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Chapter 55: Architecture

A. The First Three Centuries of Muslim Architecture

Arabia, at the rise of Islam, does not appear to have possessed anything worthy of the name of architecture. Only a small proportion of the population was settled and lived in dwellings which were scarcely more than hovels. Those who lived in mud-brick houses were called *ahl al-madar*, and the Bedouin, form their tents of camel's hair cloth, *ahl al-wabar*.

The sanctuary at Mecca, at the time of Prophet Muhammad, merely consisted of a small roofless enclosure, oblong in shape, formed by four walls a little higher than a man, built of rough stones laid dry. Within this enclosure was the sacred well of Zamzam.

When Prophet Muhammad, as a result of the hostility of the unbelieving Meccans, migrated to Medina, he built a house for himself and his family. It consisted of an enclosure about 100 cubits square of mudbricks, with a portico on the south side made of palm trunks used as columns to support a roof of palm leaves and mud. Against the outer side of the east wall were built small huts (*hujarat*) for the Prophet's wives, all opening into the courtyard. We have the description of these huts, preserved by ibn Sa'd, 1 on the authority of a man named 'Abd Allah ibn Yazid who saw them just before they were demolished by order of al-Walid. "There were four houses of mud-bricks, with apartments partitioned off by palm branches, and five houses made of palm branches plastered with mud and not divided into rooms. Over the doors were curtains of black hair-cloth. Each curtain measured 3 x 3 cubits. One could reach the roof with the hand." Such was the house of the leader of the community.

The Dome of the Rock of Jerusalem, the oldest existing monument of Muslim architecture, was built by the Caliph 'Abd al-Malik and completed in 72/691. It was an annular building and consisted of a wooden dome, set on a high drum, pierced by 16 windows and resting on four piers and 12 columns, placed in a circle. This circle of supports are placed in the centre of a large octagon, averaging about 20.59 m a side, formed by eight walls, each pierced by five windows in their upper half. There was a door on each of the four sides of the octagon.

The space between the circle and the octagon being too great to be conveniently spanned by single beams, an intermediate octagon was placed between the two to provide the necessary support for the roof. The two concentric ambulatories thus formed were intended for the performance of the *tawf*. The piers and columns were so planned that, instead of concealing one another, they permit from almost any position, a view of right across the building. A twist of about two and half degrees was given to the central ring of supports, with the result that an observer entering any door can see not only the central column in front of him but also the column on the far side.

The exterior was always panelled with marble for half its height, as it is today, but the upper part was originally covered with glass mosaic (*fusaifisa*) like the inner arcades. This was replaced by the present coating of faience by Sultan Sulaiman in 959/1552. The harmony of its proportions and the richness of its decoration make the Dome of the Rock one of the most beautiful buildings in the world.

The Great Mosque of Damascus

'Abd al-Malik died in 86/705 and was succeeded by his son al-Walid, who immediately began the construction of the Great Mosque of Damascus. A curious situation had prevailed here since the conquest. A great sanctuary of a Syrian god existed here, consisting of a *temenos*, or sacred enclosure, measuring 100 m from the north to south and 150 m from the east to the west, set in an outer enclosure over 300 m square. Within the *temenos* was a temple.

In the fourth century Christianity became the State religion and Theodosius (379 – 395 A.D.) converted the temple into a church. 2 After the Arab conquest, the *temenos* was divided between Muslims and Christians. Ibn Shakir says that they both "entered by the same doorway, placed on the south side where is now the great *mihrab*; then the Christians turned to the west towards their church (i.e. the converted temple), and the Muslims to the right to reach their mosque, presumably under the southern colonnade of the *temenos* where is now the "*mihrab* of the Companions of the Prophet."

As for the corner towers, ibn al–Faqih (p. 108) says, "The minarets (*mi'dhanah*) which are in the Damascus Mosque were originally watch towers in the Greek days. . . When al–Walid turned the whole area into a mosque, he left these in their old condition." Mas'udiʒ says, "Then came Christianity and it became a church, then came Islam and it became a mosque. Al–Walid built it solidly and the *sawami*' (the four corner towers) were not changed. They serve for the call to prayers to the present day." This state of affairs lasted until al–Walid, after bargaining with the Christians, demolished everything except the outer walls and the corner towers and built the present mosque.

The mosque had a court (*sahn*), an oblong rectangle, surrounded on three sides by a portico. On the South side was the sanctuary nearly 136 m in length and a litter over 37 m in depth, formed by three arcades running parallel to the south wall. A broad transept, running from north to south, cut these arcades into two nearly equally halves, each half consisting of 11 arches. Above these arcades was a second tier of small arches, there being two of these small arches to every one of the main arches

below. The arched openings were filled with stucco lattices, and must be regarded as windows. The interior was adequately lit, even when the doors of the main arches next to the *sahn* were closed.

The decoration consisted of marble panelling (some parts of the original panelling exist next to the east entrance) above which ran a golden *karmah* or vine–scroll frieze, and above that was glass mosaic (*fusaifisa*) right up to the ceiling. A considerable amount has survived the three fires of 462/1069, 804/1401, and 1311/1893, and may still be seen under the west portico (over 34 m in length and nearly seven metres high), where the famous panorama of the Barada (the river of Damascus) is in full view. When intact the surface of the *fusaifisa* must have been greater than in any building in existence! The Great Mosque of Damascus was rightly regarded by medieval Muslims as one of the Seven Wonders of the World. Al–Walid also enlarged and rebuilt the great Mosque of Medina in 89/708 wherein the concave *mihrab* appeared for the first time.

Another building due to al–Walid was the audience hall and *hammam*, known today as Qusair 'Amrah, in Transjordan. It consists of an audience hall about ten metres square, with two slightly pointed transverse arches supporting three tunnel–vaults. There is a vaulted recess on the side opposite the entrance, with a small vaulted room on either side of it. A door on the east side gives access to the *hammam*, which consists of three small rooms successively covered by a tunnel vault, a cross vault, and a dome. The latter was the *calidarium*, or hot chamber, and under the floor are hypocausts exactly as in a Roman bath.

But the most remarkable of all are the paintings which cover the walls, mostly scenes from daily life, a hunting scene, and figures symbolizing history, poetry, and philosophy with the words in Greek above their heads. The dome of the *calidarium* was painted to represent the vault of heaven, with the Great Bear, the Little Bear, the signs of the Zodiac, etc. But most important of all was the painting of the enemies of Islam defeated by the Umayyads, with their names written above them in Greek and Arabic: Aaisar (the Byzantine Emperor), Rodorik (the Visigothic King of Spain), Chosroes, Negus (the King of Abyssinia), and two more names which have been obliterated.

Painting, contrary to the popular idea, is not forbidden by any passage in the Qur'an, and hostility to it took proper theological form only towards the end of the second/eighth century.4

To sum up, the monuments of Umayyad architecture are really magnificent structures of cut stone with arcades resting on marble columns, splendidly decorated internally with marble panelling and mosaic (*fusaifisa*). The mosques are nearly always covered with a gable roof. The minarets were tall, square towers, derived from the church towers of pre–Muslim Syria, and the triple aisled sanctuaries were due to the same influence. Umayyad monuments exhibit a mixture of influences, Syria occupying first place and Persian second, while Egyptian influence is definitely demonstrable at the end of this period at Mushatta.

Umayyad architecture employed the following devices: the semi-circular, the horse-shoe and the

pointed arch, flat arches or lintels with a semi-circular relieving arch above, joggled voussoirs, tunnel-vaults in stone and brick, wooden domes, and stone domes on true spherical-triangle pendentives. The squinch does not appear to have been employed. But we know from the descriptions of early authors that a type of mosque which prevailed in Iraq had walls of bricks (sometimes of mud-bricks) and its flat timber roof rested directly on the columns without the intermediary of arches. Here we have a direct link between the ancient Persian audience-hall (*apadana*) and the flat-roofed portico (*talar*) of more recent Persian palaces.

At about this time the Aqsa Mosque at Jerusalem was partly rebuilt by the Caliph al–Mahdi. Recent research enables us to affirm that it then consisted of a central aisle, 11.50 m wide, with seven aisles to the right and seven to the left, each about 6.15 metres in width, all covered by gable roofs and all *perpendicular* to the *qiblah* wall. There was a great wooden dome at the end of the central aisle. On the north side was a large central door with seven smaller ones right and left, and 11 "unornamented" ones on the eastern side.

This mosque had a great influence on the Great Mosque of Cordova built in 170/786 – 787 by 'Abd al-Rahman I, the last survivor of the Umayyad family. It was added to on three occasions but this earliest part still exists, as at Jerusalem, the aisles, of which there are 11, all run perpendicular to the back wall, they are all covered by parallel gable roofs, and the central one is wider than the rest. The influence of Syria in Spain at this time is not surprising, for Spain was full of Syrian refugees.

Another building of this period of great importance in the history of architecture is the Cistern of Ramlah in Palestine; it consists of a subterranean excavation eight metres deep divided into six aisles by five arcades of four arches each, all of which are pointed and appear to be struck from two centres, varying from one–seventh to one–fifth in span apart. And there can be no doubt about the date, for on the plaster of the vault is a Kufic inscription of Dhu al–Hijjah 172/May 789. It is, therefore, centuries earlier than the earliest pointed arches in Europe.

The Arabs first set foot on the North African soil as conquerors in 19/640 under the courageous command of 'Amr ibn al-'As. The whole of Egypt was occupied within less than two years and ibn al-'As made the military camp at al-Fustat, a site south of modern Cairo. Al-Fustat continued to be the capital of Egypt until the Fatimids in 360/969 founded Cairo. 'Amr constructed a simple mosque at al-Fustat, the first in Africa, in 20 - 21/641 - 642. Enlarged and improved under the Umayyads, this structure, in the course of time, grew into the celebrated mosque of al-Fustat.

The mosque of 'Amr was first enlarged at the order of Caliph Mu'awiyah in 53/6735 and four minarets were introduced in any Muslim structure.

The next major enlargement of this mosque took place during the reign of Caliph al-Mamun in 212/827 at the hands of 'Abd Allah ibn Tahir, Governor of Egypt. Since then it has been repaired and rebuilt more than once.

The mosque of 'Amr is now a big enclosure. The side walls were each pierced by 22 windows lighting the 22 aisles. There were three *mihrubs* and seven arcades in the sanctuary, each arcade consisted on 19 arches on 20 columns. The arcades were all braced with decorated tie–beams.

We must now speak of the great mosque of Susa on the gulf of Gabes which the inscription of its wall tells, was built by Abu al-'Abbas ibn al-Aghlab in 236/850 – 51. It consists of a perfectly regular rectangle measuring 49.39 m x 57.16 m internally, and irregular annexes to east and west. The *sahn*, measuring roughly 41 m x 22.25 m is surrounded by low arcades of slightly horse-shoe form, resting on squat T-shaped piers. There are 11 arches to the north and south and sit to the east and west. These arches are of horse-shoe form, the maximum span of each being equal to the space between the piers below. The sanctuary consists of 13 aisles, formed by 12 arcades of six arches running from the north to the south, each divided into six bays by other arcades running from the east to the west.

Internally, it is perfectly plain except for a splay–face moulding, immediately above which is a fine inscription frieze in simple undecorated Kufic, the maximum height of the characters being 28 m. The frieze in which they are carved curves forward slightly to compensate for the fore–shortening and thus help the observer at ground level. This is the earliest known example of this treatment which passed into Egypt with the Fatimids and appears in the Mosque of al–Hakim, 380 – 403/990–1013.

The Great Mosque of Samarra was built by the Caliph al–Mutawakkil; the work began in 234/848 – 49 and finished in Ramadan 237/February – March 852. It was the largest mosque ever built, for its outer walls form an immense rectangle of kiln–baked bricks measuring roughly 240 m deep internally by 156 m wide (proportion approximately as 3:2); its area, therefore, is nearly 38,000 metres square. Only the enclosing walls have been preserved. The mosque proper as surrounded by an outer enclosure, or *ziyadah*, on the east, north, and west sides and air photographs show that the great rectangle thus formed stood in a still greater enclosure measuring 376 m x 444 m. The minaret, the famous Malwiyah, stand free at a distance of 27 ½ m from the north wall of the mosque.

There is a socle three metres high on which rests a spiral tower with a ramp about 2.30 m wide, which winds round in a counter–clockwise direction until it has made five complete turns. The rise for each turn is 6.10 m but as the length of each turn is less than the previous one it follows that the slope inevitably becomes steeper and steeper. At the summit of this spiral part is a cylindrical storey, decorated with eight recesses, each set in a shallow frame. The southern niche frames a doorway at which the ramp ends; it opens onto a steep staircase, at first straight then spiral, leading to the top platform, which is 50 metres above the socle. From eight holes to be seen here Herzfeld concluded that there was probably a little pavilion on wooden columns. A few years later, between 246 – 247/860 – 861, another immense mosque was built by the same Caliph at Abu Dulaf to the north of Samarra.

Ten years later, important works were carried out in the Great Mosque of Qairawan by Abu Ibrahim Ahmad, who reduced the width of the central aisles by about 1.20 metres by constructing two new arcades in contact with the old ones. The arches of these arcades are pointed horse–shoe arches

instead of sound horse-shoe arches like those with which they are in contact. He also built three free-standing arches and one wall-arch of the same type to carry a fluted dome in front of the *mihrab*. They rise to a height of 9.15 metres and the square thus formed is terminated above the cornice, its top edge being 10.83 meters from the ground. On it rests the octagonal zone of transition, 2.15 metres in height, which is formed by eight semi-circular arches springing from colonnetes resting on little corbels inserted in the cornice just mentioned.

The dome, which is 5.80 metres in diameter, has 24 ribs, each springing from a little corbel, between the ribs are concave segments, 30 cm deep at the base and diminishing to nothing at the apex. The whole composition is charming. Externally, the dome resembles a cantaloupe melon, with 25 convex ribs (corresponding to the 24 concave segments) which taper to nothing at the apex. Abu Ibrahim's work was carried out in 248/862. He also lined the *mihrab* with a series of very beautiful carved marble panels assembled in four tiers of seven panels each, the total height being 2.70 m. He also decorated the face of the *mihrab* and the wall surrounding it with lustre tiles about 21 cm square. The marble panels and the tiles were imported by him from Iraq and the latter constitute the oldest examples of lustre pottery of certain date.

It was during the reign of Ahmad ibn Tulun (254 – 270/868 – 884), the first Muslim sovereign of independent Egypt, which Muslim architecture properly developed in the Nile Valley. He was son of a Turkish slave and was born and brought up in Samarra. He proved to be a great administrator and a great builder. Al–Qata'i, the new quarter of al–Fustat, was adorned as there was a vast ground in front of the palace where polo matches took place. The palace had nine gates and one of them was called Bab al–Salat (Gate of Prayer). He also built a hospital at an expense of 60,000 dinars.

But his greatest work, which still stands, is his famous mosque; it cost him 120,000 dinars. 6 It exhibits strong influence at the Samarra school as ibn Tulkun himself came from Samarra and his architects and craftsmen too were mostly Iraqis. 7 This Iraqi impact is clearly visible in the piers of the mosque and in its ornamental work in wood and stucco.

The mosque of ibn Tulun is built on the outcrop of a rock and impresses the visitor by its great size and the noble simplicity of its plan. It consists of a *sahn* 302 square feet surrounded by *riwaqs*, five aisles deep. There are 13 pointed arches on each side. The sanctuary is formed by five arcades 17 arches each. The arches are surrounded by a continuous band of ornament. Above runs a broad frieze of stucco rosettes each in an octagonal frame.

The varieties of designs some composed of straight lines, others triangular, and still others circular and interlacing, are extra-ordinary. The windows form one of the most beautiful features of the mosque. They are 128 in number. Their pattern is a mesh of equilateral triangles by grouping six of which we can form hexagons. The minaret, which is built of hive-stone, is almost a copy of the Malwiyah of Samarra. About 1/17th of the Qur'an is inscribed in beautiful Kufic characters on the wooden frieze round the inside of the building just below the flat timbered roof.8

Tulunid Egypt could also boast of a very unusual structure; it was the palace of Ahmad ibn Tulun's son, Khumarawaih (271 - 282/884 - 895). The walls of its golden hall were covered with gold and decorated with bas-reliefs of himself, his wives, and his songstresses. 9 These life-size figures were carved in wood.

Under the 'Abbasids the Hellenistic influence of Syria was replaced by the surviving influence of Sassanian Persia, which profoundly modified the art and architecture, and this gave birth to the art of Samarra, the influence of which extended to Egypt under ibn Tulun and even Nishapur and Bahrain. In palace architecture there was a vast difference between one of the Umayyads and that of the 'Abbasids, partly due to the adoption of Persian ideas of royalty which almost deified the king; hence, elaborate throne–rooms, generally domed, for private audience, preceded by a vaulted *liwan* (or four radiating *liwans*) for public audience. The *baits* also were different, following the type of Qasr–i Shirin and not the Syrian type of Mushatta and Qasr al–Tuba.

The scale was immense and axial planning was a marked feature. But all are built of brick and a great part of the basest of materials – mud–brick – hidden by thick coats of stucco. A new type of pointed arch appears – the four centred arch. The earliest existing squinches in Islam date from this period. An important innovation was the introduction of lustre tiles, the earliest examples being those brought to Qairawan from Iraq in 248/862. Bands of inscription were usually made to stand out on a blue background. But the wide–spread influence of the 'Abbasid art did not extend to Spain where the Umayyad art, brought thither by Syrian refugees, was still full of life.

B. Muslim Architecture in Later Centuries

1. Muslim Architecture in North Africa

The Fatimids

When the Fatimids came to power in Egypt in 358/969, they built a new city north of al–Fustat and called it al–Qahirha (Cairo). Since then Cairo has always been the capital of Egypt. The great mosque of al–Azhar was also built almost at the same time (361/972). The original sections of al–Azhar, which still exist, are built in brick and have pointed arches. The minaret is of the heavy square type. The next Fatimid mosque, completed by al–Hakim in 403/1012, follows the al–Azhar plan and has a cupola of brickwork supported on an octagonal drum above the prayer niche. The triumph of stone over brick, initiated by al–Hakim, was not affected until the beginning of the sixth/12th century. The first appearance of corbelled niche is found in the mosque of al–Qamar (519/1125). This pillared mosque displays bold designs and austere Kufic inscriptions.

The grandeur of Fatimid architecture may well be imagined from the testimony of the massive gates of which three are extant in Cairo: Bab Zawilah, Bab al-Nasr, and Bab al-Futuh. 10

The Mamluks

While the Tulunid and Fatimid architecture in Egypt was inspired by Iraq and Iran respectively, the Mumluk monuments were influenced by the Ayyubi School of Syria. The Mumluks produced some of the most exquisite structures. Made of fine and durable stone, these monuments are distinguished for their strength and solidity. Their simple decorative motif assumes infinite grace.

Mamluk monuments may be roughly divided into three categories: the *madrasah*-mosque monuments, the citadels, and the hospitals, besides other public works like canals and aqueducts. The *madrasah* type was first introduced in Egypt by Sultan Salah al-Din Ayyubi of the Crusade fame. Although none of these institutions exist today, their impact may easily be noticed in the collegiate mosque of Sultan al-Hassan (748 – 63/1347 – 61).

One of the early monuments of the Mamluk period is the Great Mosque of Baibars (658 – 676/1260 – 1277). It was built in 668/1269. Napoleon used it as a fort when he was in Egypt. Al-Malik al-Mansur Saif al-Din Qalawun (678 – 689/1279 – 1290), a great builder, erected a hospital connected with a *madrasah* and a mausoleum with its remarkable arabesque tracery and fine marble mosaic. This hospital, known as al-Maristan al-Mansuri, was completed with the mosque and the attached school in 683/1284. It had special wards for segregating patients of various diseases and contained laboratories, dispensaries, baths, kitchens and store-rooms. 11

His son and successor al-Nasir (692 – 740/1293 – 1340) surpassed him in the construction of public works. He dug a canal connecting Alexandria with the Nile employing 100, 000 men, built an aqueduct connecting his far-famed citadel al-Qasar al-Ablaq (the place of varied colour) at Cairo with the river, founded 30 mosques at various places in his kingdom, and provided for the public use drinking fountains (*sabils*), baths, and schools. Inside his citadel he built a mosque the material for which was brought from 'Akka.

Another noteworthy builder among the Mamluks was al–Nasir's son, Sultan Hassan, whose collegiate mosque is the most splendid example of Mamluk architecture. It consists of a square *sahn* (central court) which is flanked by four *liwans* (halls) forming the four arms of a cross. Perhaps these unique cruciforms were each meant for the four major schools of Muslim theology. Behind the *qiblah* wall of this mosque is the mausoleum of Sultan Hassan which was built in 767/1363. It is surmounted by a large dome made of bricks. The pendentives are in wood. In its general appearance it seems to have been inspired by the Sultaniyyah tomb of Sultan Khuda Bandah (d. 706/1306).

During the Mamluk period the use of brick was abandoned in minaret construction in favour of stone. The cruciform plan of school–mosque structure was perfected. Domes, renowned for their lightness, beauty of outline, and excessively rich decoration, were constructed. Stones of different colours in alternate courses (*ablaq*) were utilized for striped masonry and decorations. Geometrical arabesques and Kufic letterings were also profusely used.

Although the last hundred years of the Mamluk rule are a period of decline, several impressive monuments of that period have escaped the ravages of time and turmoil. For instance, the mosque and mausoleum of Barquq (785 – 800/383 – 1398), the Mosque of Qa'it Bay (873 – 900/1468 – 1495) and the mosque of al–Ghauri (906 – 922/1500 – 1516). The Mosque of Qa'it Bay consists of a mosque proper, a tomb, a fountain, and a school. It is made of red and white stone and the dome is decorated with a charming network of foliage and rosette. Elaborate arabesque ornamentation does not seem to have affected its traditional vigour and virile elegance.

Qairawin

During the reign of Caliph Muʻawiyah, his famous general, 'Uqbah ibn Nafi' invaded the Magrib (the land west of Egypt) and founded the famous military city of al–Qairawan (49/670) south of Tunis. 'Uqbah built the mosque and his headquarters in the centre and grouped dwellings around them just as it had been done at other military towns of al–Kufah, Basrah, and al–Fustat. 12 The famous mosque of Qairawan, the fourth most sacred Muslim sanctuary in the world, was built several times by the successors of 'Uqbah and finally by the Aghlabid ruler, Ziadat Allah I (202 – 223/817 – 838).

The Qairawan mosque is a big oblong enclosure. The *sahn*, trapezoidal in shape is entirely paved with marble. The arcades on the north side rest on columns, but the others rest on rectangular piers with two friezes with standing columns attached to their front face. The sanctuary, like the Cordova mosque sanctuary, is a hall of columns. It is divided into 17 aisles by 16 arcades. Each of these arcades consists of seven arches. They are all of the round horse–shoe type. The *mihrab* as well as the surrounding structure from top to bottom is constructed of white marble covered with carvings. Part of this decoration consists of inscriptions; the rest forms arabesques of various patterns.

Round the *mihrab* are exquisite columns, also made of marble. There is a fine pair of orange-red marble columns situated in front of the *mihrab* which is actually a recess, horse-shoe in plan. It is lined with a series of marble panels, 28 in number. The semi-dome has a wooden lining covered with a coating to which is applied the painted decoration consisting of vine scrolls forming loops, filled in most cases by a five-lobed vine leaf and a bunch of grapes.

The face of the *mihrab* is decorated with lustre tiles, 139 in number.

At the northern end of the sahn stands the famous minaret in great prominence on a square base. It has three storeys all squarish or rectangular. At the top is a dome. The minaret is made of bricks. This is the oldest minaret on the African soil and is quite different from the spiral *malwiyahs* of the mosques of Samarra and the mosque of ibn Tulun.

In this region of al-Magrhrib is found perhaps the earliest monument of Muslim military architecture. It is known as Qal'ah Bani Hammad. This citadel was built by Hammad bin Yusuf al-Barbari in the province of Constantine (Algeria) in 370/980. It contains a grand mosque, a reservoir, a palace, and some other constructions that were probably used for administrative purposes. The mosque contains a square

minaret in the style of Qairawan but, unlike Qairwan, there are no corridors. The citadel is in ruins now.

2. Muslim Architecture in Spain

Muslim architecture in Spain is considered a great marvel of aesthetic ingenuity. The magnificent mosque and palaces, gardens and citadels, fountains and aqueducts, public baths and private dwellings that 'Abd al-Rahman I (139 – 172/756 – 788) and his successors built at Cordova, Seville, Granada, and other cities of this western most outpost of Islamic culture, were unparalleled in the entire civilized world.

Spain was conquered by the Arab generals of the Umayyad Caliphs between 93/711 and 527/1132. The capital of the Spanish province of the Empire was Cordova. Soon Arab settlements, especially Syrian, sprang up everywhere. It was these Syrians whom the Governors of Cordova employed as artisans and architects for new constructions, 13 and "the city was adorned with numerous beautiful structures." 14 It is, therefore, natural that Muslim architecture in Spain mostly exhibits Syrian features.

But a systematic embellishment of Spanish towns, with exquisite structures, actually started when 'Abd al-Rahman I found the independent Umayyad Kingdom of Spain. This process lasted until the death of ibn Ahmar (d. 671/1272), builder of the famous castle and palace of Alhambra.

During the reign of the Umayyad Caliphs, Cordova grew into the most magnificent city in the West. "The jewel of the world," according to a contemporary Saxon nun, 15 contained 113,000 homes, 21 suburbs, 700 mosques, 16 and 300 public baths.

One of the first projects of 'Abd al-Rahman I was to build an aqueduct for the supply of pure water to the capital. He also built a wall around the city and erected for himself a palace called Munyat al-Rusafah outside Cordova in imitation of the palace built by his grandfather, Caliph Hisham, in northern Syria.

'Abd al-Rahman also laid the foundation of the great mosque of Cordova in 171/786. It was finished in a year at a cost of 80,000 dinars (£40,000). 17 It is the third largest mosque in the world covering an area of 26,500 square yards. It is a vast rectangle, free on all sides. Covered porticoes surround it on every side except the southern where there are 17 arches. The sanctuary is a huge hall of 19 aisles, the roof of which rests on 18 arcades. It could once be entered from the street by 13 doors. The *sahn* is surrounded by porticoes.

The sanctuary of this mosque is a forest of columns. They exhibit great variation of types. Some are smooth, others fluted, and a few even have spiral flutings. The arcades, too, are of a remarkable design.

The mosque underwent several improvements and enlargements at the hands of successive rulers. For instance, 'Abd al-Rahman III built a minaret 73 cubits high "measured to the highest point of the open dome pavilion. On the summit of this dome are golden and silver apples. Two were of pure gold and one of silver. Below and above each were lilies very beautifully worked out, and at the end of the span was a little golden pomegranate." 18 Similarly, al-Hakam built a dome in front of the *mihrab* and it was

decorated in gold mosaic.

Although the architectural pattern of the great mosque, with its aisles running parallel to the back wall, the horse–shoe arches, the parallel gable roofs, and the arcades around the *sahn*, show clear Syrian inspiration, the double tier of arcades are the most original features of the great mosque.

'Abd al-Rahman III (207 – 238/822 – 852) also erected a palatial mansion and called it al-Zahra', naming it after his wife. It stood on one of the spurs of the Sierra Morena overlooking the Guadaliquivir (*Wadi al-Kabir*). It was started in 221/836. Marble was brought from Carthage and Numidia. Columns as well as basins, with golden statures, were imported from Constantinople. It took 10,000 workmen to build it in about 20 years. The palace had 400 rooms and apartments. The eastern hall was adorned with fountains, in which were placed golden statues of animals, set with precious stones. Water flowed through the mouth of these beautiful figures. The audience chamber was an exquisite piece of workmanship in marble and gold studded with jewels.

The seventh/13th century citadel-castle of Alhambra (the Red Palace) built by ibn Ahmar (671/1272) in Granada is another great architectural legacy of the Muslims in Spain. It is situated on a hilly terrace on the remains of an earlier Umayyad citadel. It was enlarged and embellished by his three successors.

"This acropolis of Granada with its exquisite decoration in mosaics, stalactites and inscriptions, was conceived and constructed" on a grand scale and is without dispute "the last word in such workmanship." 19 In the words of Amir Ali, "The towers, citadels, and palaces (at Alhamabra), with their light and elegant architecture, the graceful porticos and colonnades, the domes and ceilings still glowing with tints which have lost none of their original brilliancy, the airy halls, constructed to admit the perfume of the surrounding gardens, the numberless fountains over which the owners had such perfect control, that the water could be made high or low, visible or invisible at pleasure, sometimes allowed to spout in the air, at other times to spread out in fountains, and serene azure sky, the lovely arabesques, paintings and mosaics finished with such care and accuracy as to make even the smallest apartments fascinating, and illuminated in varied shades of gold, pink, light blue and dusky purple.

The lovely dados of porcelain mosaic of various figures and colours, the beautiful Hall of Lions with its cloister of 128 slender and graceful columns, its blue and white pavement, its harmony of scarlet, azure and gold, the arabesques glowing with colour like the pattern on a cashmere shawl, its lovely marble filigree filling in the arches, its beautiful cupolas, its famous alabaster cup in the centre, the enchanting Hall of Music, where the Court sat and listened to the music of the performers in the tribunes above, the beautiful seraglio with its delicate and graceful brass lattice work and exquisite ceilings, the lovely colouring of the stalactites in the larger halls and of the conical lining in the smaller chambers," 20 made this architectural monument one of the wonders of the world.

There was another royal villa within the walls of Granada. It was called al-Generaliffe (a corruption of Jami'ah al-'Arif). It also was considered a marvel of beauty with fountains, groves, and flowers. The

gardens were terraced in the form of an amphitheatre.

The Alcazar (al–Qasr) of Seville is another notable contribution of the Muslims. It was first built by a Toledo architect for the Muwahhid Governor in 596 – 597/1199 – 1200. Of the many Alcazars in Cordova, Toledo, and other Spanish towns, the Seville Alcazar is the most renowned and the only one surviving, This gracefully decorated castle was until recently used as residence by the Spanish rulers. There is another Muwahhid monument in Seville, the Giralda tower, which was originally the minaret of the great mosque. It was erected in 580/1184 and was decorated with cusped arcading.21

3. Muslim Architecture in Iran

History records that the earliest mosque in Iran was Masjid al-Thaur built at Qazwin in 81/700, but the earliest Islamic monument so far discovered in Iran is the mosque known as Tariq Khanah at Damghan, halfway between Teheran and Meshed. It was built between 133/750 and 170/786. According to M. Goddard, "by the harmony of its proportions and masses, it is still one of the most magnificent buildings of Islam." It was constructed on the vault system.

Iranian buildings throughout the Muslim period were known for their exquisite domes. These domes never arose from the Roman pendentive employed by the Byzantines but from the more primitive squinch arch which spanned the angels of the square and were converted into an octagon. The earliest Muslim dome in Persian is that of the Great Mosque at Qum, south of Teheran. It was built by Abu Sa'dain Hussain in 256/878 and was 80 feet high.

Since then three different types of domes have been built in Iran: (1) single domes, (2) true double domes, and (3) an inner dome concealed by a polyhedral tent dome or a conical roof. Single domes were popular during the Saljuq period and were direct descendants of the Sassanian domes. The most conspicuous and representative dome of the second type may be seen over the tomb of Sultan Sanjar at Merv (552/1157) while the most renowned earlier example of the third type is the Gumbad–i Qabus (398/1007).

The Gumbad-i Qabus was built by Shams al-Maʻali 'Abd al-Hassan Qabus, the ruler of Gurgan and Tabaristan in 397/1006. This mausoleum is actually a cylindrical tower with a conical top. The inside is empty, a continuous void from the ground to the roof where it is domed with a tent like cone. The total height of the tower is a little over 167 feet. It is built of burnt brick. There are two Kufric inscriptions also, one 26 feet three inches above the ground and the other just under the corbel.

These tomb-towers hold an important place in the Saljuq architecture. They are mostly found in Adharbaijan and across the border in Quniyah. Prominent among these are Khalifah Ghazi at Amasia, the tomb-towers at Akhlat and Kaisari.

These tomb towers are dressed in stone. They are usually octagonal in shape with conical roofs. The exterior faces are decorated with arcading cut in high relief on the stones of the structure. Most of the

tombs have four windows or portals. The interior is usually plain and the chamber is always covered by an inner dome of cut stone. Built flights of stairs to these chambers are rarely found. They were entered probably by means of a ladder.

The Saljuqs concentrated mainly on the construction of mosques and it was during their reign that the basis for the standard Iranian mosque was firmly laid. Its features were: at the beginning of a longitudinal axis an *ivan* portal leads into an open court, arcades surrounding the court are interrupted by four *ivans*, two on the longitudinal axis and two on the cross axis with prayer halls at the back of the arcades, the major *ivan* opens into a square sanctuary chamber crowned by a dome with a *mihrabi* in the rear wall of the chamber.

The earliest Saljuq mosque containing all these elements is the small Masjid-i Jami' at Zauara, northeast of Ispahan, which was erected in 530/1135.

During the Saljuq period vaults over the square or rectangular bays of the prayer hall of mosques display a considerable variety of types. In the earliest surviving Iranian mosques, the bays were covered by barrel vaults. This resulted in complication of construction at the corner angles and did not offer any opportunity for display of technical skill. The Saljuq builders replaced the barrel vaults by domical type vaults. In order to enhance the decorative quality of vaults, they built groin vaults, cloister vaults, vaults on groin squinches, vaults on triangular false pendentives, domical lantern vaults, saucer domes and flat vaults. Examples of these experiments may be seen in those areas of the Jami' Masjid at Ispahan which are assigned to the Saljuqs.

Surface enrichment of the Muslim architecture in Iran was of three types: brick patterns, plaster, and mosaic faience. Decorative brick-lay appeared in pre-Saljuq work, reached its maximum effectiveness under the Saljuqs, and tended to die out in the eighth/14th century. Stucco was an important feature of decoration even in the earliest Muslim monuments and held its popularity throughout. Faience, first used by the Saljuqs on a large scale, developed considerably during the II-Khanids and reached its zenith under the Timurids and the Safawids.

A number of Saljuq monuments contain *mihrabs* executed in small cut bricks. Brick end plugs were also utilized for decorative purposes but it was stucco, and to some extent sculpture in stone, that played the most important role in the exterior and interior embellishment during the Saljuq period. The arabesque and monumental inscriptions in Kufic and *nasta'liq* writing became an essential part of decoration. For instance, in Merv there still stand the ruins of the tomb of Sultan Sanjar (511 – 552/1117 – 1157) the last of the great Suljuqs, decorated on the inside with panels of fine arabesque and inscriptions, both Kufic and *naskh* in cut terra-cotta.

One of the most beautiful Kufic inscriptions of the Saljuq period is known from a ruined *madrasah* at Karghid in Khurasan. It contains the name of Nizam al-Mulk, the Grand Vizier of Sultan Alp Arsalan (455 – 485/1063 – 1092). The Jami' Masjid at Qazwin, built in 509/1116, and the *mihrab* of Imamzadh Karrar

at Buzun (528/1134) exhibit the most developed Saljuq style of decoration in stucco and stone. The Jami' Masjid at Ardistan (555/1160) has three *mihrabs* rich in stucco decorations. Here, several systems of arabesque are intervened or placed one above the other, the heavy or baroque arabesque in high relief usually forming the background.

Stucco was used extensively in the Saljuq era not only for the decoration of mosques, but also for that of palaces and houses of nobles. Compositions consisted of hunting scenes and Court scenes. Occasionally, the relief of figures was so high and thick that it approached sculpture. These stucco reliefs were chiefly found in Rayy (Teheran) and Sawa.

Fifteen Saljuq monuments display, on the interior or the exterior, glazed tiles used in the inscriptions of patterns. Mosaic faience developed in Gumbad–i Kabud at Maraghah (593/1196) reached a stage at which strips of glazed tiles were set in a plaster ground to form an elaborate strap–work pattern, splendid calligraphic friezes of lustred faience surmounted dadoes composed of star tiles in golden brown lustre on a white ground, and *mihrabs* were executed in the same material, for instance, the famous *mihrab* of the Maidan Mosque at Kashar (623/1226).22

Mention may be made of Malik Shah, a great Saljuq monarch (465 – 485/1072 – 1092) who made Ispahan, his capital, one of the most beautiful cities in Asia. He built the famous Jami' Mosque and for the first time introduced the tapering fluted style of tower in Iran. The finest example of this cylindrical minaret is found in Iran. It is called Mina–a 'Ali and was built by Malik Shah. It is decorated with geometrical patterns and bands of inscriptions on glazed tiles.

Persia suffered the greatest disaster at the hands of Mongol invaders at the beginning of the seventh/13th century. Merv and Nishaput fell to Chingiz Khan in 617/1220, and within 25 years the entire country was not only occupied but cities were completely burnt, buildings were totally razed, and, at places, the entire population was slaughtered like animals with the result that very few buildings erected between the Arab invasion of Iran and the rise of II–Khan Mongols stand today.

The Mongols ruled over Iran for about 143 years (644 - 791/1246 - 1389). Hulagu, the founder of the Mongol Empire, assumed the title of II–Khan and made Tabriz his capital.

The first Mongol construction in Iran was an astronomical observatory built at Maraghah, the summer capital of Hulagu Khan, at the instance of his famous minister, Nasir al-Din Tusi, in 678/1279.

But it was Hulagu's successor, Arghun, who revived the great architectural tradition of Iran. He began the construction of Arghuniyyah, a splendid suburb of Tabriz. Work was also undertaken at Sultaniyyah near Qazwin and summer palaces were built at Alatagh, Mansuriyyah, and Lar.

The Golden Age of II–Khanid architecture was, however, ushered in by Ghazan Khan, who embraced Islam and came to the throne in 694/1295. Ghazan was not only a great builder but was himself an architect. He designed and built Shenb, a suburb west of Tabriz, in 696/1297. The observatory was

crowned with a cupola shaped to his own design. 23 He also built his lofty tomb at Shenb. It was 12–sided in plan and had a crypt at ground level. A great mausoleum was encircled with a golden inscription. Some 14,000 workmen were employed in its construction. Besides, there was a monastery for dervishes, a Shafi'ì and Hanafi college, an academy of philosophy, a residence for the descendants of the Holy Prophet, a hospital, a palace, a library, and a splendid garden kiosk called Ardiliyyah.

The tomb was the focal point of the entire built-up area. It was surrounded by gardens which were encircled by a suburb called Ghazaniyyah. Near each of the gates of this town, which soon rivalled Tabriz, was built a caravanserai, markets, and public baths. The name of the chief architect of Ghazaniyyah was Taj al-Din 'Ali Shah.

Although Ghazaniyyah is a heap of bricks today and Ghazan's famous tomb a crumbling mound of debris, very detailed account of Ghazan's extensive construction comes to us from the works of Rashid al–Din, Wassaf, Hamd Allah Mustaufi, and Shams Kashani.

Ghazan was succeeded by his illustrious brother Olejeitu (705 – 18/1305 – 18) who embraced Islam and assumed the name of Muhammad Khuda Bandah. Olejeitu far surpassed his predecessors in architectural achievements. As a matter of fact, most renowned buildings of the II–Khanid period belong to his reign.

Soon after he came to the throne, Olejeitu ordered work at Sultaniyyah, a site near Qazwin. Plan for this new capital was prepared by his father Arghun but he died before it could be executed. Olejeitu built a wonderful city at Sultaniyyah. The citadel was 500 *gaz* on a side. It was protected by a wall and 16 towers of cut stone. The principal mosque was ornamented with marble and porcelain. There were a hospital and a college also. Surrounded by 12 smaller palaces was the royal palace, a kind of high pavilion or kiosk. The entire ensemble was set in a marble–paved court.

These palaces have since disappeared but the mausoleum of Sultan Muhammad Olejeitu Khuda Bandah still towers over the surrounding area. According to Goddard, this tomb "is certainly the finest example of known Mongol architecture, one of the most competent and typical products of Persian Muslim building and technically perhaps the most interesting."24

The second most famous monument of II–Khanid period was the mosque in Tabriz of Taj al–Din 'Ali Shah, Olejeitu's minister. Only a very small section of this mosque exists today, but Mustaufi, writing in 736/1335, stated that the main *ivan* of this mosque was a tremendous structure. It was 30.15 metres wide, with side walls 10.40 metres thick. The height up to the vault was 25 metres. The pointed arch of the *mihrab* was supported on two columns of copper and the *mihrab* frame was embellished and pointed with gold and silver. According to ibn Battutah, the open court of the mosque was paved with marble, the walls covered with Kashani (faince decoration) and there was a square pool in the middle with fountains.

Mention must also be made of the largest the most revered shrine of Imam 'Ali Rida at Meshed and of his sister Fatima at Qum.

During the Mongol rule, two very renowned dynasties flourished in central and southern Iran: the Atabeks and the Muzaffarids. The Atabeks were the autonomous rulers of Ars with Shiraz as their capital and the Muzaffarids controlled the entire region south of Teheran with their capital being Yazd. History records that Shiraz possessed many buildings constructed by the Atabeks but hardly any of structures exists today. The Muzaffarids seem to be more fortunate in the several very famous buildings that owe their existence to these potentates are still extant in Yazd and Kirman.

Like Iranian art in all its forms, Iranian architecture during the II–Khanid Mongols were decorative, characterized by precision, clarity and lucidity. However, contrary to the Saljuq period, the II–Khanid construction places a decided emphasis upon verticality. A look at the portal of Jami' Masjid at Ispahan and its north side arches, the portal of Khanqah at Natauz, the tomb shrine at Ziarat, the niche of Bayazid's shrine at Bistam, and Pir–i Bakram portal proves the point. Chambers too become loftier in relation to their horizontal measurements. *Ivans* also become narrower but higher.

The Safawid Emperor, Shah 'Abbas the Great (995 – 1038/1587 – 1628), was one of the greatest builders Persia has ever had. He was a wonderful town planner. His achievement in this field can be seen at Ispahan, the capital, which he built anew. The scheme included the Great Maidan surrounded by vaulted bazaars, with the portal of his mosque opening in the centre of the south side, the Ala–Qapu palace on the western side, and the avenue, over two miles long, known as the Chahar Bagh.

Shah 'Abbas also built the Jami' Masjid of Ispahan. It has four *ivans* and a domed chamber with a *mihrab* on the *qiblah* side. The south–east *ivan* is flanked by two halls, each with eight dome covered bays and a *mihrab*. The entire building including the main dome is splendidly decorated with enamelled tiles and faience mosaic.

4. Muslim Architecture in Central Asia

The starting point of Muslim architecture in Central Asia is the extant tomb in Bukhara of Sultan Isma'il (279 – 294/892 – 907), the founder of the Samanid dynasty. It is a cubical structure with a dome. Its decoration is almost entirely of brick work. The spandrils of the central arch bear square–shaped *motifs*. The central hemi–spherical dome is surrounded by four small cupolas on its four corners.

Uskend in eastern Farghanah was another centre of the Samanids where four important monuments – one *minar* and three mausoleums – still stand. The *minar* is a tapering tower gradually diminishing in circumference as it reaches the top. It is cylindrical and fluted and has lost its top. It is the oldest specimen of its kind which later became very popular in Iran and Turkey. The decoration consists of tiles combined in geometrical patterns, the ground between them filled with small stucco leaves.

Merve was another great Muslim cultural centre in this region. The oldest monument in this town is a mosque built in 131 – 138/748 – 755. It is called the Hamadani Masjid in memory of Haji Yusuf of Hamadan. Still in good condition, it is used for daily prayers.

The capital of Amir Timur (737 – 807/1336 – 1404) was, however, Samarqand and he made it one of the most splendid cities in the east by building palaces, mosques, and shrines there. The style of these Timurid buildings follows Khurasanid tradition although Chinese and Turkish motifs are also visible. They included the famous mosque of Khuwaja Ahmad Uassavi constructed in 800/1397 near Samarqand. The architect of this mosque was a Persian from Ispahan. It is an enormous square structure, a cubic block from which rose two domes, one covering the mosque proper and the other the tomb of the saint. The second dome is melon shaped a characteristic of Timurid monuments. The entrance is flanked by two towers like that of a fortress, a product of Timur's warlike mind.

Timur was greatly attached to Kish, his birth place, where he built a palace which was considered a marvel by contemporary visitors. The description given by Clavijo the Spanish ambassador, sent to the Timurid Court by King Henry III, shows that this place followed the style of ancient palaces at Nimrud and Khursabiad. Its surface was completely covered with enamelled tiles like the Ishtar Gate of Babylon.

But it was Samarqand which received Timur's fullest attention. The most prominent building in the city is the mosque of Bibi Khanum, which Timur built in memory of his wife in 801 – 808/1398 – 1405, with its monumental gateways and the double dome. This mosque is the first known specimen of the classical Jami' Mosque in Turkestan. The second masterpiece of this period is Timur's own mausoleum at Samarqand, known as Gour–i Amir (Amir's grave). It was constructed by Timur himself. It has an immense dome almost completely covered with glittering tiles. Its walls are resplendent with multi–coloured slabs which are transformed by points into beautiful mosaics forming numerous Arabic and Persian inscriptions. To the right and the left arose two circular minarets. Ulugh Beg, who had inherited a passion for buildings form his grandfather, Timur, added to this tomb a series of other buildings. He also built a grandiose portal to the shrine.

Timur's son and successor, Mirza Shah Tukh (807 – 851/1404 – 1447), transferred his seat of government from Samarquand to Herat in Khurasan. He built there a citadel surrounded by a wall with four gates. The Jami' Mosque of Herat, which stood in the midst of the chief market, was the most beautiful in the whole of Khurasan. Shah Rukh's wife, Gauhar Shad Aqa, was also a great builder. She constructed a college at Herat (820 – 840/1417 – 1437). Its architect was Ustad Qawwan al–Din of Shiraz. The original marble slab of this college is still preserved in the Heart museum. It is calligraphed in *thulth* style by the renowned calligraphist Ja'far Jalal of Herat. Besides, Herat could boast of Musallah, the mausoleum of Gauhar shad Aqa and the *madrasah* of Hussain Baigrah.

5. Muslim Architecture in Turkey

The Muslim architecture in Turkey (Anatolia) was inaugurated by the Saljuqs in the fifth/11th century. During the course of 250 years of their rule, the Suljuqs constructed many monumental buildings at Siwas, Quniyah, Kaiseri, Erezrum, Divrigi, Karman, and other important towns. These structures include mosques, tombs, mausoleums, palaces, castles, hospitals, caravanserais, market halls, public baths, public fountains, bridges, aqueducts and reservoirs. Quite a few are still extant. The Saljuq architectural

traditions were not only maintained by the Ottoman Turks but reached their zenith both in quality and number in the tenth/16th and fifth/11th centuries.

The oldest mosque in Anatolia (fifth/11th century) built by the Turks is supposed to be the Ulu Cami at Siwas. 25 It is a rectangular structure surrounded by a wall. It has a covered portico, an open court, a flat roof with a layer of earth raised upon horizontal wooden rafters and stone pillars.

The richest and most impressive of the Saljuq mosques is the Ulu Cami at Divrigi (626/1229). It has two gateways. The applique *motifs* of the northern gate are suggestive of knitted or woven design. In the middle of the mosque is an octagonal water basin and above it a dome open to the sky. Outside the exterior walls is a ground minaret and inside a hexagonal conical dome.

The Saljuq mausoleums follow the style common in Khurasan and Merv – a high drum and a dome – with this difference that stone is used instead of bricks and the decoration takes the form of relief. These mausoleums are generally polygonal in shape. The polygons are joined by means of triangular surfaces to a square base resting on the ground. The roof consists of a flat dome inside a conical structure outside. They look like a tent in stone. The tomb of Khalifah Ghazi at Amaisia is one of the oldest monuments (541/1146) and the Douer Gumband (675/1276) is the richest one in decoration. It is a dodecagonal structure formed of blind arcades, side by side with geometrical designs we find fan–shaped palmettes and birds and lions in relief. The mausoleum of Khudaband Khatyun at Nigede (712/1312) contains, besides floral and geometrical ornamentation, reliefs representing birds, stags, and other animals with human heads.

No complete Saljuq palace has survived, but history records several such buildings at Alaniya, Siwas, and Quniyah. For the pavilion and main building of the Saljuq palaces in Anatolia, the Khurasan house plan, with a courtyard and four *ivans*, served as a prototype. As a matter of fact, the same plan is followed in subsequent Ottoman palaces also – a number of pavilions (kiosks) and groups of buildings set among a succession of courtyards and gardens with ponds, the entire structure being surrounded by a wall.

There were medical schools also and these were attached to hospitals, for instance, the one at Siwas (614/1217), the largest of all Saljuq hospitals, had a medical college attached to it.

The Saljuq caravanserais, like their *madrasahs*, had strong gateways for security reasons, with the wall decoration concentrated upon them.

The Saljuq baths differ from those of Damascus in having a plan centred on an octagon with four *ivans*, and the washing arrangements without a common pool. The Sultan Hammam at Quniyah gives a good idea of Saljuq baths. There are separate twin buildings for men and women. The first room to be entered is the disrobing room (*camegah*) with marble floor and a fountain in the middle. From here a passage leads to the tepidarium (*sogu kulul*) for repose and massage. Then comes the hot room (*sic alik*) a domed octagonal hall round which are recesses (*ivans*) containing water basins and private rooms

(khalwah).

With the downfall of the Saljuqs (654/1256), Anatolia was divided into more than a dozen independent principalities (*beyliks*) which ruled over various parts of the country for about 200 years. They were overcome by the Ottoman Turks.

The Ottoman Turks ruled over Turkey for almost 600 years (699 – 1342/1299 – 1923). During the Bursa period (699 – 907/1299 – 1501), which is also called the foundation period, the old Ulu Cami type of mosques continued to be constructed but the roofing consisted of co-ordinated domes. For instance, the Ulu Cami at Bursa, first capital of the Ottomans (745 – 801/1344 – 1399), had 20 domes and 12 piers all co-ordinated. But mosques with single domes were also built, for instance the "Ala al-Din Mosque at Bursa (726/1326) and the Green Mosque at Iznik (780/1378).

The mosque that set the pattern for the monumental mosques of the tenth/16th century was that of Bayazid II with a second half dome opposite to and in the same axis with the half dome that supported the central dome on the side of the *mihrab*. This principle was accepted by the famous Turkish architect Koca Sinan whose masterpiece is the Sulaimaniyyah Mosque (957 – 964/1550 – 1557). The mosque of Sinan Pasha, Ahmad Pasha, Sokkolu Muhammad Pasha, Mihrimah Khatun,and Rustam Pasha built by Sinan follow the same style. His great masterpiece, Sebiniyyah Mosque (977 – 983/1569 – 1575) at Edirne, however, had only one dome.

In the 11th/17th century, Turkish mosques followed the style of Shehrzadeh Mosque (950 – 955/1543 – 1548) which was also built by Sinan. It has a central dome supported and surrounded by four half domes. This style may be seen in Sultan Ahmad's Mosque (1018 – 1025/1609 – 1616) and the Walid Mosque.

Under the Ottomans, *madrasahs* and hospitals followed the traditional style but the mental hospital of Bayazid II is quite original. It has separate rooms for mental patients and a communal hall of hexagon shape with dome open to the sky for psycho–pathical cases. At one end of the hall, there is a dais for musicians, and the acoustics are excellent.

The Ottoman mausoleums are invariably roofed with a dome. Decoration is restricted to coloured patterns, and facing of glazed tiles is applied inside instead of outside. Nearly all Ottoman Sultans are buried in Istanbul. One of the oldest mausoleums (868/1464) there is that of Mahmud Pasha, the Grand Vizier of Muhammad the Conqueror. It is octagonal in shape with its facade of geometrical patterned tiles inlaid in stones. The tomb of Sultan Sulaiman the Magnificent (974/1556) is a masterpiece of ornamentation. The tombs of Salim II (982/1574) and Murad III (1003/1595) are also the finest specimens of Turkish faience ornamentation. The marble tomb of Sultan Hamid (1203/1789) is a baroque.

Covered market is a special feature of Ottoman rulers. The covered market of Bursa has a colourful interior of stone and brick masonry that of Edirne (821/1418) has six piers and 14 domes. The famous market of 'Ali Pasha at Edirne (977/1569) built by Sinan had in addition six gates. The markets built by

Muhammad the Conqueror and Sulaiman the Magnificent at Istanbul are most famous. The former has 15 domes and two rows of four pillars and the latter has 20 domes. These two constructions, with the addition from time to time of streets, comprise the famous covered market of Istanbul. It is really a market city.

It covers an area of 30,700 square metres and includes 65 streets, a square, 300 shops, 1,000 rooms, 18 gates, eight fountains, a school, wells, and 16 caravanserais. At the time of Sultan Muhammad and Sulaiman it was mainly the wood, but after the fire in 1113/1701 it was rebuilt in brick and stone. Architecturally, however, the so-called "Egyptian Market of Istanbul," which was built in 1071/1660, is far superior. The windows at the sides of the high, sloping roofed central portion give light at a lower level to the central passage, which forms a right angle, on either side of which are set the rows of shops, 88 in all, each covered by a dome. It is a singly-storied building except the entrance arcades. The effect of the interior is as impressive as that of a cathedral.

The earliest Ottoman palace was built at Bursa, called Bey Sarai, but no trace of this structure is found now.

The complex structure now called the Topkapi Palace (Seraglio) grew out of the subsequent additions to this palace by the Sultans through the centuries. The famous Topkapi Palace remained the residence of the Ottoman Sultans from the ninth/15th century to the 13th/19th century when they moved to Bosphorus. This palace was the centre of government as well as of culture. No other assemblage of buildings affords such an opportunity as this to study at one place the entire history of the Ottoman Architecture.

It covers 699,000 square metres of area, comprising five groups of apartments totalling 348 rooms, two groups of offices, eight servant quarters, ten mosques, 14 paths, two hospitals, five schools, 12 libraries, 22 fountains, a fish pond and vineyard, one outer and four inner courts, and the whole assemblage is surrounded on the landside by a wall. At a time, food for 5,000 residents of the Palace was cooked at the royal kitchen.

In spite of the fact that the Topkapi Palace was not constructed and designed by any single architect, it still possesses a remarkably homogeneous character. The entire arrangement of the palace, with its non-geometrical sub-divisions and its terrace walls counter-acting the steep slope of the ground, conforms admirably to present day principles of town planning.

It is not possible to give full description of the palace. The third and fourth courts, however, contain the most interesting buildings. The structure in which foreign envoys were received by the Sultan (*Arzodasht*) is a marvel of the ninth/15th century architecture. The library of Sultan Ahmad (1131/1719) is remarkable for its plan and marble facade. The Baghdad Pavilion (1048/1638) in the fourth court contains four *ivans* and one central dome. Its terraces, facing the Bosphorus and the Golden Horn, are surmounted by a wide caved roof supported on arcades. The walls are faced, both inside and outside,

with tiles. The Pavilion of Mustafa Pasha (1116/1704) is in Rococo-Turkish style, made in wood, to serve summer requirements.

Unlike the II–Khanid monuments of Persia and Central Asia, Turkish architecture on the whole is horizontal, not vertical. The height of Turkish buildings is much less than their length and expansion. According to Behcat Uncal, this horizontal effect gives an impression of comfort and repose. In religious buildings, solid parts pre–dominate over the window openings. On the other hand, in secular buildings, window strips dominate the facade. The Turks avoided total symmetry in their ground plans and facades.

6. Muslim Architecture in Pakistan and India

The Muslim conquest of Indo-Pakistan sub-continent started in 94/712 when Muhammad bin Qasim invaded Sind. Contemporary records show that he constructed a mosque and other buildings at Daibul, but these structures no longer exist. Recently some excavations made in southern Sind led to the discovery of certain traces of ancient monuments. But the experts have not yet come to any final conclusion with regard to the age of these structures. Suggestions have been made that the rectangular foundation excavated at Bhambor is that of the first mosque on the sub-continent built at the time of Muhammad bin Qasim.

Similarly, no Muslim monument built before the middle of the sixth/12th century has so far been discovered although it is known that Multan had been an important centre of Muslim culture prior to Mahmud of Ghaznah's excursions. After Lahore was conquered by Mahmud in 393/1002 a permanent garrison of Afghan soldiers was established there. 26 Later on, Lahore became the capital of Mahmud's successors (492/1098 – 582/1186). It is, therefore, most probable that mosques, palaces, tombs, and other structures built by Muslim rulers of Multan, Lahore, and other small principalities in the Indus Valley between the second/eighth and the sixth/12th centuries suffered at the hands of invaders or were destroyed by the ravages of time. What exists today belongs to a much later period as compared with Iraq, Syria, Iran, Egypt and Spain.

Indo-Islamic architecture, during its history of more than five centuries (545 - 1119/1150 - 1707), however, covers such a vast area and has passed through so many stages and styles that in this brief section only a passing reference can be made to them. Besides the imperial style of Delhi, which served as a model, at least eight very marked provincial styles have been noted by experts. These provincial styles belong the West Punjab (545 - 725/1150 - 1325), Bengal (597 - 957/1200 - 1550), Jaunpur (762 - 885/1360 - 1480), Gujrat (700 - 957/1300 - 1550), Mandu and Malwah (808 - 977/1405 - 1569), the Deccan (748 - 1206/1347 - 1617), Bijapur and Khandesh (828 - 1067/1425 - 1656), and Kashmir (813 - 1112/1410 - 1700). One of these styles the Multan style in West Punjab – is even older than the imperial style of Delhi.

The earliest Muslim monument in the Indo-Pakistan sub-continent happens to be the tomb of Shah Yusuf Gardezi at Multan, built in 547/1152.27 It is a rectangular structure with a flat roof. One of the walls

has an oblong portion which is slightly projected to frame the entrance. The walls are completely encased in the most colourful tiles for which Multan has always been famous. These tiles are decorated with geometrical, inscriptional, and floral motifs. The absence of domes, pillars, and arches in this modest building is very significant.

It was at Delhi that the foundations of Muslim architecture were laid on a grand scale. Soon after he made this imperial city his capital in 587/1191, Qutub al–Din Aibak ordered the construction of the famous Quwwat al–Islam Mosque in 592/1196. This is the oldest mosque extant in the Indo–Pakistan sub–continent. It consists of rectangular courtyard (141 ft x 105 ft) surrounded by pillared cloisters. The sanctuary on the western side possessed elaborate series of aisles with shallow domed ceilings. In front of the sanctuary was placed an iron pillar brought from Mathura as a mark of victory.

Three years later, an expansive arched facade was built across the entire front of the sanctuary. Its pointed arches made in red stone are magnificently carved with inscriptions and floral *motifs*. They produced the effect of loftiness and lightness as, following the contemporary north Iranian style; they are vertical in their composition.

Qutub Al-Din Aibak laid the foundations of another most remarkable building the same year. It was the Qutub Minar. Although it was constructed at a time when Muslim in India was hardly established, it has never been surpassed in the boldness of its conception, its aesthetic composition, its exquisite execution, and its imposing effect. It is a unique monument in the entire Muslim history. The idea of this fluted and star-shaped tower was certainly borrowed from Ghaznah as well as North Iran, where the ruins of similar towers still exist. But the Qutub Minar has surpassed all such towers. It lies outside the Quwwat al-Islam Mosque and was probably designed on the basis of Samarra mosque or the mosque of ibn Tulun (second/eighth and third/ninth centuries).

It is a five-storeyed building with a domical roof. The storeys diminish in height and dimension as they ascend and are ornamented by four projecting balconies. Between these balconies there are richly sculptured and raised bands containing Arabic inscriptions. The basement contains six such bands. The lowest storey has 24 projecting ribs forming the flutes. They are alternately angular and circular in the first storey, only circular in the second, and angular in the third. Te other two storeys are of plain marble with red stone belts and were added later. Its tapering construction produces the effect of a height greater than the actual which is 238 feet.

A notable contribution of Muslim architecture in India was made by Sultan Shams al–Din Iltutmish (606 – 643/1211 – 1236) who added the famous arched screen in front of the Ajmere mosque built by his predecessor in 597/1200. These arches, seven in number, extending over 200 feet, more nearly approach the four–centred type invariable found in subsequent Muslim buildings. Each arch is surrounded by three lines of writing, the outer Kufic, the other two in Arabic characters separated from each other by bands of carved arabesque ornament.

Another significant aspect of Muslim architecture in the seventh/13th century is the construction of a large number of tombs. Famous among there are the tombs built by Iltutmish for his son at Sultan Ghari (626/1231) and for himself (633/1235) and the tomb of Sultan Balban (679/1280), in Delhi. The shrines of Shah Baha al–Haq (661/1262), Shah Shams al–Din Tabriz (675/1276) and Shah Rukn–i 'Alam (720/1320) at Multan also belong to the same period. The last named Shrine is one of the most impressive buildings in Pakistan. It is an octagonal structure with sloping walls having tapering turrets at the angles. Erected on an elevated plane, its total height is 115 feet and the dome is 50 feet wide inside. It is made in brick with bands of carved chiselled and parts are inlaid with glazed tiles suggest the Arab–Iranian origin of Multan architecture.

The beginning of the eighth/14th century brought a remarkable change in the imperial style at Delhi. This change was caused by the invasion of Central Asia and Iran by the Mongols. Bringing death and destruction in their wake, the Mongols were responsible for a large scale migration of Turkish and Persian architects, engineers, and artisans to Delhi and it was this group of people who built the famous 'Ala'i Darwazah (705/1305), one of the most exquisite piece of architecture near the Qutub Minar. The 'Ala'i Darwazah (the Gateway of 'Ala al–Din Khalji) occupies a key position in the evolution of Muslim architecture in India. A mere glance at this elegant gate will show that it must have been built by expert architects, having knowledge, vision, and capacity to prepare the design in detail before it was executed. Its style is distinctive and original. The method of its walling, the shape of its arches, the system of support for the dome, and the design of surface decoration all suggest supervision of master builders.

The main arch is a pointed horse shoe. It is rather vertical, the width of its span being much less in proportion to its height. There are bands of inscriptions carved in white marble.

The Tughlaqs who ruled over India from 720/1320 to 816/1413 were great builders. The founder of the Tughlaq dynasty, a soldier who ruled hardly for five years (720 – 725/1320 – 1325), managed to build in this short period a fort, a palace, his own tomb, and the fortified city of Tughlaqabad. This was the first capital city founded by any Muslim monarch in India, although Sultan 'Ala al–Din Khalji, his predecessor, had also earlier planned a similar capital. Tughlaqabad, near Delhi, is now in ruins except for the tomb of the warrior king. It is a unique building as the tomb looks more like an independent fortress than a burial place.

Perhaps the disturbed political conditions, on account of Mongol invasion, demanded the expediency of utilizing every building for defence purposes in times of emergency. This fortress tomb was built on a high plane. It is made in red sandstone and white marble. It has thick sloping outer walls giving the building a pyramidal appearance. Its doorway is literally a death trap for intruders and within the courtyard there is solidly built underground vaults for hoarded wealth. The dome is pointed Tartar in shape – a style followed throughout the Muslim period in India. This pentagon produces the effect of great strength, solidity, and robustness.

The Mongol invaders could not destroy Delhi; this was done by one of her own rulers, Muhammad

Tughlaq, who moved his capital to Daulatabad in the south. Delhi became a deserted city and all its trade, art, and industry were completely ruined. Most of the artisans and architects, who could manage to escape from the Royal camp, took refuge in provincial capitals with the result that when the capital was restored by Firuz Taghlaq was no more master builders were to be found in Delhi.

The Royal treasury was also empty and the economic condition of the subjects had become much deteriorated. In spite of the fact that Faruz Taghlaq proved to be one of the greatest builders India has ever produced, his buildings had to be simple and unornamented, producing the effect of austere severity. Gone were the engravings and carvings, the refined decorative *motifs*, and the well finished and properly cut stone pieces of marble and red stone, and the embellishments of the outer and inner surfaces. Instead, walls were made of rubble covered with thick layers of cement. It was the puritanical phase of architectural asceticism.

Firuz Shah Tughlaq built four fortified cities in North India: Firuz Shah Kotlah in Delhi, Jaunpur, Hissar, and Fatehabad. Firuz Shah's fortified citadel in Delhi was situated on the river bank. It was roughly a rectangle with rectangular courtyards, baths, tanks, gardens, palaces, barracks, a huge Jami' mosque for a congregation of 10,000 people, servant quarters, etc. The main architectural principles of palacefort, followed by the great Mughuls at Agra, Delhi, Allahabad, and other places, had been laid down by Firuz Shah.

Several mosques were built in Delhi by Firuz Tughlaq between 772/1370 and 777/1375, the most famous being the Khirki Mosque. It was built on a *tehkhanah* or sub-structure of arches. It is a unique construction as it is almost a covered mosque like Saljuq mosques in Turkey, a rare phenomenon in India. The portal is for the first time reached by some flights of steps. It is entered through an arch and beamed doorway. The interior consists of cloisters formed by a series of square bays, each one roofed by a cup-shaped dome. There are three rows of such domes, each row having three constellations of nine domes each. Thus, there are in all 81 such domes. Each corner of the rectangles is supported by a tower and a tapering round bastion.

The invasion of Timur in 801/1398 was a major calamity for India. He not only sacked Delhi but took away with him Indian artisans to build the famous Jami' Mosque at Samarqand. Delhi lost its political supremacy. The rule of Sayyid and Lodhi monarchs were confined to the Gangetic basin only. And during the whole of the ninth/15th century and the first quarter of the tenth/16th century Delhi could boast of no architectural achievements. No palaces, no mosques, no forts, and no cities were built, only tombs were erected as memorials to the dead.

However, a significant addition in the construction of domes was made in this period. This was the introduction of double dome in India, although this style of dome-making had been practised in other Muslim countries for centuries. We find this double dome – an inner and an outer shell to raise the height of the dome without disturbing the interior plan – for the first time in the tomb of Sultan Sikandar Lodhi (924/1518).

Bengal

The Muslim architecture of Bengal is as old as that of imperial Delhi, as Bengal was conquered by one of Qutub al–Din Aibak's generals in 599/1202. It soon became an independent kingdom and remained so until it was annexed by Akbar the Great in 984/1576. The Muslim monarchs of Bengal were men of fine taste and they built scores of mosques, palaces, and other structures at their capitals at Gaur and Pandua bear testimony to their architectural genius but nowhere have climatic and physical conditions caused greater havoc to Muslim monuments than in Bengal. As no stone was available in the vicinity, most of these buildings were constructed in bricks could not withstand the onslaughts of heavy rains, storms, and humidity.

The oldest Muslim monument in Bengal is the multi-domed mosque at the village of Pandua. It was built in the middle of the seventh/13th century. It is the oldest multi-domed mosque in the entire subcontinent. Another very significant structure erected at Pandua is the Adina Mosque (766/1364). It was the focal point of the new capital city built by Sikandar Shah (759 – 791/1358 – 1389). The Adina Mosque, a double storeyed structure constructed on orthodox lines, is the largest and the most impressive building in Bengal. It is as big as the Great mosque at Damascus (705 ft x 285 ft). "To the spectator standing within the expensive quadrangular court of the Adina Mosque, surrounded by its seemingly endless archways, the conception as a whole presents the appearance of the forum of some ancient classical city rather than a self-contained Muslim house of prayer, with the high-vaulted sanctuary on the western side simulating an imperial approach in the form of a majestic triumphal archway."28

Around the courtyard is a screen of arches, 88 in number. The roof is covered with 306 domes. The upper storey, probably a Royal Chapel, is supported on a range of arches carried by unusual pillars. These are very short but ponderous piers, abnormally thick, and square above and below. These pillars are unique in their construction and are found nowhere in India. The interior of the sanctuary hall is a superb pointed arch vault, the earliest and the rarest example of its kind in India. The design and execution of the central niche are also most impressive. It is inscribed with delicate arabesque and calligraphic texts.

The Muslim architecture in Bengal was partly conditioned by its climate, for due to excessive rains the surface of the roof had to be curved and covered with a number of small domes. The finest examples of such curved roofs may be seen in Chota Sona Masjid at Gaur (899/1493) and Qadam Rasul. Another characteristic of Bengal monuments is their "drop" arches in which the span is greater than the radius.

Jaunpur

Jaunpur was made a provincial capital by Firuz Toghlaq who built there a fort and laid the foundations of Atala Mosque. Later on, the famous Sharqi monarchs of Jaunpur adorned their city with mosques, tombs, palaces and other buildings associated with an imperial capital. As a matter of fact, Jaunpur

became the cultural capital of Northern India under the Sharqi monarchs. It was called "Shiraz of the East." Sikander Lodhi, the Sultan of Delhi, completely destroyed this city's Royal structures when he occupied it in 885/1480; its five mosques alone were spared. The most outstanding characteristic of these stone-built mosques is the pylon formation of their facades. Most famous among these mosques are the Atala Mosque and the Mami' Masjid completed in 811/1408 and 875/1470 respectively.

The sky high pylons of these mosques have a unique construction, the like of which is not to be found anywhere in the Muslim world. Their origin is unknown. John Terry, however, suggests that since the early Muslim rulers of Jaunpur were Abyssinians, these pylon–like portals might have been inspired by the pylons of Pharaohic temples in the Nile Valley.29

The Atala Masjid is a very distinctive and majestic building. Although its general arrangements are conventional, its double-storeyed cloisters are very spacious, having 42 feet across and five aisles deep.

Many of the elements found in Jaunpur buildings were derived from the architecture of the Tughlaqs at Delhi, for instance, the recessed arch with its fringe ornamentation, the shape of the arch, and the sloping side of its supports, the beam and brackets supporting the arches, the tapering turrets, the square shafts of the pillars, and the imposing flights of steps leading to the portals, all suggest that artisans trained in the imperial style at Delhi during the eighth/14th century and the beginning of the next were brought to Jaunpur. Jaunpur mosques show a very pleasant innovation in providing especially constructed galleries for religious needs of women. These galleries were covered with beautiful open work screens as seen in the Lal Darwazah Mosque (854/1450).

Although Jaunpur mosques do not display much refinement, they are strong, sincere, and purposeful in their character. They are good examples of bold and forceful workmanship.

Gujrat (700 – 957/1300 – 1500)

Gurjat presents by far the most graceful provincial style in the annals of Indian architecture. The Gujart style of architecture, in the course of 250 years of Muslim rule, passed through three marked stages: the formative and experimental stage well represented by the Jami' Masjid at Cambay (725/1325), the middle stage of increased assurance and directional authority, the best and most consummate illustration of which may be found in the Jami' Masjid at Ahmedabad, and the final stage when it reached its zenith in the latter half of the ninth/15th century under the patronage of Mahmud Begarha I (863 – 917/1458 – 1511), the typical example being that of the Jami' Masjid at Champaner.

In the Cambay mosque, though much was borrowed from the Delhi style of Khalji period and also from the Ajmere mosque, its fine proportions, dignified appearance, and simple design provided a model for subsequent mosques in Gujrat.

The second phase owes its existence to Ahmad Shah, the great builder, who founded the capital city of Ahmedabad (814/1411). His zeal for building projects was matched by that of his courtiers and

successors, so much so that few cities can claim to possess larger numbers and finer specimens of monumental architecture that the capital of the Ahmad Shahi dynasty. Besides, many tombs and other structures, one can count more than 50 mosques of that period in Ahmedabad alone. Ahmad Shah's citadel with its palace is situated on the left bank of the river of Sabarmati. It is a rectangular enclosure occupying a prominent position. Almost in the heart of the town was built the great Jami' Masjid connected with the citadel by a wide avenue. Astride this avenue was erected a stately triumphal gateway call the Tin Darwazah as it posses three arched entrances. The entire conception was a bold attempt at town planning not usually found in provincial towns.

The Jami' Masjid of Ahmedabad is considered the high water mark of mosque design in western India. In its sanctuary have been combined two different facade conventions, the screen of arches on the one hand and the pillared portico on the other. Thus, a subtle contrast between the volume and strength of the wall surface and the depth and lightness of the colonnade has been achieved.

In the reign of Muhammad Shah (846 – 855/1442 – 1451), son and successor of Ahmad Shah, Sarkhaj, a suburb of Ahmedabad, acquired great importance as the burial place of a divine. Here palaces, gardens, pavilions, gateways and a large artificial lake, besides mosques and mausoleums, were erected on a grand scale.

The Gurjat architecture attained its third and final stage during the reign of Mahmud Begarha I. He founded three cities, and adorned them with imposing buildings. Moreover, splendid constructions were added to the glory of Ahnedabad. Most of these were mausoleums, four of which are the Raudahs (tombs) of Sayyid 'Uthman at Usmanpur, of Sheikh Ahmad Khatu at Sarkhel, of Shah 'Alam, and of Mubarak Sayyid near Mahmudabad.

Most famous among the mosques of this period are the mosques of Mian Khan Chishti (861/1456), of Bibi Achut Kuki (877/1472), of Mahfuz Khan (898/1492), and finally Sidi Sayyid which last is a notable departure from the conventional mosque design. It is composed entirely of arcades of arches; eight square piers support these to form the interior over which is laid a flat roof. The walls of the sanctuary are composed largely of perforated stone screens. For the first time, the entire screen has been perforated with "palm and parasite" motif with a wonderful skill and aesthetic taste.

Sultan Mahmud Begarha built a new capital also, at Champaner, 78 miles south-east of Ahmedabad. It was a walled citadel with palaces, a Jami' Mosque, and other usual constructions.

The Deccan

The Muslim architecture of the Deccan was the product of the amalgamation of two separate trends introduced in South India from Delhi and Iran in the eighth/14th century. Another notable feature of the Deccan monuments was the almost complete absence in them of any influence of the then existing South Indian art, in spite of the fact that this territory was so rich in the Chalukyan and Dravidian temple architecture. It is surprising that, while Muslim architects of North and West India freely borrowed from

the local style, their co-religionists in the South preferred not to be in any way obliged to and affected by the styles prevalent in the Deccan.

The Deccan was first conquered by Sultan 'Ala al-Din Khalji. But the first independent Muslim ruler of South India was a Persian adventurer, 'Ala al-Din Hassan Bahman Shah. He had served under Sultan Muhammad Tughlaq at Daulatabad. He established the Bahmani dynasty at Gulbargah (748/1347), the fortress of which is considered a most remarkable production of military architecture. Almost carved out of a living rock, this fortress is now in ruins except for its most extra-ordinary Jami' Mosque built in 769/1367. It is one of the few Indian mosques entirely covered like the Cordova mosque.

The whole area, including the courtyard, is roofed over by 63 small domes. Light is admitted through the side walls which are pierced by great arches. It was built by Muhammad Rafi', a hereditary architect of Qaswin in northern Iran, who must have trained in the Saljuq style of covered mosques found in Turkey. Other monuments of the Bahmani period at Gulbargah include scores of Royal tombs including the famous Haft Gumbad (seven domes).

The most unique construction of the entire history of Indian architecture is the Gulbargah market, 570 feet long and 60 feet wide, adorned with a range of 61 arches on either side supported by pillars and flanked with a block of buildings of a highly ornamental character.30

The Bahmani capital was moved from Gulbargah to Bidar by Ahmad Shah (826 – 840/1422 – 1436). It was adorned with a fortress, palaces, two mosques, and the famous college built in 877/1472 by the great scholar minister Khuwaja Mahmud Gawan. It was a three–storeyed building with loft towers. Its surface is almost wholly covered with glazed tiles of green, yellow, and white colour with floral and inscriptional *motifs* gracefully executed by expert hands.

But the magnificent monument of the 'Adil Shahi rulers of Bijapur far excel those in other capital cities of the Deccan. In number, too, they are second to none; there are more than 50 mosques, 20 tombs, and nearly the same number of palaces in Bijapur. These were constructed within 100 years after 957/1550. Prominent among these buildings are the Jami' Masjid, the most powerfully simple mosque, the Raudah of Ibrahim, one of the most elaborate tombs, the GOL Gumbad, a grandiose structure, and the Mihtar Mahal, the most delicate and the most refined of the all.

The Gol Gumbad, the mausoleum of Muhammad 'Adil Shah, is considerably larger than the pantheon in Rome, and it has the largest domical roof in existence. This huge dome is based on a circular cornice obtained through interesting arches. This method of constructing intersecting arches, perhaps of Turkish origin, was a favourite device with Bijapur artisans. It was unknown in other parts of India. Besides being of great utility in dome construction, these intersecting arches produce an exceedingly aesthetic effect, those for instance in the sanctuary of the Jami' Masjid at Bijapur.

Malwah

The small independent State of Malwah in Central India lasted for about one and a half centuries (804 – 937/1401 – 1530). Its capital, Mandu, was situated on a plateau possessing a very picturesque view. It was adorned by Hoshang Shah (807 – 839/1405 – 1435) and Mahmud Shah I (940 – 974/1436 – 1469) with magnificent palaces, mosques, and other buildings, finest among which was the Jami' Masjid (858/1454). It was a multi-domed building with repeated arcades of arches forming the sanctuary.

Facing the mosque and situated on an elevated plain is the large structural complex called the Ashrafi Mahal (Palace of the Gold Mohar). It was built by Mahmud Shah I. This complex consists of a college, a mausoleum, and a tower of victory.

Two other notable buildings in Mandu are the Hindola Mahal (swinging palace) and the Jahaz Mahal (ship palace). The former was built by Hoshang Shah and is a combination of audience hall and Royal apartments. The latter was built by Mahmud I and is a double-storeyed building extending for some 260 feet along the water-front of two small lakes. It is a colourful structure suggesting gaiety and entertainment.

These and other palaces and mosques of Mandu are all built in red sand-stone. For decorative purposes, the builders used marble and various semi-precious stones such as jasper, agate, and coruclian which were found in the vicinity. Glazed blue and yellow tiles were also employed as panels and borders. It is, therefore, correct to say that Mandu monuments are note-worthy not for their structural qualities but for their decorative properties, in which an aesthetic colour sense takes a prominent position.

The Mughul Period (933 – 1119/1536 – 1707)

The Mughul Emperors of India were descendants of a highly cultured dynasty. Their great ancestor, Timur, had embellished his capital city of Samarqand with exquisite palaces, mosques, mausoleums, and *madrasahs*. Babur, the founder of the Mughul Empire, too, was a scholar–warrior of a remarkably refined taste. In his "Memoirs" he relates that a considerable amount of construction in India was undertaken under his order, although he ruled only for five years. Two mosques attributed to him still exist – one at Panipat in east Punjab and the other at Sambhal, a town east of Delhi. They are, however, built in the traditional style.

The first construction in pure Mughul style, a combination of Persian and Indian style was erected at Delhi in 972/1564 by Emperor Humayun's Queen in memory of her beloved consort. During Humayun's forced sojourn in Iran, she faithfully stood by him for 12 years. She must have acquired a taste for Persian architecture there. When she decided to build Humayun's tomb, she entrusted the task to an Iranian architect, Mirak Mirza Ghiyath. The result was that for the first time a Persian conception was interpreted in Indian architecture.

The introduction of bulbous domes, so common in Iran and Central Asia, and of arched alcoves, a complex of rooms, corridors and a vast garden surrounding the tomb was a significant landmark in Indian architecture. Added to these purely Persian innovations were certain Indian characteristics such as the fanciful kiosks with their elegant cupolas and excellent stone masonry combined with artistic marble work. From these it is obvious that there emerged a new style under the Mongols, the origin of which can be easily traced in Humayun's tomb.

This style was almost perfected by Akbar the Great, who constructed numerous buildings during his long reign. He built four great fortresses: at Agra in 972/1564, at Ajmere in 978/1570, at Allahabad in 991/1583, and at Lahore at almost the same time. According to *A'in-i Akbari*, "there were built upwards of 500 edifices of red stone in the fine styles of Bengal and Gujrat" in Agra fort alone.31

The most complete of these buildings is the palace called the Jahangir Mahal in Agra. The palace–fortress of Lahore is unique in this respect that its outer walls are decorated with glazed tiles with sport *motifs* such as elephant combats, games of polo, and hunting episodes. Figure compositions and floral devices also are found in the panels.

The most monumental achievement of Akbar is Fatehpur Sikri, his new capital city, 26 miles west of Agra. It is a complex of palaces, official residences, and religious buildings, so designed and executed as to form one of the most spectacular structural productions in the whole of India. These are all built in red stone. Famous among them is the Diwan–i Khas (private audience hall), the Jami' Masjid with its Buland Darwazah (high gate) and palaces of Queen Jodha Ba'i, Maryam Sultanah, Rajah Birbal and Hawa Mahal.

The Diwan-i Khas is a rectangular hall with unique arrangements. It has a large and circular pillar in the centre, its massive capital supporting a circular platform. From this platform stone bridges radiate along each diagonal of the hall to connect it with hanging galleries. The Emperor used to sit on the central platform and listen to discussions among scholars of different religions.

The most impressive single structure of Fatehpur Sikri is the Buland Darwazah which was built in 979/1571 to commemorate the conquest of the Deccan. It is 134 feet high with a further flight of steps, 42 feet high. Across its front, the gate measures 130 feet. It serves as entrance to the Jami' Masjid containing the tomb of Sheikh Salim Chishti.

Emperor Akbar's son, Jahangir, was not much interested in buildings. The only important construction undertaken during his reign was Akbar's tomb at Sikandarah in 1022/1613. Unlike previous mausoleums, Akbar's tomb has no dome. It seems that a new group of architects were trying to evolve a style different from the one followed by earlier Mughuls. Two more tombs were built in the same style in which the central dome was replaced by a rectangular pavilion. These were the tombs of I'timad al–Daulah built at Agra in 1036/1626 and the tomb of Jahangir built at Lahore. Both were constructed under orders of Queen Nur Jahan. Of these three, the tomb of I'timad al–Daulah is the most delicate and ornate piece of

architecture. It is made of marble with its surface tastefully decorated with precious stones of different colours. This inlaid work is in *pictora dura* style.

The reign of Emperor Shah Jahan (1036 – 1069/1627 – 1658) is the golden age of Mughul architecture. While Akbar's monuments surpassed those of his predecessors in red stone architecture, his illustrious grandson preferred the use of marble on a scale unparalleled in history. His was the age of marble and its architectural style was determined by marble forms with the result that the character of the arches had to be altered into a foliated one, white marble arcades of engrailed arches became a distinguishing feature of Shah Jahan's buildings. The bulbous dome also was constricted at the neck and ornamental elements became curvilinear.

Shah Jahan was almost possessed with a passion for buildings. He started with the Agra Fort wherein he built the marble hall of Diwan-i 'Am as soon as he ascended the throne in 1037/1627. Ten years later, the Diwan-i Khas, a hall also made of marble, was added to it. The double columns of this hall are amongst the most graceful constructions of his reign. From time to time, several other palaces, pavilions, and mosques, e.g. the Khas Mahal, the Shish Mahal, the Muthamman Burj, the Moti Masjid, and the Naginah Masjid, were added to the complex inside the citadel.

In 1048/1638, Shah Jahan decided to transfer his capital to Delhi where he laid the foundations of Shah Jahanabad, a palace–fortress on the right bank of the river Jamuna. The vast, oblong complex is a city within a city. It is a well planned enclosure and a product of the architectural genius of Shah Jahan himself.

The citadel, made of red stone and marble, consists of four groups of buildings arranged symmetrically. The large central quadrangle contains the Diwan-i 'Am, the two square court-yards in the form of ornamental gardens on either side, and the range of marble palaces along the riverside. These palaces include the Rang Mahal and the Diwan-i Khas, two most lavishly ornate buildings considered to be the crowning jewels of Shah Jahan's seraglio.

Since the citadel did not include any mosque, Shah Jahan built the famous Jami' Masjid of Delhi on a site near his palace. It is erected on a lofty plinth and is one of the two largest and most famous mosques in the sub-continent, the other being the Badshahi Masjid of Lahore. Rectangular in shape, the Jami' Masjid has tree entrances, the main and the most imposing entrance faces the east and much resembles Akbar's Buland Darwazah at Fatehpur Sikri. It is made in red stone and marble. The three domes are made of marble with vertical strips of black stone inset at regular intervals.

Several noteworthy buildings were erected by Shah Jahan and his governor at Thattah, the then capital of the province of Sind. Among these are the Jami' Masjid, begun in 1057/1647, and a group of tombs built on the Makli Hill by Mirza 'Isa Khan who governed Sind from 1037/1627 to 1054/1644. The Jami' Masjid is built of bricks decorated with glazed tiles of blue, white, and yellow colours. These tiles were cut in very small sizes, only have an inch wide, thus nearly 100 such tiles have been used within one

square foot producing a mosaic effect. The designs are chiefly geometrical, but the spandrils of the arches often show conventional floral compositions.

Since stone and wood were scarce in Sind, most of the construction was done in bricks and glazed tiles. The architectural style of Sind closely resembles that of contemporary Persia – brick walls arcaded with Tudor type arches, kiosks with cupolas, a "Lodhi" style dome, and the outer surface embellished with glazed tile work.

The greatest masterpiece of Shah Jahan is the Taj Mahal (1042 – 1050/1632 – 1650), built by the Emperor in memory of his beloved Queen at Agra on the bank of the river Jamuna. This exquisite poetry in marble touches the highest pinnacle of Muslim architecture and is unsurpassed in history. Its rhythmic proportion, its atmospheric setting, its feminine delicacy, its animated ornamentation, and its pleasing symmetry make the Taj Mahal one of the great wonders of the world.

While Shah Jahan built in marble and red stone, brick and glazed tile were patronized by the nobility. The finest example of this type of buildings is the famous mosque of Wazir Khan in Lahore. Built on conventional lines, every portion of its structure, both inside and outside, is enriched with a variegated scheme of colours either by means of floral patterns painted in tempera or panels of more conventional designs executed in lustrous glaze.

The Mughuls were very fond of landscape architecture. Nothing pleased them more than ornamental gardens, traces of which are found almost in every city where the Mughuls had lived. The most famous among these are the Shalimar Gardens and the Nishat Bagh of Srinagar and the Shalimar Gardens of Lahore, all three of them built by Shah Jahan. These gardens, like most of the Mughul buildings, are almost always symmetrical and geometrical. But their rectangular terraces, kiosks, balconies, pools, fountains, and cascades present a most pleasant effect and testify to the refined taste of their originators.

The Emperor Aurangzib (1068 – 1119/1657 – 1707) was the last of the great Mughuls. Although too much occupied in political affairs of the state to indulge in constructional work, he has left a famous monument in the Badshahi Masjid of Lahore, the present capital of West Pakistan. Built in red stone and marble, the Badshahi Masjid is one of the two biggest mosques in Indo–Pakistan sub–continent and is an imposing example of strength, solidity and expanse.

With the death of Aurangzib in 1119/1707, the glorious chapter of Muslim architecture in this subcontinent came to an end. The decline of the Moghul Empire was so swift and the political conditions prevailing in Lahore, Delhi, and other important centres of Muslim culture so insecure and unsettled that traces of late 12th/18th century Muslim structures are very rare.

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