was inspired by religion, for India is the birth place of three of the world's great religions Hinduism, Buddhism and Jainism and these three faiths have inspired most of our Indian art. We use the word 'most' purposely for the simple reason that not all Indian art is religious. The Indian artist was a man of this universe, he lived here, looked around himself, saw the joys and sorrows of the life and

reproduced them in whatever medium he happened to be working in at a given time; clay, wood, paper, metal or stone. The creation of art by the Indian artists are not "realistic" representations in the sense we understand the term on Greek or Roman Art (but they are imagined and are idealised).

None had actually seen the major gods like Rama, Krishna, Vishnu and Shiva, etc., but according to their description in the scriptures the Indian artists visualised them as shown generally standing erect, signifying mental, physical and spiritual equilibrium. In form, the males are virile beings broad shouldered, deep chested and narrow hiped. The females are precisely contrary to the males narrow shouldered, having full and firm breasts, and attenuated waist and broad hips. The females according to the Indian artists represent Matri or the mother. In the course of this guide book we proposed to keep the human form as the peg on which to hang our story and will venture to see the human body treated by different periods according to the changing styles - the like and dislike of a particular age. Indian art is a treasure house of ancient contemporary life, its faiths and beliefs, customs and manners. It is considered by some to be the function or purpose of art of any age to mirror contemporary society, its customs, manners, habits, modes of dress and ornamentation etc.



**Cave No.1, Badami, Karnataka**

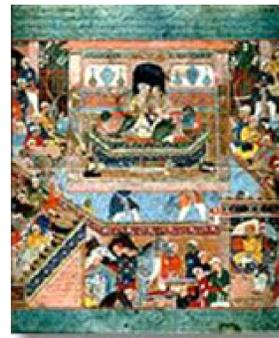
Painting is one of the most delicate forms of art giving expression to human thoughts and feelings through the media of line and colour. Many thousands of years before the dawn of history, when man was only a cave dweller, he painted his rock shelters to satisfy his aesthetic sensitivity and creative urge.

Among Indians, the love of colour and design is so deeply ingrained that from the earliest times they created paintings and drawings even during the periods of history for which we have no direct evidence.

The earliest examples of miniature painting in India exist in the form of illustrations to the religious texts on Buddhism executed under the Palas of the eastern India and the Jain texts executed in western India during the 11th-12th centuries A.D.

During the 15th century the Persian style of painting started influencing the Western Indian style of painting as is evident from the Persian facial types and hunting scenes

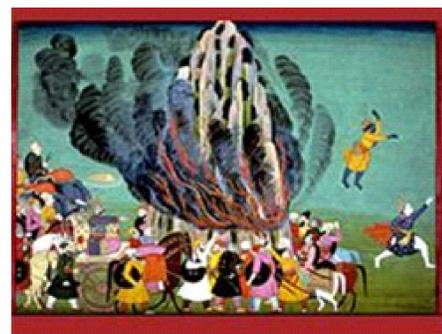
appearing on the border's of some of the illustrated manuscripts of the Kalpasutra.



**Hamza - Nama, Miniature Mughal School of Painting**

The origin of the Mughal School of Painting is considered to be a landmark in the history of painting in India. With the establishment of the Mughal empire, the Mughal School of painting originated in the reign of Akbar in 1560 A.D.

Though no pre-Mughal painting from the Deccan are so far known to exist, yet it can safely be presumed that sophisticated schools of painting flourished there, making a significant contribution to the development of the Mughal style in North India. Early centres of painting in the Deccan, during the 16th and 17th centuries were Ahmednagar, Bijapur and Golconda. In the Deccan, painting continued to develop independently of the Mughal style in the beginning. However, later in the 17th and 18th centuries it was increasingly influenced by the Mughal style.



**Basohli, Miniature Painting, Pahari School of Painting**

Unlike Mughal painting which is primarily secular, the art of painting in Central India, Rajasthani and the Pahari region etc. is deeply rooted in the Indian traditions, taking inspiration from Indian epics, religious texts like the Puranas, love poems in Sanskrit and other Indian languages, Indian folk-lore and works on musical themes. The cults of Vaishnavism, Saivism and Sakti exercised tremendous influence on the pictorial art of these places.

The Pahari region comprises the present State of Himachal Pradesh, some adjoining areas of the Punjab, the area of Jammu in the Jammu and Kashmir State and Garhwal in Uttar Pradesh. The whole of this area was divided into small States ruled by the Rajput princes and were often en-

gaged in welfare. These States were centres of great artistic activity from the latter half of the 17th to nearly the middle of the 19th century.

## HARAPPA

The earliest remains of Indian architecture are to be found in Harappa, Mohenjodaro, Ropar, Kalibangan, Lothal and Rangpur, belonging to a civilization known as the Indus valley culture or the Harappan culture. About 5000 years ago, in the third millennium B.C. a lot of building activity went on in these areas. Town planning was excellent. Burnt brick was widely used, roads were wide and at right angles to one another, city drains were laid out with great skill and forethought, the corbelled arch and baths were constructed with knowledge and skill. But with the fragmentary remains of the buildings constructed by these people it is not yet possible to know enough about the architectural skill and tastes of the people. However, one thing is clear, the extant buildings do not give us any clue as to aesthetic considerations and there is a certain dull plainness about the architecture which may be due to their fragmentary and ruined condition. There does not appear to be any connection between the cities built in the 3rd millennium B.C., with an astonishing civic sense, of first rate well-fired brick structures, and the architecture of subsequent thousand years or so, of Indian art history, after the decline and decay of the Harappan civilization and the beginning of the historic period of Indian history, mainly the time of the great Mauryas of Magadha. These thousands years or so were a period of tremendous, intellectual and sociological activity and could not be barren of any artistic creations. However, due to the fact that during this time sculpture and architecture was utilising organic and perishable materials such as mud, mudbrick, bamboo, timber, leaves, straw and thatch, these have not survived the ravages of time.



General view of House, Lothal Gujarat

Two important remains of the oldest times are fortifications of the old Rajagriha town, in Bihar and the fortified capital of Sisupalgarh, perhaps the ancient Kalinganagar, near Bhubaneswar. The Rajagriha fortification wall is made in the roughest possible manner, unhewn stones being piled one on top of the other. This belongs to the 6th-5th century, B.C. However at Sisupalgarh in the 2nd-1st century B.C. stone masons were at work using large blocks of stones to

make a very well-made fort entrance that could be closed with huge doors turning on hinges.

We know it for a fact that stone masonry and stone carving were imported in Ashoka's times from Persia. There is abundant evidence of stone masons marks similar to those at Persepolis. However, wood was still the dominant material and in architectural remains of Ashokan times, the gradual transition from wood to stone is apparent. At Pataliputra, remains have been found of a great timber wall that once surrounded the imperial capital, a fact clearly mentioned by Megasthenes who states that everything in his day was built of timber in India.

However, there is one important exception to this and that is the rock-cut architecture of India. We are including a study of cave architecture for the simple reason that the early Indian cave temples and monasteries are masterpieces of "organising space" with beauty and utility in view.

A typical example of early cave architecture is the most datable cave of all, the so-called Lomas Rishi cave in the Barabar Hills of Bihar. An inscription proves that this was excavated for the Ajivika sect in the time of Ashoka himself. The cave carved out of the living rock, measures 55'x22'x20'. The entrance is a representation in stone of a hut entrance, with the end of the roof constructed of bent timber supported by cross beams, the ends of which are shown protruding. A carved frieze of elephants is a stone imitation of similar work in wood along with a stone imitation of trellis work made of small stick of bamboo. This is an excellent example showing the development from earlier shapes in timber translated into stone. The period is the 3rd century B.C.

Another excavated cave about a hundred years later is the magnificent prayer hall or Chaitya, at Karle in the Poona district. This too has been excavated from the living rock and is unparalleled for its lofty and elevated impression. The size is truly stupendous, 124'x46-1/2'x45'. With well proportioned great and bulky pillars, carrying capitals of great originality holding up a vaulted roof that has real rafters of timber inserted into it, a ribbing inherited and copied from wooden structure. The columns are strong and bulky, surmounted by sculptured capitals. In the far distance there is a stupa with a wooden umbrella on top and astonishingly the original wood has survived unharmed to this date.



Chaitya Hall, Bhaja, Maharashtra

The Buddhist Stupa is another form of architecture, comprising a hemispherical dome, a solid structure into which one cannot enter. The stupa is a glorified, beautified, enlarged funerary mound: what was once the resting place of the bones and ashes of a holy man. Tradition has it that after the great demise of Lord Buddha, Emperor Ashoka decided to construct a large number of stupas throughout his dominion in memory of the Master and enshrine in them relics such as pieces of bones, teeth, hair etc., over which the Stupas were constructed. Originally the stupa was made of bricks and surrounded by a wooden railing. The existing stupa at Sanchi encloses the original stupa and has been enlarged and enclosed within the stone railing or balustrade, when stone was adopted in the place of wood. To the stupa which consisted of a domical structure, a base, sometimes circular, sometimes square, was added in the 1st century B.C., a circumambulatory path as well as the stone railing with four elegantly carved gateways in the four cardinal directions. In place of the original wooden umbrella, which was put up to signify the stupa represented and was built over the ashes of the Lord or his immediate disciples, a sign of royalty and dignity, developed in the course of time an interesting composition on top of the dome, the Harmika; a square Buddhist railing from which rises the shaft that holds the imperial umbrella, sometimes single and later on multiplied to three or even more, diminishing in size as they go upwards.



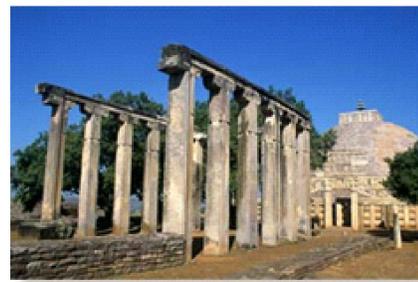
**Sanchi Stupa No.1, Full View, Madhya Pradesh**

The railing and gateways at Bharhut, Sanchi and Bodhi Gaya are the most famous in the north and at Amravati and Nagarjunakonda in the South. Upright pillars and cross bars, based on wooden construction, were made and provided the occasion for dome of the finest low relief carvings to be found anywhere in Indian art. On these surfaces are carved the favourite symbols of Buddhism, the lotus, elephant, bull, lion and horse and some of the Jataka stories of the previous births of Buddha, depicted in low relief with such exuberant details that they are considered a land-mark in the story of Indian art. The Sanchi Stupa has a diameter of 120' and a height of 54'. About these gateways one thing stands that most of early Indian architecture was of wood and timber and that these are true imitations in stone of early wooden construction.

The Mauryas were famous for their art and architecture. Evidence of the earliest known structural temples has been recovered through excavations. A circular brick and timber shrine of the Mauryan period of 3rd century B.C., was excavated at Bairat District of Jaipur, Rajasthan. The shrine measures 23 meters in diameter and was made of lime-plastered brick work, alternating with 26 octagonal pillars, of wood. It was entered from the east through a small portico, supported by two wooden pillars and was surrounded by a seven feet wide ambulatory. A second example of a Maurya temple uncovered by excavations, Temple 40' at Sanchi, has a similar plan, it was a stone temple on an apsidal plan enclosed by an ambulatory, and raised on a high, rectangular scale, approached by two flights of steps from diagonally opposite sides. The super-structure was possibly built of wood, and has disappeared. In the following centuries the temple underwent a series of changes making it difficult to recognise from the original plan.

Temple 18 at Sanchi also was an apsidal stone temple probably with a timber superstructure, originally dating from the 2nd century B.C. The present remains of the apsidal temple with its stately pillars and pilaster dates from about the 7th century A.D. though the temple remained in use till the medieval period.

Perhaps the earliest structural temple still standing in its original condition is the one constructed at Aihole in Karnataka. This is a little structure built of huge almost boulder-like blocks of stones. The temple consists of a simple square cell the garbhagriha or sanctum sanctorum, in front of which there is a covered verandah, a portico, which consists of four heavy pillars supporting a stone roof. The pillars as well as the entire structure is as simple as can be, except for a small frieze-like motif on the small parapet that runs on two sides of the ground length of the portico.



**Temple 18 at Sanchi, Madhya Pradesh**

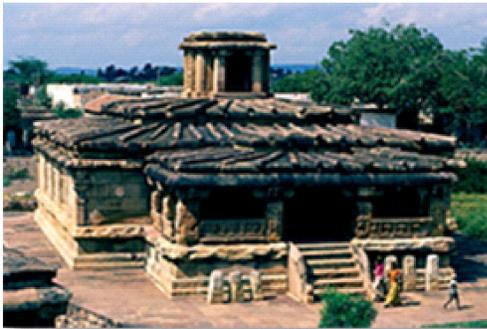
It is interesting to observe that the architect who built this edifice had not yet discovered that the two pillars nearest the cell need not have been built standing clear away from the wall but that they could easily have been pilasters, half pillars, half jutting out of the back wall of the verandah. Nor had he taken the climate into consideration and did not provide gargoyles to allow the rain water to run off the roof. The entire structure is heavy, bulky and clumsy. Probably, this was constructed near about 300 to 350 A.D.

Temple No. 17, at Sanchi is a small temple built about 400 A.D. and everything attempted earlier, is done much better here. The stones are smaller and laid out in regular neat rows; the roof has been separated so that the portico has a slightly less prominent height - the Sanctum-Sanctorum being the main house of the God. Gargoyles have been thoughtfully provided to drain off rain water and the four back pillars are more slender and beautifully carved. This temple truly belongs to the Classical Period and is marked by elegance, harmony, balance and dignity. Decoration is minimal and is only used where one structural form joins another.



**Temple 17 at Sanchi, Madhya Pradesh**

An inverted lotus is placed where the top of the shaft joins. The capital and little lions, seated back to back, act as support where the roof rests on top of the pillar. The entire structure is simple, with no complication. However, in the course of time the extremely plain and simple temple architecture becomes increasingly complicated, from a simple quadrangle it evolves into salient and re-entering angles, protrusions are added, making the outline more and more involved, till eventually it becomes almost like a star with more than a hundred little corners on the ground level.



**Lad Khan Temple, Aihole, Karnataka**

The Ladkhan temple of Aihole belongs to about 5th century A.D. Here the architect has tried to give attention to the circumambulation path which is enclosed by means of a wall allowing devotees to have pradakshana or circumambulatory of the holy of holies. Obviously when a large number of people would be going round in a dark gallery the consideration of light and ventilation would naturally arise and for that purpose the architect has provided perforated jallies. The entrance portico is in this particular case kept relatively

small and not too much stress is laid on it. After all, it is only the entrance gateway. The structure still reminds us of a wooden prototype with stone walls, supporting a slanting roof made of large boulders of stone slabs. Cleverly enough the roof has been given a slant and provided with gargoyles to allow rain water to run off and on the sanctum sanctorum proper the roof is a little higher, and very rightly so, for that is the, abode of the God. On the top of the structure is the very first attempt to raise a turret, a precursor to the future loftier spire, the Shikhara. The idea behind it must have been that, a temple being the home of the God must be seen from far and near, from different parts of the village or town so it must be tall and higher than the surrounding buildings.

The Durga temple at Aihole is an apsidal temple of about 550 A.D. in which the architect has made immense improvements upon his previous attempts. This temple is provided with a high pedestal, an open pillared verandah serving as pradakshanapatha, in place of a dark, ambulatory passage as in the case of the Ladkhan temple. Instead of perforated jallies is a pillared verandah running round the shrine, open, well ventilated and well lit. There is a high entrance with steps leading up to a tall base; the roof is almost double in height and in this particular case the turret is beginning to take the shape of a little spire, which, during the course of the next centuries; evolved into a towering Shikhara. The pillars would have looked very dull had they not provided an opportunity to the sculptors to carve with beautiful figures. Carving is also done under the row of pillars and for the first time we come across brackets supporting the beam of the roof across the wide opening of the temple. This again reminds us of the practice followed by the architect working in wood, who wanted to make either a house or a shrine by putting up pillars or posts of bamboo or wood on top of which he put horizontal beams so as to hold the roof. To make this construction doubly strong, he hit upon the 'idea of making brackets, an essential element in Hindu and Buddhist architecture in India and used much earlier in China; a slanting piece of stone emerging as it were from the pillars or posts, reaching out like an arm to hold the lintel or beam steadily. This kind of construction is known by the architectural term, trabeate, as distinct from accurate which was later made use of by the Muslims.



**Durga Temple, Aihole, Karnataka**

Apart from structural temples the other variety of temples are rock cut, found at Mahabalipuram, about 38 miles down south of Madras on the sea shore, datable to the 5th century A.D. In local parlance they are known as Ratha or chariots and are named after the five Pandava brothers and Draupadi but they neither have anything to do with chariots nor probably with the Pandavas and these associations are purely of a local character. The great Pallava rulers of Kanchipuram, were great builders and the Pallava craftsmen, seized upon the long outcrop or rocks and boulders available on the sea shore, carved them and gave to them the shape of temples (monolithic) as well as colossal statues of lions, elephants and bulls, etc. carved out of smaller boulders.

One of these rock cut temples is known as the Draupadi Ratha. It is a rock cut imitation of a mud hut, supported by wooden posts, crowned by an imitation of a thatched roof. The Draupadi Ratha consists of a square cell, with not even a portico, surmounted by a hanging roof suggestive in its shape of a Bengali hut. There is every reason to believe that this, like so many other forms of structural Indian architecture is an imitation of a proto-type construction of bamboo and thatch. Two lovely girls adorn the entrance, each carved in a small niche provided for the purpose on either side of the entrance. A floral decoration runs along the edge of the roof which, according to some, is nothing but a rock cut representation of the original brass or copper edging over the thatching to keep it in position.

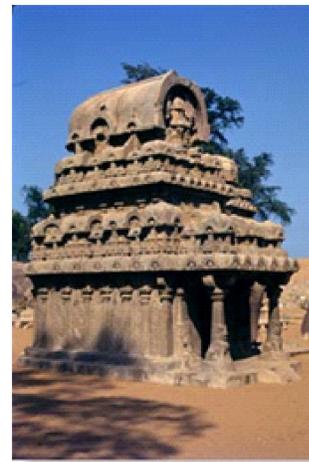
In shape and appearance the rest of the rathas seems to have evolved out of a building composed of cells arranged round a square courtyard. As the community of monks occupying the monastery increased another storey was added, and then another and still another, the whole structure eventually being topped with a domical roof. These are square in plan and are surmounted by a pyramidal tower such as Arjuna's ratha and the Dharmaraja ratha.

#### **Draupadi and Arjuna Ratha, Stone, Mahabalipuram, Tamil Nadu**

There is another type of the Ratha which has a longitudinal and barrel vaulted roof, i.e., they have a roof of the so called elephant-back type (Gajapristhakara). The Durga temple at Aihole, and the Vaital deul at Bhubaneswar are examples. The roof, in the case of the square shrines consists of a simple multiplication of hut roofs, very much the way we can see them in Buddhist monuments and other little huts. Though these are carved in rock they show a so-called

Buddhist chaitya window with a little Buddha head. In the case of Arjuna's ratha and Dharmaraja ratha, their wonderful proportions, magnificent disposition of mass of light and shade reveal their classic character. The simple upright posts imitations, of wooden pillars support brackets and the pilasters have small animal bases. Whereas earlier at Sanchi the animals were used for the capital, here they are used as a base.

A temple, named after the twin heroes, Nakula and Sahadeva, is an apsidal one, with ornamental features as in the Dharmaraja, Arjuna and other rathas. There is a slight forward extension of the roof to form a porch supported by two lion pillars. There are no figure-carvings on this temple. Close to this is a monolithic elephant suggesting the Gajapristhakara (elephant back) shape of the apsidal temple.



#### **Nakula and Sahadev Temple, Mahabalipuram, Tamil Nadu**

The Ganesh-rath is one of the finest monolithic temples at Mahabalipuram. Though three-storeyed and of better workmanship, it resembles the Bhima-ratha in roof form. The gable-ends of the wagon-roof have a finial showing a human head decorated by a trident shaped head-gear, the slide prongs suggesting the usual horns in the dvarpala-figures and the central one long and narrow crown. This motif is repeated in the finials of the decorative gables along the wagon-roof. There is, as usual, the pavilion and Kudu ornamentation. The elaborately worked roof has nine vase-shaped finials and is the precursor of the later gopuram. A row of pilasters decorates the sides and the back, while the main opening is to the west. Between the dvarapalas at either end are two lion pillars in the centre and two pilasters.

The Shore temple at Mahabalipuram datable to late 7th century is specially known because of its location on the sea-shore. This temple though very similar stylistically to the Dharmaraja ratha, differs from it in an important respect that it is a structural temple and not a rock-cut one. It is about 3 to 4 times the size of the Dharmaraja ratha and is made a triple structure by adding a shrine at the back and slightly jutting out in the front. There are two spires, much

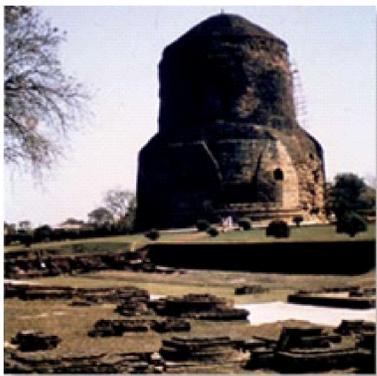
loftier than in the case of the previous temples, the higher spire has more storeys than the Dharmaraja ratha and the pinnacle is higher and pointed. It is much more complicated, enlarged and enriched. The shrine is enclosed by a massive wall, having the typical Pallava rampart lion pilasters at regular intervals. On its outer side, the wall is surmounted by seated bull figures.



**Shore Temple, Mahabalipuram, Tamil Nadu**

The Kailasanath temple at Kanchipuram was built by Raja Simha shortly after the Shore temple in the 8th century A.D., and compared to the latter, is larger in dimensions and more majestic in appearance. The Kailashnath temple is situated in a rectangular courtyard surrounded by a peristyle composed of a continuous series of cells resembling rathas. But there the Pallava style is further evolved and more elaborate. It consists of the sanctum (*garbha griha*), a pillared hall (*mandapa*), the ambulatory, the vestibule in the shape of a hall. The flat roofed pillared *mandapa*, which was a separate building originally, was connected with the sanctum by a vestibule.

An interesting feature of this temple is that on the three sides of the *garbha griha*, there are nine shrines. The pyramidal tower, having graceful contours, is a storeyed elevation, each having heavy cornices and stupikas. The *shikhara* is well-proportioned, substantial, yet at the same time rhythmic in its mass and elegant in its outlines.



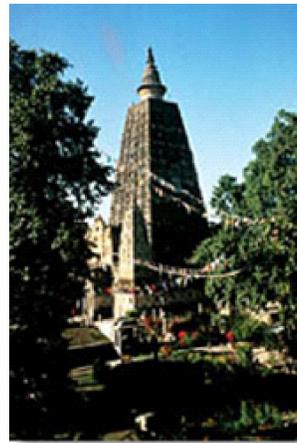
**Dhamekh Stupa at Sarnath, Uttar Pradesh**

The Dhamekh stupa at Sarnath is an imposing cylindrical structure (ht. 43.5 m., dia at base 28.3 m.) of the Gupta

age, partly built of stone and partly of brick. Its stone base-ment has eight projecting faces with large niches for statu-ary and is further adorned with delicately-carved floral and geometrical patterns. Making the holy spot of the enlight-enment of the Master, this site is looked upon with, greatest sanctity and became a flourishing Buddhist establishment with numerous temples, stupas and monasteries. According to tradition a large number of shrines and memorials were created at the site to commemorate the incidents before and after enlightenment.

The main brick built shrine known as the Mahabodhi temple which appears to have been originally erected in circa 2nd century A.D. is encumbered with heavy renovation, the four corner-towers being an arbitrary addition of circa 14th century A.D. Its central tower, standing on a high plinth, is about 55m. high and is a straight-edged pyramid of seven storeys, by pilasters and chaitya niches.

According to literary tradition, Nalanda, 10 kilometres north of Rajgir and a suburb of the ancient city, was visited by Buddha and Mahavira. Ashoka is said to have worshipped at the chaitya-niches of Sariputra, Buddha's disciple, and erected a temple. By the time of Harsha A.D. 606-648, Nalanda had become the principal centre of Mahayana learning and a famed University town with numerous shrines and monasteries which attracted scholars from far and near. The Chinese Pilgrims Huien Tsang and Fa-hien studied at Nalanda and have left account of the settlement and its life.



**Mahabodhi Temple, Bodhi Gaya, Bihar**

Temple 3 was more than 31 m. high and consisted of seven successive accumulations of which the two latest be-longed to the 11th and 12th centuries and the fifth one, dat-ing from circa 6th century, was notable for its sculptural wealth. The monasteries were imposing rectangular build-ings, each with an open courtyard, enclosed by a covered verandah which leads into cells, arranged on the four sides. The cell facing the entrance served as a shrine. Nalanda was an important centre of Pala sculptures and bronzes and has also yielded seals and sealings of great historical signifi-cance.

Let us now turn to a region where the north Indian style of temple architecture developed in an interesting direction.



**Jagannatha Temple, Puri, Orissa**

Till about the 6th century A.D., the style of temple architecture was similar both in the north as well as in the south. It is only after this date that each began to evolve in its own different direction. For the present let it be understood clearly that the two areas where temple architecture developed most markedly were the Deccan and Orissa and in both these areas the northern and southern style temples can be found side by side. The Vimana, the temple tower over the main shrine in Orissa is one of the most glorious inventions of architecture in India and is functionally a much finer conception than the south Indian Gopuram, where the barrel-shaped tower does not crown the sanctum sanctorum or the garbha-griha but is a glorified entrance gate. We had suggested in our introduction that the architect wanted to impart to the temple more importance, prominence than the other buildings in the neighbourhood, because here lived his God in the garbha griha or the womb-house. The Orissan spire does precisely this, proclaiming the presence of God far and wide, from its lofty and imposing structure as at the Jagannath temple at Puri or the Lingaraja at Bhubaneswar; driving awe and respect into the hearts of the faithful and impressing all who approach it. The temple tower or the vimana, as it is called in Orissa, is thus, a mighty expression of the religious faith of people. It is interesting to study the temple projected here which is the Vaitala Deul at Bhubaneswar, a barrel roofed shrine of the Sakti cult, datable to the 8th century A.D. The facade or outer side of the temple is divided by ribbon like elements that run down the base from under the barrel roof. These ribbons project slightly and contain niches with sculptures, while the actual barrel shaped roof is resting on a number of regularly diminishing highly decorated mouldings, one on top of the other. The barrel roof itself is an imitation in stone of a thatched roof of an ancient hut, going back to very early times and still found over bullock carts in Bengal and other regions of the east.

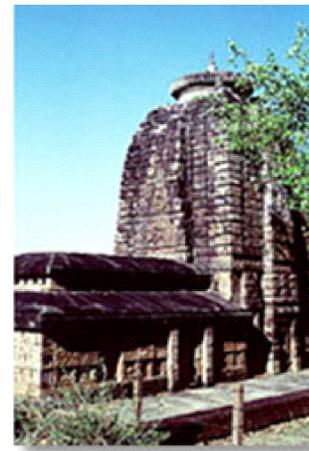
It is interesting here to remember that there is a definite pattern in the elaboration, complication and ornamental decoration evolving out of the dignified simplicity and harmony of the classic period such as seen in the Sanchi temple, gradually giving place to every increasing ornamentation and decoration.



**Shikhara, Vaital Deul Temple, Bhubaneswar, Orissa**

We have already seen that in India the sculptor and the architect were often one and the same person and it would be highly misleading to treat sculpture and architecture separately. As a matter of fact, sculpture was introduced as a decorative element over the facade on outer walls of a temple. To recapitulate let us look back at the great Sanchi temple of about the 5th century and see how very simple the structure is and how bare and undecorated the walls are. Then you might have observed that on the walls of the Ladhkan temple, by providing a variety of perforated screen windows, some variation was introduced by about the middle of the 5th century and about a 100 years later in the Durga temple at Aihole, sculpture were added at the base of the pillar round the verandah and gradually in the Vaitala Deul, datable to about the beginning of the 7th century, the sculptor has made rich use of the niches in the ribbon like projections to embellish and decorate the temple.

By about the year 1000 A.D. the temple was treated with decorative elements. The Raja Rani temple of Bhubaneswar, is superbly decorated, showing sensuous and graceful figures of Yakshis and Vrikshikas standing amidst luxurious natural surroundings.



**Parasurameswara Temple, Bhubaneswar, Orissa**

The early Indian temple was provided with a flat roof and there was a problem of letting out accumulated rain water. In the Aihole temples of Lakkhan and Durga, the roof slabs have been given a slant and these slabs of large stones which were used in the early Orissan temples date to about the mid 7th century, namely the Parasuramesvara temple at Bhubaneswar. In this case there are two roofs of slanting slabs, one above the other, providing in between, small skylights allowing light to penetrate inside the shrine. Gradually these slanting slab-roofs begin to increase from one to two and from two to three and gradually by multiplying these roofs, a pyramidal roof results over the shrine, called Jagamohana in Orissa, which precedes the main shrine.

A masterpiece of Indian architecture is the Rajarani temple of Bhubaneswar, a work of exquisite grace in which the masses of the Jagamohana and the Vimana are admirably combined to express perfection. There is a very lovely beehive shaped tower rising from the ground with a gentle curvature over the sanctum sanctorum. Shikhara on Shikhara, miniature temple towers, one on top of the other, mount higher and higher to ever loftier heights like the great Mount Everest surrounded by smaller crags. It is possible that the architect conceived the idea of the ever rising succession of these miniature Shikharas and was inspired by the great mountain range and the highest peak in the Himalayas which is surrounded by lesser peaks and might well symbolise the aspirations of the human soul to reach up till it merges and mixes with the Eternal and the Almighty Spirit. The Orissan temple stands as a great monument to the infinite patience and loving care and perseverance that moves these architects and the kings who carved ornaments and distinct from the severely simple pyramidal roof of modest height over Jagamohana or the mandapa. The multiplication of the slanting slabs has been carried to 13 horizontal elements, diminishing as they reach towards the pinnacle on the top of the pyramid. But even this pinnacle is dwarfed by the importance of the lovely round stone, the amlaka, the chhatra or the crown on top of the spire or tower. The Jagamohana and the Vimana are connected by means of miniature spires emerging from the pyramidal roof of the Jagamohana towards the Shikhara of the sanctum sanctorum, making a transition a kind of step that leads the eye towards the height of the tower.

We have seen that the evolution of temple architecture in Orissa is towards the greater elaboration of the plan and pronounced ornamentation over the outside of the walls, with decorative elements, including human figures, gods and goddesses, flora and fauna. Early temples of modest size and somewhat smaller shikharas such as the Parasuramesvara temple at Bhubaneswar date to the middle of the 7th century, with a squat and heavy shikhara over the sanctum sanctorum and a low flat roofed mandapa, embellished with a relief of dancers and musicians of great charm, gradually matures into an elaborate structure of towering height, embellished with sculptural decorations.



**Surya, Vital Deul Temple, Bhubaneswar, Orissa**

Then comes the Vaitala Deul which is known for its sculpture grace and exuberance of decoration, with a rectangular sanctum with wagon-vault roof similar to that of the Parasuramesvara temple, and is datable on the basis of its decorative motifs and designs, which are mature, expressive and dynamic, to the close of the 8th century.

Then comes the Mukateswara temple regarded as a gem of Orissan architecture.

The Brahmesvara temple is a panchayatana temple securely dated by an inscription, to about 1060 A.D. This is a temple in which the central shrine is surrounded by four small shrines in the four corners of the compound. Though a very beautiful shrine, the spire or shikhara appears to be curving rather abruptly under the amlaka, unlike the spire of the Rajarani which is perfect and admirable for its style and decoration. The Jagamohana has a rather top heavy pyramidal roof, unlike the Rajarani which is of modest height and much simpler.

The Lingaraja temple, datable to about 1000 A.D., is perhaps the most marvellous temple ever erected in this century, the grandest and the loftiest (above 36.50 m. high) marking the culmination of the architectural activities at Bhubaneswar. This temple consists of the sanctum sanctorum, a closed hall, a dancing hall and a hall of offerings, the last two being later additions. The Lingaraja is surrounded by a large number of additional shrines which clutter up the entire compound. The enormous height of the spire, 5 times the height of the Rajarani, dominates the entire surroundings by its soaring loftiness and volume, emphasised by the deeply incised vertical lines of the rathas, a pair of which flanking the central ratha, carry four diminishing replicas of the spire itself as a decorative pattern. The Jagamohana and the spire match each other splendidly and both express the greatness of the Lord. The nine lower roof and seven upper roofs of the Jagamohana are exquisitely adorned with friezes representing a procession of infantry, cavalry, elephants and miscellaneous other scenes that break the monotony of the rising pyramid and a great shikhara surface too is elegantly varied by the introduction of corner miniature shikharas and flying lions. The elegant and lovely female figures, loving couples in embrace, and other gods and goddesses decorating the surface are all carved with sensuous charm, beauty and delight in fine form.

The mature planning of the whole structure, the proportionate distribution of its part, the graceful curve of its shikhara and its elegant architectural and plastic decoration, together with its impressive dimensions make the Lingaraja, at Bhubaneswar, one of the greatest creations of Indian architecture. Technically speaking it is a marvellous architectural feat to build a tower and a shrine of such enormous size, of the fashioned stone.



**Lingaraja Temple, Bhubaneswar, Orissa**

It may be mentioned at this juncture, that in the later temples of Orissa, including the Lingaraja, there are two additional shrines attached along one axis - in front of the Jagamohana, a natamandapa, or a hall of dance and music, and a bhogmandapa, a hall of offerings. As a matter of fact, the temple was a total work of art in which we have not only sculptures and painting, but music, dancing and theatrical performance, making it a true civic centre for artistic and cultural activities, somewhat like the modern community halls, which are places for social and cultural gatherings. In the olden days the temple performed this task and was truly the hub around which all civic and religious life of the community revolved.



**Surya Mandir, Konarak, Orissa**

Among the later shrines of Bhubaneswar the Ananta Vasudeva temple, founded in 1278, is remarkable in more ways than one. It is the only temple dedicated to Vaishnava worship at this predominantly Shiva site and stands on an

ornate platform terrace. It continues with the developed plan and decorative scheme of Lingaraja, but the grouping of the roofs over the four compartments in a gradual ascent is more spectacular here. Further, the walls of the sanctum and the Jagamohana display images of the Regents as well as those of their consorts.

The last great temple, the grandest achievement of the artistic and architectural genius of Orissa is the Sun temple at Konark which was constructed by the eastern Ganga ruler Narasimha Varmana, about 1250 A.D. It is a vast and wonderful structure, magnificently conceived as a gigantic chariot with 12 pairs of ornamental wheels, pulled by seven rearing horses. The colossal temple originally consisted of a sanctum sanctorum, with a lofty curvilinear shikhara, a Jagamohana and a dancing hall, built on the same axis, and an extensive compound wall with three entrance gateways. The sanctum sanctorum and the dancing hall have lost their roofs and it is only the Jagamohana which has remained intact with its roof. The sanctum sanctorum and the Jagamohana together stand on a lofty platform, richly ornamented by friezes of elephants, decorative ornaments interspersed with figures sculptures, often of a highly sensuous character. Over the stupendous roof of the Jagamohana consisting of horizontal tiers, grouped in three stages, stand life size female sculptures of great charm, dancers, cymbal players and others adorning each stage. The whole structure of the Jagamohana unparalleled for its grandeur and structural propriety, is surmounted by an effective contrast of light and shade.

Udaipur, about 40 miles from Bhilsa in Madhya Pradesh, is yet another ancient and remarkable site. The finest and best preserved temple is the Nilakantha or Udayesvara at Udaipur, built by Udayaditya Paramara between 1059 and 1080. It has a covered porch, a pyramidal roof and a tower or Shikhara ornamented by four narrow flat bands running from base to summit, the intervening spaces being occupied with repeated ornaments consisting of reduplication in miniature of the main tower. The whole is carved with particular precision and delicacy, and both tower and mandapa are in perfect preservation, the former surmounted by an amalasila or a vase.



**Virupaksha Temple, Pattadakal, Karnataka**

The most important of the temples at Pattadakal date from the first half of the 8th century and show the strongest

possible evidences of Pallava influence. The great Virupaksha temple, dedicated to Siva as Lokesavara, by the queen of Vikramaditya II datable to 740 A.D., was most likely built by workmen brought from Kanchipuram, and in direct imitation of the Kailasanath at Kanchipuram.

The main shrine is distinct from the Mandapam, but has a pradakshana passage, the pillared mandapam has solid walls, with pierced stone windows. The square shikhara consists of clearly defined storeys each of considerable elevation. Chaitya window motifs are much used and there are many sculptured lintels, slabs and monolithic pillars. It is built of very large, closely-jointed blocks of stone without mortar, in keeping with early Dravidian temple building practices. One of the noblest structures in India, this is the only ancient temple at Pattadakal still in use.



**Brihadeshwara Temple, Thanjavur, Tamil Nadu**

Let us turn our attention once again towards the South of India, where the Dravidian style of temple architecture flourished roughly from the 8th century to about the 13-14 century A.D. Unlike the North, the South is literally dotted with thousands of temples, having been relatively free from repeated foreign invasions to which the North was subject. Behind the architectural achievements of the country, lay the urge of the Hindu mind to give vent to its religious and spiritual hopes and aspirations, and the construction and maintenance of a temple became an act of merit or Dharma both here and in the hereafter for all - Kings, nobles and laymen alike. It was the centre of all cultural and social life, the hub around which all activities revolved. Its influence extended beyond the purely religious and spiritual realms and made the temple an important centre. The temple was a leading landowner, thanks to the frequent donations from kings, nobles and lay-devotees. The construction of a temple usually took many years and it gave employment to hundreds of artists and engineers. The finest craftsmen from neighbouring provinces found employment and a whole generation of talented sculptors were trained by them during its construction. The daily routine gave assured employment to a large number of people, priests, musicians, dancing girls, teachers, florist, tailors, etc. In course of time the

simple unostentatious temple became a vast conglomeration of structures, consisting of subsidiary shrines, Natamandaps and Bhogamandapas, or a dance hall and hall of offerings. Poet pavillions, confectioners and others were allowed to become part of temple complex. In other words the temple almost embraced and enveloped the town or the town embraced and enveloped the temple. With the increase in all these additional structures, more compounds were added to the original temple compound, one inside the other, like Chinese boxes.

The present South Indian temple, therefore, consists of walls, quadrangles, one within the other. The inner most wall in the area contains the temple proper, a much smaller and unpretentious structure than the other larger gateways which now began to attract the attention of architects, sculptors and carvers. The Brihadesvara temple which was erected about 1000 A.D. is a contemporary of the Rajarani temple of Bhubaneswar. The temple is a magnificent and dignified edifice consisting of a pyramidal spire, made up of ever diminishing tiers, regularly tapering towards the top surmounted by a domical pinnacle. In many respects this shrine resembles the Shore Temple at Mahabalipuram. The domical pinnacle, however, is different in conception and execution from the amlaka of the Orissan Shrine. The highest shikhara rises straight over the garbha griha from the sanctum sanctorum. The structure is adorned with beautiful sculpture and paintings; inside as well as outside. The Brihadesvara Temple, dedicated to Shiva, stands in a courtyard 500 ft. by 200 ft. and consists of the sanctum sanctorum, large hall a pillared hall and a Nandimandapa arranged on the same axis. The pyramidal vimana is about 190 ft. high consisting of 13 zones in diminishing order and has been so conceived that at no time during the day does the shadow of its pinnacle fall anywhere outside the temple base.



**Kailash Temple, Ellora, Maharashtra**

The famous Kailasa temple at Ellora is in a class by itself because it is a rock-cut temple complex, which in many respects resembles the various rathas at Mahabalipuram. This temple was constructed during the reign of the Rashtrakuta King Krishna and belongs to the middle of the 8th century A.D. The carvers at Ellora cut three trenches down into the rock and then began to carve the rock from the top downwards. Even though it is carved on the model of a structural

temple, the Kailashnath temple is a rock-cut shrine within a rectangular court. The different parts of the temple are the entrance portico, the vimana and the mandapa as well as a pillared shrine for Shiva's bull, Nandi. Both inside as well as outside the temple, there are beautiful, graceful and dignified sculptural decorations, largely pertaining to the theme of Shiva and Parvati, Sita's abduction and Ravana shaking the mountain.

The gopuram, is the tower, an oblong quadrangle, sometimes a square, with a passage through the centre and is situated on the entrance gateway unlike in the north, or even at the Brihadesvara temple in Tanjore, where the tower-like structure was on the top of the sanctum sanctorum or garbhagriha. In many ways the gopuram could have descended from the Buddhist gateway such as we have already seen at Sanchi and Bharhut, etc. It is crowned by a barrel-vault roof over which a large number of pinnacles rise which remind us once again of a barrel roof on a longitudinal hut which used to be made of timber. As stated earlier these gopurams are towering structures, some having 9 storeys, others even 11. The gopuram provided an excellent opportunity to the sculptor to practice his craft and contain some of the finest sculptures produced in the country. The gopuram at Chidambaram has a series of sculptures showing dance poses of Bharatanatyam. At night time, lights used to be lit in each storey of the gopuram tower and these acted as a sure guide to the nocturnal traveller, acting like a light house or beacon. As a rule the highest gopuram tower was the latest, the earliest being the least high size as in the gopuram of the Meenakshi temple at Madurai. Visitors can climb into these towers to appreciate the carvings at close quarters and incidentally get a marvellous view of the temple complex. South Indian temples of this period are remarkable for the great size of their structures, mandapas and gopurams. In addition elaborate mandapas of hundred pillared type are also constructed during the period of late Vijaynagar and the period of the Nayakas in the 16th century A.D. This is an interesting departure from the evolution of the temple from early times. These pillared halls now become more and more elaborate with pillars showing donor couples, kings, queen, mythical animals with fantastic shapes and size. The paintings over these as well as over the pillars and ceiling are very colourful.

In some temples there are tanks surrounded by elegant pillared halls which are functionally and architecturally admirable structures. The temples built in the 12-13th centuries under the patronage of the Hoysalas of Mysore, are at Somnathpur, Belur and Halebid. The well-known Kesava temple at Somnathpur, and the Hoysala temple at Halebid and Belur are veritable treasure houses of ornamental and decorative elements, carved in niches, and intricate vegetal and floral carvings. The vimana is of a star shaped plan with salients and reentering angles with mouldings, multiplication and over-decoration. Not an inch of space is left uncarved and there are animals and other denizens of the

forest shown on the lower most three or four mouldings, interspersed with floral and creeper designs and, above them all, in more than life size, are shown huge sculptural representations of gods and goddesses, completely covered with by lavish decorations and rich ornaments.



**Temple Complex, Madurai, Tamil Nadu**

Khajuraho, twenty five miles North of Panna and twenty seven miles of Chhatarpur in Madhya Pradesh is an important place because of the exquisite temples built there by the Chandellas.



**Vishwanath temple, Khajuraho, Madhya Pradesh**

The Khajuraho temples are cruciform in plan with the long axis from East to West. Built of buff sandstone from the quarries of Panna, these temples have a soft texture and a most pleasing colour. The temples have usually been made on high terraces. Almost all the temples have an inner shrine an assembly hall or mandapa, and an entrance portico. The temples at Khajuraho have a circumambulatory passage also. Some of the temples at Khajuraho are a cluster of five shrines - the main temple surrounded by four others at each corner. In architecture, these types of temples are known as Panchayatana - a temple that has a central shrine surrounded by four other shrines.

The Kandariya Temple, the Mahadeva Temple, the Devi Jagadamba Temple, the Chitragupta Temple, the Vishwanatha Temple, the Parvati Temple, the Lakshamana or Chaturbhuj Temple; the Varaha Temple; the Chaunsat Yogini Temple (the only temple made entirely of granite and dedicated to sixty four yoginis) are some of the very famous and worth studying from the art and architectural point of view.

These temples were built between tenth to late twelfth centuries. The South-East of Khajuraho is famous for Jain Temples. The Parsvanatha Temple is most important one whereas the Ghantai Temple is named because of the bell and chain ornaments at its pillars.

### PALA AND SENA KINGS

From the eighth to twelfth centuries, the eastern portion of India was host to a florescence of artistic activity. Under the Pala dynasty, which ruled large portions of Eastern-South Asia for nearly four hundred years span, many centres of Buddhism and Hinduism flourished.

The Pala dynasty came to power around 750 A.D. The Pala school of art first flourished in the Magadha region of Southern Bihar, the homeland of Buddhist religion. Not surprisingly, the majority of early Pala-period remains are Buddhist. Due to intense religious activity during Pala Sena period, many religious structures were built or renovated. Most of these buildings have vanished leaving no extant architecture from this period and making it very difficult to reconstruct a systematic overview of the architectural development. In spite of non-availability of any building, a huge corpus of sculpture and a few paintings survive from this period.

During the Pala-period, a number of monasteries and religious sites that had been founded in earlier periods grew into prominence. The large cruciform stupa at Paharpur (ancient Somapura) in Bengal (now Bangladesh), for example, measures more than one hundred meters from North to South. It was built around the late eighth or early ninth century. The walls of the courtyard contain 177 individual cells that served as shrines.

Although the first two hundred or so years of Pala-period art were dominated by Buddhist art, the Hindu remains also exist in some quantities in that phase and clearly dominate in the last two hundred years of the Pala-period.

The remains, though damaged, suggest that Bengali architecture styles in particular shared many features with other northern schools especially that of Orissa. The surviving examples from Bengal later than Pala-Sena period especially from the sixteenth century and later show greater Islamic influence. Thus, for an understanding of the Hindu artistic development from the eighth to twelfth centuries, the greater attention must be placed on the surviving sculptures.

**Indo-Islamic** architecture begins with the Ghurid occupation of India at the close of the 12 century A.D. The Muslims having inherited a wealth of varied designs from Sassanian and Byzantine empires and being naturally endowed with good taste for buildings, never failed to adapt to their own requirements the indigenous architecture of almost every foreign country that they conquered.

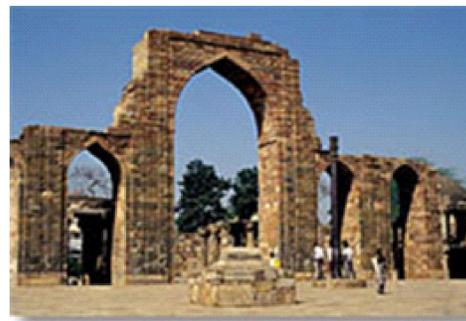
The most important factors common to both forms of architecture, especially in respect of mosques and temples, were that to both styles, ornamental decoration was very

vital and that the open court in many cases was surrounded by colonnades. But the contrast was equally striking: the prayer chamber of the mosque was spacious, whereas the shrine of the temple was comparatively small. The mosque was light and open, whereas the temple was dark and closed. The difference between the lay-out of a temple and a mosque is explained by the essential difference between the Hindu and Muslim forms of worship and prayer. A cell to house the image of the deity, garbha-griha, and often small halls in front for the worshippers was regarded adequate for a simple Hindu temple. But the Islamic form of worship, with its emphasis on congregational prayer, requires a spacious courtyard with a large prayer hall, pointed towards Mecca, as its western end that is, to the West of India. In the rear wall of the prayer-hall, the centre is occupied by a recess or alcove, called mihrab; and indicates the direction of prayer (qibla). A pulpit (mimber) at its right is meant for the imam who leads the prayer. A tower or minaret, originally intended for the muazzin to call the faithful to the prayer, later assumed a mere architectural character. A gallery or compartment of the prayer hall or some other part was screened off to accommodate the ladies who observed purdah. The main entrance to a mosque is on the east, and the sides are enclosed by cloisters (liwans). A tank is provided for ablutions usually in the courtyard of a mosque.



Lion capital from Ashoka Stambha, Stone, Sarnath, Uttar Pradesh

You would have observed that this style of construction incorporated not only certain new modes and principles but reflected also the religious and social needs of the Muslims. The Muslim style of construction was based on arches, vaults and domes, on columns and pyramidal towers or slender spires, called trabeate.



Arches, Qutub Complex, Delhi

In the Hindu style of construction spaces were spanned corbels, held together by making courses project, each further than the one below, so that the open span was gradually reduced to a size which could be covered with a single slab or brick. Although there exists some evidence to suggest that the true arch may have been known in India earlier, it is the Muslims who are believed to have brought the principle of building a true arch so as to hold up the roof or ceiling or a top part of a structure, the bricks or stones laid to reproduce a curve, held together by the key-stone on the top of the rise. In many cases even if the true arch was familiar to indigenous architects in ancient times, it was re-introduced by the Muslims. The result was that flat lintels or corbelled ceilings were replaced by arches or vaults, and the pyramidal roof or spire by the dome. The necessity of raising a round dome over a square construction introduced multiplication of sides and angles by providing squinches so that a base with many sides usually 16, could be obtained to raise a circular drum for the dome. A sunshade or balcony was laid on cantilever brackets fixed into the projection from the walls, which introduced the *chajja* (caves or sunshade). The practice of the burial of the dead, as distinct from the cremation practised by the Hindus, chamber, a *mihrab* in the western wall and the real grave (*qabr*) in an underground chamber. In larger and more complex tombs, there is also a mosque, and well planned garden. The mode, theme or motifs or ornamentation employed in Islamic buildings also made a departure from the earlier vogues. The Hindu style or ornamentation is largely naturalistic showing human and animal forms and the luxuriant vegetation life. As among the Muslims the representation of living beings was taboo by way of decoration or ornamentation, they introduced geometrical and arabesque patterns, ornamental writing and formal representation of plant and floral life. In short the contribution of the Muslims to Indo-Muslim architecture is profound and no less interesting. Among the architectural features introduced by them mention may be made of arches, domes, minars and minarets, the pendentive, squinch arch, half domed double portals, kiosks (*chhatris*) and the use of concrete as a factor of construction. They also introduced gilding and painting in varied colours and designs. Muslim decorative elements are usually of the nature of embroidery. Even though lime was known and to certain extent used in construction work in India fairly early, mud was generally used for brick work and large blocks of stones were laid one on top of the other and held by means of iron clamps. The Muslims, like the Romans, were also responsible for making extensive use of concrete and lime mortar as an important factor of construction and incidentally used lime as plaster and a base for decoration which was incised into it and held enamel work on tiles.

**As the first** - Muslim invaders of India were merely armed horsemen who had come into the country to loot and plunder and not think in terms of founding towns, cities or

empires. Consequently they did not bring with them architects or masons. The building material obtained from the destruction of other buildings was used for new improvised buildings such as Quwwatul-Islam Mosque in Delhi and the Adhai din-ka-Jhonpra at Ajmer. The advent of the Muslims in India therefore did not immediately make a great impact on Indian architecture and as the physical conquest of India actually took more than a thousand years it was only with the conquest of India by Emperor Babar in 1526 that the Muslims began to think in terms of settling down in the country and in course of time had the satisfaction that they now belonged to the country and that the country belonged to them. As such from the 7th century to the 16th century Muslim architecture in India reflects the unsettled condition of the conquerors who felt that they were living amidst the conquered inhabitants, many of who were hostile to them. As such the accent thus far was on security which could be had only in walled fortifications. It is, therefore, that early Muslim towns and cities, even when they are tombs were made as fortified places which they could easily defend against hostile forces.



**Adhai din-ka-jhonpra, Ajmer, Rajasthan**

The Quwwat-ul-Islam Mosque was constructed by Qutub-ud-din Aibak around 1197 A.D. and as is very clear from inscriptions he demolished 27 Hindu and Jain temples within the Rajput citadel of Lalkot as well as the Quila-Rai Pithora and that their carved columns, lintels, ceiling slabs, all showing Hindu gods and goddesses, Purnaghatas and temple bells hanging by chains, were utilised to construct the mosque known as the "Might of Islam". The massive stone screen with five graceful arches, the central one being the highest, not built on the true arch principle with voussoirs and key-stone, but by corbelling the successive courses (a system known to Indian masons for over 2,000 years) it is a trabeate construction, with lintels holding up the top and the arch only an ornamental false element. As the entire work was carried out by native Indian craftsmen, the ornamentation of the screens show typical Hindu decorative floral elements, serpentine tendrils and undulating leaves. The only new element that was introduced by the Muslims is the Arabic inscription. In front may also be seen the Iron pillar, 7.20 metres high and 32 cm. to 42 cm. in circumference. An inscription on it, engraved in characters of the 4th century

A.D. proclaims it to be Garudarwaja, the lofty named Chandra believed to be none else than Chandragupta II Vikramaditya. Even though this pillar has been standing there for over 1600 years it has not been corroded by rust and is a standing testimony of the metallurgical skill of its manufacturers.

The Qutub Minar of Mehrauli was built around 1199 by Qutub-ud-din and finally completed by his son-in-law and successor Iltutmish (1210-35). In one sense this tower was raised in adjunct to the mosque to allow the mullah to call the faithful to prayer: it could also be a tower of victory, not unlike some erected by Hindu rulers. Originally the minar had four storeys, the uppermost of which was damaged by lightning in 1373. Feroz Shah Tughlaq (1351- 88) rebuilt its two storeys. With its projecting balconies, carved with decorated elements on the underside, inscriptional surface carving and variegated fluting, this 72.5 m. high minar with 399 steps, is the highest stone tower in India.



**Qutub Minar, Delhi**

Another early mosque, is the well known Adhai-din-ka-Jhonpra at Ajmer which was also constructed from the material obtained after demolishing Hindu temples. This one is also laid on the same plan as the Delhi mosque constructed by Qutub-ud-din, with carved pillars used in colonnades.

The Sultan Ghari tomb is situated 4 miles west of the Qutub and is the first example of a monumental Muslim tomb in India. It stands like a fortress within a walled enclosure with bastions on the corners, with its octagonal grave chamber underground. This also has a number of stone pillars, carved lintels and other pieces originally used in temples, re-utilised here by chipping off the Hindu decorative elements.

The Alai-Darwaza was, built by Allaudin Khilji by enlarging the Quwwat-ul-Islam Mosque's enclosures of colonnades and providing them two gateways. In this and other buildings constructed by the Khiljis, the true arch in the form of a pointed horseshoe, broad dome, recessed arches under the squinch, perforated windows, inscriptional bands and use of red sandstone relieved by marble are features characteristic of Khilji architecture.

The buildings constructed in Delhi by the Tughlaqs such as the fortified town of Tughlaqabad- look solid, surrounded, as they are, with bastions, thick and sloping walls, even in

the case of tomb of Ghiyas-ud-din Tughlaq, making them into fortified strongholds set in the middle of a moat, to make them unassailable. The buildings have plain and austere surfaces of grey stone, cross vaults over large halls, battered wall of enormous thickness, secret passage and hidden exits, everything built with an eye on defence. To a certain extent the Hindu trabeated construction is still used; there are false arches and the dome is a typical importation from Syria and Byzantine.

From the Khilji and Tughlaq styles discussed earlier ultimately many of the Islamic tombs evolved through the next century or so, characterised by elegant verandahs consisting of multiplication of arches and a high tomb, derived and imported from western countries. In the course of these centuries the battlement motifs (Kangura) became a mere decorative element motif having outlined its utility as a defensive architectural member. There was gradually a harmonious blending between the Hindu and Muslim architectural styles and this new style of architecture is known as Indo-Islamic. It is entirely different in character from Muslim architecture in other countries, incorporating the best of both Hindu and Muslim styles, freely using Hindu brackets in an arcuate construction with a dome, with the difference that the Muslim dome now acquired a lotus design under its ftinial.



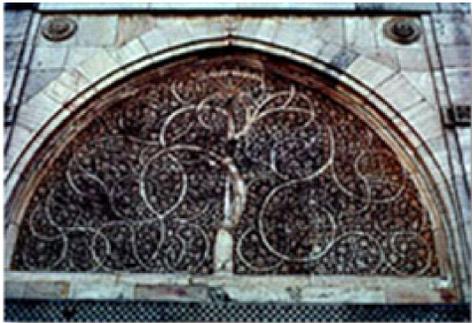
**Fort of Ghiyas-ud-din Tughlaq, Tughlaqabad, Delhi**

It was in this direction that the Indo-Islamic Architecture now began to evolve, adding to it the local flavour of the provisional kingdom of Bengal, Gujarat, Jaunpur, Golconda, Malwa and the Deccan.

The Islamic monuments of Bengal are not much different from such buildings elsewhere in plan and in design, but the use of a different building material and the execution of details inspired by local traditions have made them quite distinct. The so-called "Bengal" roof with sloping cornices, which originated from the bamboo-construction, was adopted by the Muslims and later it spread widely, even in other regions. Brick was the chief building material in the alluvial plains of Bengal from early times and remains so even now, the use of stone being limited largely to pillars which were mainly obtained from demolished temples. The pillars in Bengal, even when constructed with brick, are generally short and square and the opening is usually accurate, for trabeate construction normally called for the use of

stone. Covered brick and glazed tiles were usually pressed into service for decoration.

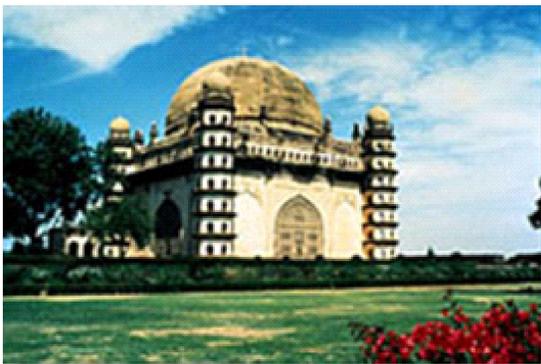
At Gaur the earliest building representing the construction and ornamental methods of this style, is the Dakhil Darwaja built by Barbak Shah (1559-74) as a ceremonial gateway in front of the citadel. With a tall arched entrance between vertical pylons on either side and tapering towers on the corners, it is an imposing structure.



**Jali Work, Sidi Sayyid Mosque, Ahmedabad, Gujarat**

The walls of Sidi Said Mosque, Ahmedabad, built in 1572 consist substantially of perforated screens. It has become world famous on account of perforated screens, some of them representing the "palm and parasite" motif, which occurs also in the Darsbari Masjid in Bengal. It has the delicate quality of filigree work.

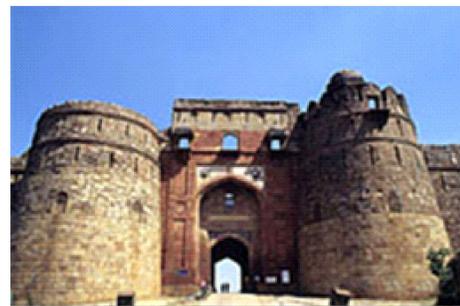
The Gol Gumbad of Bijapur is the mausoleum of Muhammad Adil Shah (1627-57). It is the largest dome cubicle in the world covering a total interior surface of over 1600 sq. metres. Architecturally it is a simple construction, its underground vaults consisting of a square grave chamber and a large single square chamber above ground. The large hemispherical dome surmounting it and then seven storeyed octagonal towers on its corners lend it a unique appearance. Each of its walls on the outside is divided into three recessed arches, the central one panelled, with a running bracket - supported Chhajja at the cornice. A 3.4 m. wide gallery rests on its interior at the level of the drum. It is known as the whispering gallery, as even a whisper here reverberates as an echo under the dome. The large dome is hemispherical but is covered with a row of petals at the base.



**Gol Gumbaz, Bijapur, Karnataka**

With advent of the Mughals, Indo-Muslim architecture got a blood transfusion as it were, architectural activity having declined significantly during the rule of the Lodis. The Mughals were quick to realise that they could not hope to establish a lasting empire in India unless they took within their fold, mixed and mingled with the local population, especially the Rajput princess of Rajasthan. From being merely satisfied with establishing and somehow safeguarding their Sultanates as in the case of the Delhi Sultans, thinking themselves to be the conquerors, keeping aloof from their subjects and thus creating a wide gulf between themselves and the people of the country that they had the good fortune to rule, the Mughals turned deliberately towards conciliation and pacification of the Hindus. Akbar, did everything possible to live in peace and amity with his Hindu subjects. His policy of conciliation, his open admiration of Hindu culture and his unorthodox ways as the creator of a new eclectic religion, the Din-i-illahi, are reflected in architecture. Jahangir was half Hindu by blood, his mother, Jodhabai, being a Rajput princess. Shahjahan too continued this policy of tolerance and respect for the Hindus. The Mughal empire, as well as Mughal architecture, flourished and rose to great heights under their benign rule, but all this ended abruptly under the last of the great Mughals, Aurangzeb, a puritanic Muslim, who tried to put the clock back and in this process stopped it and broke it by trying to reverse the entire conciliatory policy of his ancestors. He looked upon art, music, dance, painting and even architecture as an evil born of worldly desire and therefore there was an abrupt decline and eventual downfall in aesthetic appreciation and architectural enterprise.

Babar, the founder of the Mughal empire, was a man of culture and exceptional aesthetic taste. For 4 years he ruled in India most of his time was spent in war. However, he was fond of formal gardens and a couple of gardens are ascribed to him. No architecture worthy of note was made during his times except perhaps a couple of mosques.



**Humayun Darwaza, Purana Qila, Delhi**

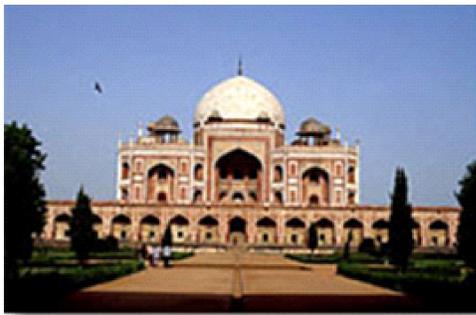
After Babar's death, his son, Humayun, succeeded him but he was driven out of India by Sher Shah Suri and after taking asylum in Iran, he eventually returned and overthrew Sikander Shah Sur, and regained his throne.

To the Surs is ascribed, the tombs at Sasaram, in Bihar including Sher Shah's own tomb, which was made by mod-

erating the Lodi octagonal pattern with a verandah around it, each side pierced by arches and the halls surmounted by a large and wide dome. The Surs made use of red and dark grey stone latticed screens, decorative turrets, painted ceilings and coloured tiles.

The Purana Qila and the Quila Kohna Masjid inside, are also ascribed to Sher Shah Suri. The walls of the Purana Quila are made of enormous half fashioned stones, with strong and thick walls, ornamentation and decoration are minimal.

The first distinct example of proper Mughal architecture inspired by Persian architecture, is the tomb of Humayun, in Delhi, built by his widow, Begha Begum. This tomb is important for a proper study of the development of later Mughal architecture and has provided the prototype, followed by architects who designed the Mausoleum of Jahangir at Shahdara, Lahore, as well as the celebrated Taj Mahal, at Agra. Although Sikander Lodi's tomb as the first garden tomb built in India, it is Humayun's tomb which strikes a new note. It is a memorial erected by a devoted wife for her imperial husband and is magnificent, grand and impressive. Raised on a vast platform, the tomb proper stands in the centre of a square garden, divided into 4 main parts by causeways (Charbagh) in the centre of which ran shallow water-channels. The square, red, sandstone, double storeyed structure of the mausoleum rises over a high square terrace, raised over a series of cells which are like a musical composition. The octagonal form of the central chamber containing the cenotaph, is inspired by Syrian and earlier Islamic models. It is for the first time that pink sandstone and white are used with admirable effect, the white is used cleverly to emphasise, surround and underline doors and windows, strengthening the design.



**Humayun's Tomb, Delhi**

There is a certain rhythmic quality in the whole structure in its symmetrical design and the repetition of the large dome in the similar pavillions with small but similar domes. The mausoleum is a synthesis of Persian architecture and Indian traditions, in the arched alcoves, corridors and a high double dome as well as the kiosks (chhatris) which give it a pyramidal shape from a distance. The tomb stands as a loving creation of a devoted wife for a great emperor, an intrepid warrior and a strong man and is in character, solid and massive.

Akbar was keenly interested in art and architecture and his architecture is a happy blend of the Hindu and Islamic modes of construction ornamentation. Akbar's seat of Government was Agra, it is there on the banks of the river Yamuna, that he started the construction of his famous Fort, made of red sand-stone, which was begun in 1565 and completed in 1574. This was the first time that depressed stone was used, also in the ramparts. With its high walls of neat sandstone facing the gateways, flanked by bastions, large halls, palaces, mosques, bazars, baths, gardens and houses for courtiers and noblemen, the fort at Agra laid a pattern in the construction of royal citadels that became a model for later ones. The Akbari Mahal and the buildings, along with the great and original city of Fatehpur Sikri, are made of red sandstone with trabeated construction and restricted ornamentation. The jambs, brackets, corbels and lintels of the doorways of the Jahangiri Mahal together with a Chajja above the doorways are profusely sculptured.



**Amar Singh Gate, Agra Fort, Uttar Pradesh**

Fatehpur Sikri was a town planned as an administrative unit consisting of public buildings as well as private residence in close proximity. The city of Fatehpur Sikri was founded as a token of gratitude to Sheikh Salim Chisti who had foretold that Akbar would have three sons who would survive after the sad demise of many children in infancy.

The city was begun in 1569 and completed in 1574, the same year in which the fort at Agra was completed. The city is a modest and compact township, consisting of halls, palaces, offices, gardens, pleasure-resorts, baths, mosques, tombs, all of them little gems of architecture, making a town of great nobility. Almost all the structures are based on trabeate construction.

The most typical and the most well known building is Panch Mahal, the highest and the most impressive structure, called the palace of five storeys. It is based on the Hindu system of trabeate structure, consisting of pillar, architrave, and brackets, with the only exception of the topmost domed pavilion, purposefully thrown out of the centre that crowns the entire building. The tower was perhaps used for recreation by the emperor and members of the royal household. The idea behind this impressive structure of diminishing storeys, one on top of the other, consisting of open, terraces in front of the covered areas, was comfort, shade and airy open pillared verandahs provided by perforated railings,

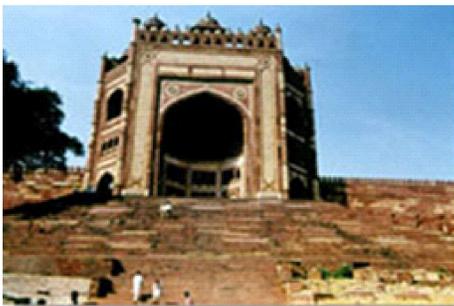
constructed with an eye to providing shade and fresh air, to the inhabitants seated on the cool floors.

The Diwan-i-Khas or Hall of Private Audience, is of a unique design. It is a square chamber with three openings on each side and a richly carved column in the centre supporting a magnificent flower shaped capital. Thorough ventilation is provided by placing on all sides perforated windows opposite each other on every wall. The charming balcony supported by a circular top capital, runs round the halls whole length of the 4 sides on the first floor level, supported by brackets. It is believed that the central place was occupied by the Emperor's throne while his Ministers sat at the corners or on the peripheral passage.



**Panch Mahal, Fatehpur Sikri, Agra, Uttar Pradesh**

The Turkish Sultana's house consists of a small chamber surrounded by a verandah. It is beautifully carved both on the outside and inside; particularly remarkable being the wide dado carved with panels, portraying jungle scenes with animals, birds and trees. It is the most ornamented building in a "gigantic jewel casket" says Fergusson.



**Buland Darwaza, Fatehpur Sikri, Uttar Pradesh**

The Jama Masjid at Fatehpur Sikri, besides being very large and imposing, has also a high gateway on the south side called Buland Darwaja, which was added after Akbar's victory over the Deccan. It is a semi-octagonal projection, containing a high arched alcove, and is perhaps the highest and the most imposing gateway in India.

Only one building at Fatehpur Sikri is built of white marble, the tomb of Sheikh Salim Chisti, Akbar's spiritual preceptor. It is a square chamber, having a screened verandah, containing latticed panels of exquisite design, and is an elegant structure. Besides completing Akbar's tomb at Sikandara, and also constructing the Musamman Burj, a

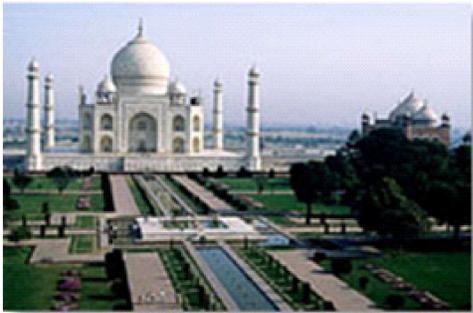
double storeyed pavilion on the Agra fort, with beautiful inlay, Jahangir's queen, Nur Jahan, built the most important building in Agra the tomb of Itmad-ud-Daula, her father and the Prime Minister of Jahangir, by name Mirza Ghiyas Baig. It stands within a garden and consists of a square building with a grave chamber surrounded by verandahs. On the upper storey there is a pavilion with rectangular dome and screens enclosing the false grave of Itmad-ud-Daula and his wife. The structure is built of white marble and is richly decorated with delicate inlay work and painting containing the characteristic Persian motifs such as cypress trees, vases fruits, winecups, etc. The minarets on the four corners, and the fine lattice work, traceries and inlay are in many ways, precursors of similar decorations later on perfected and employed in the Taj Mahal.

Shahjahan was the greatest builder of the Mughal dynasty and with him architecture was a passion. He looked upon white marble, expensive and splendid, as the right and proper building material for an emperor of Hindustan. By this time the Mughal artistic tradition had matured and refined to a great extent. It was during Shahjahan's time that there was the highest efflorescence of Mughal architecture in India. As against the sturdy, robust and plain construction of Akbar, Shahjahan's buildings are highly sensuous, delicate and feminine. Instead of the earlier simple relief work in red sandstone used by Akbar, Shahjahan's buildings are full of delicate carvings in marble, almost like filigree and inlay with pietra dura work. The arch became foliated, the dome became bulbous with a constricted neck and pillars raised with shafts capitals. He even demolished some of Akbar's simple pink sandstone structures in the Agra Fort and replaced them with more luxurious looking, magnificent marble building.

Besides constructing a number of elegant, lavishly decorated buildings, such as Khas Mahal, Diwan-i-Khas, Moti Masjid, as well as the Jama Masjid in Delhi, Shahjahan erected the most romantic and fabulous building, the Taj Mahal, the tomb of his beloved wife, Aljumanand Bano Begum entitled Mumtaz Mahal. It is a dream in marble and is the logical culmination of the conception of a garden tomb, starting with Humayun's tomb at Delhi. The Taj is a square tomb built on a raised terrace, with graceful tall minarets at its four comers. As in Humayun's tomb, the tomb chamber is octagonal, with subsidiary chambers at the angles and the tomb is surmounted by a graceful double dome. The doorway is narrower and loftier, the dome is much more soaring. The dome has acquired a lotus pattern below with the finial. The Taj is noted for its ethereal and dreamlike lightness, graceful proportions and a harmonious balance between architecture and ornamentation. There is profuse carving and beautiful inlay work with precious multicolour stones in its floral and arabesque pattern, fine borders, inscriptions in black marble, delicate traceries and trellis work executed against the background of white marble. In its dreamlike

airy lightness as well as in its precious inlay work, the feminine character is apparent, like the lovely lady in whose memory it was built, gentle, sweet and yielding. Like Humayun's tomb it was laid in a charbagh, or gardens with water channels and full of flowers.

In 1638 Shahjahan shifted his capital from Agra to Delhi and laid the foundation of Shahjanabad, the Seventh City of Delhi, containing his famous citadel, the Red-Fort, which was begun in 1639 and completed after 9 years. The Red Fort is an irregular octagon, well planned, with its walls, gates, and a few other structures constructed in red sandstone, and marble used for the palaces. It consists of a Diwan-i-Am, containing the marble canopy ornamented with beautiful panels of pietra dura work showing a few paintings. Diwan-i-Khas is a high ornamented pillared hall, with a flat ceiling supported on engraved arches. Its pillars contain pietra dura ornamentation and the upper portion was originally gilded and painted. It is also said that its marble dais once supported the famous Peacock Throne.



**Taj Mahal, Agra, Uttar Pradesh**

The exquisite marble screen containing a representation of the scales of justice and on the walls of this marble palace are Persian couplets, detailing the dates of the construction of the fort, the cost of construction and also the famous couplet claiming that "If there be a paradise on earth it is this, it is this, it is this".



**Jali work, Khas Mahal, Red Fort, Delhi**

The luxury and love of constructing magnificent buildings, patronised by Jahangir and Shahjahan came to an end

rather abruptly with the last of the great Mughals, Emperor Aurangzeb.

Not many palaces of early Hindu rulers of medieval time have survived. Certain features which characterise the Islamic construction were not confined merely to Muslim forts, palaces, mosques and tombs, but were also incorporated by the Hindus, who made use of some of the indigenous features, and planned their building to suit their customs and ways of living.

Rajasthan is rich in such palaces. The palaces built during the Mughal time may be different from each other in plan, but they have certain common architectural features, such as balconies supported on carved brackets, pillared kiosks crowned by domes, arcades of sunk arches, foliated arches, latticed screens, curved Bengal roofs and flat domes rising from a rectangular base. Situated as these palaces often are on rocky heights, they look very impressive such as those at Amber: Jaipur, Bikaner, Jodhpur, Udaipur, Jaisalmer, etc.

The Kirtistambha, or Tower of Fame, was constructed by the Solanki ruler of Gujarat and one such is that of the Chittor Fort, the capital of Mewar before Udaipur. The tower, was constructed in the eight years following 1440 and restored in 1906 to commemorate the building of the Kumbhaswami Vaishnava temple, consecrated in 1440.

Of many "experimental" works, in which the Hindu and the Islamic traditions had combined to create something novel is the interesting example of the 'Hava Mahal' (the Palace of the Wind) at Jaipur. Here an extraordinary experiment has been made to create a building suited to the hot, dry climate of Rajasthan, by making the entire facade a perforated screen by creating over fifty slightly raised pavilions, each a half oriel window, as it were, to allow little breeze to waft through those hundreds of perforated jali windows. These half raised pavilions are covered by little domes and curvilinear roofs, whilst the openings are arch-shaped. These are probably inspired by the tiers of small shikharas rising one above the other, of Bhubaneswar or Tanjore.

No doubt we have a great architectural heritage of temples, mosques, palaces and forts. So much so that whenever architecture is thought of in conjunction with India, images of the Taj Mahal, Fatehpur Sikri and South Indian temples are conjured up in our minds.

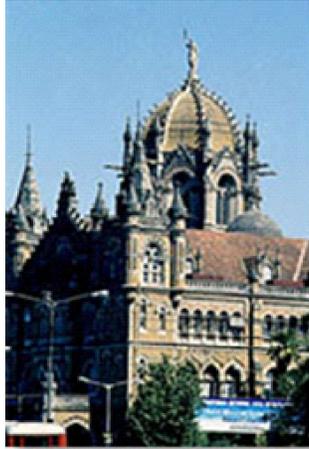
The question that comes to our mind is:

Do we have anything today as representative of Modern Architecture which could be compared with our old buildings? Or in even simpler terms - 'what represents Modern Architecture in India'?

The question which is difficult to answer - demands more than skin deep analysis of modern architecture in the context of India.

The answer to this question also depends on the spirit behind it. If the curiosity behind the question concerns the

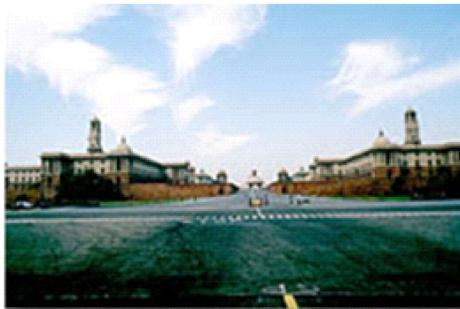
quantum of construction done in post-independence years, the answer can be one impressive list of statistical figures, a fine achievement for building science and technology.



**Chaitya Hall, Bhaja, Maharashtra**

But, if on the other hand the questioning mind is concerned about new architectural and planning thought generated in the same post-independence years, which have resulted in buildings and cities suited to our socio-economic, cultural and climatical circumstances, our achievements are not very impressive so far. But considering the fact that formation of thoughts and ideas, in this relatively young field, has been going for only the last quarter of century and with the limited resources that we have, it is evident that we are on the verge of making a break-through.

It is not out of context here to go into details how things have been happening in the field of architecture in years preceeding the following independence.



**North and South Block, Delhi**

Architecture traditionally, i.e., before the arrival of British on the Indian soil, was from the social point of view, a creation of spectacular sculptural forms hewn out of stone. Architectural material was stone; tools, chisel and hammer, and the aim was glorification. In contrast, the every-day needs of a common man were ruthlessly neglected. Then the British arrived on the scene, it was through them that the first introduction to elementary modern building construction and planning was introduced into India. Their aim, however, was to house their organisations, and their people and whatever was necessary to control an empire as big as In-

dia. Apart from self-serving military cantonments and civil lines, they also left the basic problems well alone. It was no intention of the British to educate Indians in the art and science of architecture. Consequently Indian minds, during the British reign, were completely out of touch with the progressive thinking taking place in the rest of the world. The most significant architectural phenomenon that took place during the first half of this century in this country was building of Imperial Delhi. This was an anachronism of the highest order, because, while at that time contemporary Europeans were engaged in most progressive thinking in architecture, Sir Edward Lutyen's was a masterpiece in high renaissance architecture, the result of a way of thinking typical of the early nineteenth century in Europe. It is interesting to note that at the same time as the construction of Delhi, Europe was having "Heroic period of modern architecture" in such schools of thought as "Bauhaus".

Independence woke us to a changed situation. "Time had moved on. In place of religion or royal concern with architectural immortality, this situation demanded attention to those problems that had so far been ruthlessly neglected. The ordinary man, his environment and needs became the centre of attention. Demand for low cost housing became urgent.

Industrialism that was to follow in India, spawned its own problems of townships and civic amenities for workers. Fresh migration from rural areas to existing cities also strained already, meagre housing capacities of existing cities. The very scale of the problem was and still is unnerving. 8,37,00,000 dwelling units needed throughout the country and the demand rises annually at the rate of 17,000 dwelling units, not to mention rural housing. To face staggering problems of such magnitude, twenty-five years ago, there were few Indian architects in the country and practically no planners. There was only one school of architecture in Bombay. But there was the will to build, with the limited resources and technological know-how at our disposal.



**Rashtrapati Bhawan, Delhi**

We marched ahead and built an impressive number of houses and other buildings of utilisation nature. In the process we made mistakes and learnt from them. Each fresh attempt was a step closer to building of forms more suitable

for the Indian climate and socio-economic conditions. In this process, architects also became aware of the need for a certain amount of research work in new ways of building and planning if we were to face the problem squarely as they say. Since government was the agency with the largest resource, it had to carry the heaviest responsibility for construction. Need for various kinds of organisation on the national and regional level was felt. Following is the list of governmental bodies that we have today, which in some way or the other are responsible for building industry in India.

**(1) CENTRAL PUBLIC WORKS DEPARTMENT (C.P.W.D.) :**

This is a national organisation with affiliated bodies at state level called Public Works Department (P.W.D.). It looks after all the construction of government office buildings, residential accommodation for government employees, institutional buildings like the I.I.T., hospitals, public auditoriums, conference halls like Vigyan Bhavan, and hotels such as "The Janpath" and "The Ranjeet". etc. A number of other buildings, like Libraries, research institutes, airports, radio and T.V. Centres, Telecommunication building, factories and workshops are also looked after by the C.P.W.D.

Activities of the C.P.W.D. are not restricted to building construction alone. The department also looks after engineering, construction of granaries, warehouses, bridges and canals that have helped the country in its fight against food shortage.

The Horticultural wing of the department has involved itself with the creation of environmental comforts, like Parks such as Buddha Jayanti Park and Mughal Gardens.

Activities of the department at present have extended beyond the borders of the country. The Sonali-Pokhara road project in Nepal has been completed and a hospital for children in Kabul had just been completed and the department had been appointed as consultant for work of the Mahatma Gandhi Memorial Institute at Mauritius.

**(2) TOWN COUNTRY PLANNING ORGANISATION**

A planning organisation is responsible for physical and land-use planning on a national scale and then detailed land-use planning on regional scale. In other words this organisation is responsible for earmarking National land for various uses, such as Towns, cities, industry etc., considering factors like economy, ecology, communication etc. thereby ensuring balanced and planned physical growth of the whole nation. Apart from this the organisation is engaged in preparing development plans for existing cities such as Delhi to ensure controlled growth of these cities.

**(3) HOUSING AND URBAN DEVELOPMENT CORPORATION :**

HUDCO was set as a finance operating body to deal with a revolving fund of 200 crores.

**Its main objectives are :**

- (a) To finance Urban Housing.
- (b) To undertake setting up of new or satellite towns.



**Connaught Place, Delhi**

**(4) CENTRAL BUILDING RESEARCH INSTITUTE**

C.B.R.I. conducts research into various methods of economical construction and various other aspects of the building industry. It is a research oriented organisation.

**(5) NATIONAL BUILDING ORGANISATION :**

N.B.O. is an organisation which acts as interface between all incoming technological information and practising architects and builders.

**(6) HINDUSTAN HOUSING FACTORY :**

H.H.F. concerns itself in encouraging the technology of prefabrication throughout the country.

**(7) STATE HOUSING BOARDS TO DEVELOPMENT AUTHORITIES :**

Apart from all these, are state housing boards in all the mentioned above bodies which are responsible for implementation and designing of the housing needs, and general controlled growth of the existing cities according to drawn up master-plans for development. For financial help they depend on agencies like HUDCO.

Together with the help of all the organisation, by no means an exhaustive list, government performs various roles, from public works to deployment of financial resources, from research to distribution of fundings to building industry. Much has been done, much remains to be done.

On the architectural horizon today find us with a new generation of architects and planners. Today we have nearby fifteen architectural schools throughout the country and certain equipment and knowhow of naturalized building science and technology and a growing experience with new material and methods and large scale planning. All this had not been easy.

However, it was not huge, building institutions, but individuals that have been responsible for evolving a new aesthetics bridging the hiatus between traditionalism and modernism. Painstakingly these individuals have worked, over the years, learning both from abroad and our experiences

with traditional architecture, to bring about various schools of thought responsible for the spirit of modern Indian architecture. The emphasis now lies not on awesome monumentality, but factionalism with accompanying virtues of economy, simplicity and utility.

It is relevant here to go into the development of these ideas. As a matter of fact some ideas of modern architecture were not to come to us until 1950, when Le Corbusier at that time was a leading figure in architectural circles created Chandigarh, one of his most ambitious projects.

This had a tremendous impact on the mind of Indian architects, who had so far only seen—either glorious temples or forts of the past or the Imperial British capital of New Delhi in the name of modern architecture. Overwhelmed, they found this expression of modern architecture quite acceptable. It was grand and sensational and at the same time was based on rational basis of climatic analysis and planning freedom. In the years to follow, buildings spring up all over India which had similar expression and the same materials. But ideas of Le Corbusier had to be crystallized before they could be adopted in India. Some realized that concrete and plastic forms were after all not the solution for all Indian architectural problems, howsoever sensational they might be.

There was another parallel phenomenon going on at the same time which was to influence the course of modern architecture in India to come. Indian architects were going to Europe and America to seek higher education and cultural inspiration. The Indian architectural community took its inspiration from ideas developed in the western world. During the sixties these architects who received their education in the western countries commanded high positions as professionals as well as teachers. They taught, practiced and experimented with what they had learnt in the west against the harsh realities of India. The process of fermentation of ideas was turned on. There were many realizations that were to form the rational basis for architecture to come.

First of these realizations was that if we have to do anything worthwhile in India for Indians under Indian socio-economic and climatic conditions, the west was no place to look for inspirations or solutions. We will have to evolve our own patterns of development and physical growth, our own methods and materials of construction and our own expression of foregoing. This realisation created a sense of vacuum and because of the poignancy of the feeling of vacuum, the search began, and architects started looking in different directions for various answers. In each direction partial perception of truth was declared as the total truth. The fact however, remains that in each direction we have moved closer to rational basis of modern architecture. One of the first places where Indian architects looked for inspiration for expression of total architecture of India, is our own village and folk architecture. Architects studied with keen interest the way people solved problems long before

western influence was felt in India. From desert settlements of Jaisalmer, to village developments of hills, plains and sea-coasts, all became the focus of study. Complex planning were analysed and looked into for inspirations. There are some daring architects who have gone as far as to study the human settlements in the heavily populated areas of existing metropolitan cities, built without the help of architects, looking for solutions of high density, low rise economical housing; a challenging problem for India. It is the contention of these farsighted architects, with a hard nosed realism, that in such kinds of dense developments, with simple methods of construction and conventional low cost materials, when laid out in a planned manner, that we will find the answer urban housing for our really poor masses. While some of these architects were busy looking for answers in what we already have in our traditional settlements, others were exploring how industry can be made use of in solving the aspect of building problems. Prefabrication has potential in large scale housing, large span structures and industrial buildings on anywhere were repetitive units can be employed. But so far in India, industrialization of the building industry has not made great headway for lack of technological infrastructures to support it, therefore its influence is only limited to fascination of imagery. However, one aspect of technology that can be successfully applied in architecture is invention and manufacture of new building materials from industrial waste to replace the traditional building materials like steel and cement of which there are tremendous shortages.



**Supreme Court, Delhi**

There is the growing realization among architects that just to build visually beautiful buildings will be useless, unless it is backed by infrastructure of services, such as water supply, electrical supply and communication system of rapid mass transit, etc. In other words it is not an individual building but the total environment that matters. All this calls for serious attention on patterns of physical growth that will take care of layouts of all these services in an organised manner.

