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Iranian Influence on Medieval Indian Architecture

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Indo-Muslim architecture, as it developed in medieval India, heavily borrowed stylistic, idiomatic (characteristic forms, architectonic and decorative), axiomorphic (forms appropriate to the purpose of the structure) and aesthetic traditions from Iranian, Trans-Oxanian and regional Indian styles. This borrowing was much heavier after the establishment of the Mughal dynasty. Mughal architecture borrowed extensively from the Delhi Sultanate, Sharqi, Gujarat, Malwa, Bengal and Rajasthani styles, as well as from styles abroad, so much so that it has itself been defined as a synthesis of these foreign and indigenous styles.¹

Historically speaking, there are two *genera* of arcuate styles, the Roman and the Parthian, which heavily influenced the emergence of 'Islamic' architecture. A sub-*genera* (or 'complex') of the Parthian genus, the Iranian style of architecture, which includes the Ilkhanid (Mongol), Timurid and post-Timurid traditions, became a matrix for the Turkish and Indian regional styles, of which the Mughal or 'pan Indo-Islamic' variant was the most developed.² The Timurid tradition includes elements of architecture which Timur and his successors, the Muzaffarids of Fars, Kirman and Isfahan, and Timur's grandson Shahrukh, imbibed from Persia and applied in Samarqand, Bukhara and Herat. The post-Timurid variant of the Iranian style developed under the patronage of the Shaibanids and Astrakhanids. The Safavid variant was the culmination of the Iranian style of architecture.³

A large number of Iranian architectural features are perceptible in Indian architecture since the establishment of the Delhi Sultanate in the twelfth century. The first monumental Sultanate structure, the Qutb complex, comprising the *Quwwatul Islam* Mosque, the *Qutb*

Minar and the *Alai Darwaza*, reflect Iranian concepts and origins. Modelled after the Ghurid period mosques, the *Quwwatul Islam* follows the Seljuqid Iranian plan of the four-*aiwan* courtyard mosque, with certain modifications.⁴ The four-*aiwan* courtyard mosque plan was one in which an integrated enclosed space was created by the symmetrical repetition of *aiwans* (portals) and arcades on the main and transverse axes, thus creating a structure with a centralized courtyard flanked by cloisters and portals on three sides and a prayer chamber and a portal on the side facing the *qibla*.

At the *Quwwatul Islam* Mosque (c. AD 1197), however, the Iranian *aiwan* is replaced by a central ogee-shaped arch flanked by two lower arches. At the *Arhai din ka Jhonpra* Mosque at Ajmer, constructed two years later (i.e. in AD 1199), we get three engrailed ogee-shaped arches instead of *aiwans*. Over a century later, in the more authentic Iranian fashion, an *aiwan* replaced the central arch. The first example of such a construction is the *Jahanpanah* Mosque at Delhi (c. AD 1343). In the Delhi Sultanate version, the atrophied four-*aiwan* mosque appears to have been preferred, since the tendency was to retain only one of the four *aiwans*, that of the western *liwan* (ante-chamber). This modified four-*aiwan* Iranian mosque plan appears to have been followed throughout the Sultanate period in India.

In elevation, the medieval Indian mosques were more templar in form, however, deriving from the well-established temple architectural traditions of the country where they were being constructed. The four-centred Iranian arch, nevertheless, found ready acceptance among the early medieval architects of India from the Khalji period onwards. Similarly, the arabesque patterns were also readily imbibed by Indian masons. The medieval Indian arabesque carvings, first exemplified on the *maqsura* (screen) of Qutbuddin Aibak at the *Quwwatul Islam*, are much more naturalistic than what is found in their Ghurid Iranian homeland, where they were flatter and abstract. The *Shah-i Mashhad Madrasa* in Gharjistan (Afghanistan) appears to have inspired the Indian masons who carved the *maqsura* of the *Quwwatul Islam* Mosque added by Sultan Iltutmish. The carvings and arabesque patterns on the Tomb of Sultan Iltutmish too appear to have been inspired by the *Shah-i Mashhad Madrasa*. The Tughluq period saw the profuse use of rubble stone as the basic medium of construction, and thus stone carvings and arabesque patterns were not generally

resorted to. However, the Mughal period marked their reappearance. The Delhi Sultanate tomb plans too appear to have followed the Seljuqid and Iranian traditions. The domed square-chamber Tomb of Sultan Iltutmish, which was one of the first extant tomb structures to be constructed under the Delhi Sultans (AD 1236), appears to have followed the traditions which were finally established at the Tomb of Shad-i Mulk at Samarqand (AD 1371–83). The Iranian paradisaical imagery in funerary architecture, which became so forceful later, was also introduced from Iranian traditions into India during the reign of Iltutmish. Subsequently, the Tughluq tombs of Muhammad bin Tughluq and Firuz Tughluq were also in the same tradition.

The Iranian impact on medieval Indian architecture was much more forceful after the establishment of the Mughal empire. A study of the Mughal architecture reveals that the Mughals, who considered themselves to be the heirs of the Timurid tradition, borrowed heavily from the Iranian style which had developed under the Ilkhanids, Timurids and Muzaffarids. When Babur marched into India, he brought along with him two Iranian architects, Ustad Mir Mirak Ghiyas of Herat and Ustad Shah Muhammad of Khurasan.⁵ According to Lisa Golombek, the Shaibanids of Bukhara were a conduit for the transmission of Timurid architectural forms to the Mughals.⁶ It should be borne in mind that much of the synthesis of the Iranian style with the Indo-Muslim style of architecture in India took place only till the reign of Akbar. The reign of Shahjahan is marked by the heavy influence of indigenous styles on Mughal architecture.

Idiomatically and axiormorphically, one of the most important marks of Iranian influence on the Mughal architectural tradition was the *chaharbagh*, the four-quartered paradisaical garden with its intersecting water channels lined with walkways (*khiyabans*), platforms, water chutes, tanks and fountains, flower-beds, fruit-bearing trees and foliage, all surrounded by screen walls and gateways.⁷ These *chaharbagh* gardens were to become the standard setting for Mughal tombs. In these gardens, the focus was the centre, marked by the construction of a large platform. Typical examples of funerary gardens from the Mughal period are Humayun's Tomb at Delhi, the Tombs of Akbar and 'Mariam' at Sikandara (Agra), the Tomb of I'timadud Daulah at Agra, and the Tomb of Jahangir at Shahdara, Lahore. In the Taj, the focus was shifted from the centre to the periphery, namely, the river-front, where the mausoleum was constructed. Further enhancement

of the riverfront was provided by constructing octagonal bastions flanked by a mosque (west) and a *mehmankhana* (east) in the corners. The mausoleum and the main gateway are on the main axis, while the terminals of the transverse axes are marked by a pavilion on each side. The structures on the terminal points of the axes of the garden result in a cruciform shape which is similar to the plan of the cruciform (*chahartaq*) tombs and mosques of Iran, such as the *Musalla* of Gauhar Shad, Herat (1417–38) and the Jami' Masjid Turbat-i Shaikh Jam (1440–43). This shift of emphasis from the centre to the terminus is, however, first seen in the Tomb of I'timad-ud Daulah where, although the mausoleum was retained in the centre, a riverside decorated pavilion was added.⁸ A forecourt (*jilau khana*) with a series of cloistered cells was also added to the *chaharbaghs* in the Tomb of Jahangir and in the Taj Mahal.

The *chaharbagh* was first introduced in India by Babur who constructed a number of them at Agra and nearby places. One of the earliest gardens on the *chaharbagh* pattern to be laid out by Babur was the *Bagh-i Fath* situated between the lake and the ridge at Fathpur Sikri. Rectangular in plan, it comprises intersecting water channels and *khiyabans*. In the centre is constructed an Iranian-inspired pavilion (*baradari*). Aligned on an east–west axis, it is surrounded on all sides by a cloistered *riwaq* (verandah) pierced by an entrance in the north. The water channels, which are provided with *mahi-pusht abshars* (fish-scaled chutes), are connected with a stepwell (*baoli*) in the west and a well (*chah*) in the east.⁹ A more elaborate *chaharbagh* of Babur, the *Bagh-i Nilufar* (Lotus Garden), survives at Dholpur (Rajasthan). Two other gardens of his which have been identified are the so-called *Rambagh* (*Aram Bagh* or *Bagh-i Gul Afshan*, later renovated by Nurjahan and thus renamed *Bagh-i Nur Afshan*), and the *Bagh-i Hasht Bihisht*, which are located on the left bank of the Yamuna at Agra.¹⁰

The *chaharbagh* introduced by Babur not only became a major element of urban landscape under the Mughals, but also inspired the lay-out of the Mughal cities themselves. The centripetal symmetry of the *chaharbagh* was invoked in the planning of the Mughal city. The organizing instruments of the garden, such as the axes, joints defined by pavilions, platforms and walkways, were transformed and enlarged architecturally into roads, caravanserais, monumental structures and quarters.¹¹ Examples of such town planning on the *chaharbagh* pattern are provided by the towns of Fathpur Sikri

and Shahjahanabad (Delhi). The cross-shaped or quadripartite symmetry encountered at Shahjahanabad and, to an extent, at Fathpur Sikri, reminds us of Isfahan of the Safavid period with its *maidan* (promenade) and *chaharbaghs*. The use of the *chaharbagh* as an instrument of urban landscaping and town planning involves the Iranian imagery of paradise which is central to the Parthian genus of architecture.

Idiomatically, apart from the *chaharbagh*, there appear to be a number of other Iranian features which are encountered in Mughal architecture. Some of them, like the double dome (which developed in Iran during the fourteenth century) and the squinches on which the domes are raised (Sassanid) had been introduced into India during the period of the Delhi Sultanate and are generally found in Tughluq monuments. The Iranian four-centred (as well as two-centred) pointed arch, as we have seen, was also known in India; but subsequently it came to be identified as the typical Mughal arch during the reign of Akbar. It was ultimately replaced during Shahjahan's period by the cusped (multi-foliated) arch which was ultimately derived from the Gandharan lobed arch. The bulbous double dome, on the other hand, is first encountered in a hesitant form in Humayun's Tomb and is subsequently perfected during the reign of Shahjahan when we find it in the Tomb of Taj Mahal.

India, however, showed less inclination to imbibe the distinctly 'Muslim' idiomatic forms of adornment, calligraphy, arabesque and *muqarnas* (stalactites). The use of the typical mosaic tile was confined to a handful of monuments under the Mughals. For example, it appears on the Tomb of Afzal Khan (*Chini ka Rauza*) at Agra in its most profuse form. At other places the use of coloured glazed tiles—so popular in Iran—remained confined to the outer facing of the domes (for example, *Nili Gumbad* and *Sabz Burj* near Humayun's Tomb, Delhi, constructed some time during the early sixteenth century). Brick-tile decoration is also found in the Lahore Fort. Calligraphic bands, so preferred in Iranian architecture, make their appearance under the Mughals but are generally confined to the rectangular panels encircling the arched openings of the gateways. Under the Mughals, the calligraphic decoration is accomplished with black-stone lettering inscribed on white marble bands (for example, *Buland Darwaza*, Fathpur Sikri; the gateway to Akbar's Tomb, Sikandara, Agra; and the entrance gate of the Taj Mahal). The most representative

example of calligraphic decoration under the Mughals comes from the facades of the Taj Mahal.

The *muqarnas* pattern with its distinct Iranian and Timurid antecedents also appears in Mughal architecture, though it seems that it was not the preferred style. The *muqarnas* lozenges which were developed in ninth-century Iran have their best Mughal example in the tombs at *Khusrau Bagh*, Allahabad, built during the reign of Jahangir. The Mughals, however, employed the indigenous idioms of sculptural form of chiaroscuro effect which were based on offsets and recesses, layers of horizontal mouldings, columns and brackets, curved motifs like the pot, lotus flower and myrobalan (*amalaka*). Yet the typical Jahangiri *Chini khana* motifs based on stunted arch filled with embossed flower designs and wine goblets and *surahis* evoke the Iranian symbolism of paradise (see, for example, the Tomb of I'timad-ud Daulah, Tomb of Firuz Khan, gatehouse of *Surajbhan ka Bagh*, etc., at Agra.)

Aesthetically, the tile and faience mosaic of the Iranian style was replaced in Mughal India by the red and white bichromy or marble monochromy which is so typical of Akbari structures and monuments (for example, Humayun's Tomb; *Badshahi Darwaza*, Jami' Masjid, Fathpur Sikri; *Jahangiri Mahal*, Agra Fort). The *Buland Darwaza* at Fathpur Sikri, however, depicts a red–yellow bichromy.

Two further Iranian idiomatic innovations, the 'arch-and-panel' articulation¹² and the stellate vaults (the *chahartaq*) based on cruciform domed chambers, found wide acceptance under the Mughals. Iranian architects of the thirteenth and fourteenth centuries had imposed order on architectonic and decorative forms by a consistent system of articulation which had a five-fold relationship between arch and panel, and arch and arch. In this system the theme was primarily curved and arcuate (arch), and only secondarily rectangular or trabeate-based (panel). By repeating the identical arcuate patterns, the 'arch-and-panel' idiom aesthetically and idiomatically unified the surfaces and voids of a structure, while controlling the decoration covering its walls. The five features of its relationship—alignment (when the arch symmetrically alternates with a panel or an arch vertically or horizontally), empanelling (arch contained within a panel), multiplication (progressive increase upwards of arches, etc.), en-framing (arch framed by arch) and intersecting (arch crossing arch)—initially found their way into Sultanate architecture (for example, the

Alai Darwaza at the *Quwwatul Islam*), but gained much greater prominence under the Mughals. The most prominent presence of this system is found on the facade and the side bays of the *Buland Darwaza* at Fathpur Sikri, the exterior facade of *Jahangiri Mahal* at Agra Fort and the exterior surface of the Taj Mausoleum. However, in these Mughal structures, the typical Iranian arch-and-panel system was modified by the traditional articulation of wedge-shaped fluted or octagonal shafts technically known as 'quoins', which are shaped like columns. These quoin shafts divided the whole area horizontally and acted as pivots for knitting together the planes of the facade.

The arch-and-panel system without the modifying pivotal quoin system is represented in the *baradari* structure of Muqarrab Khan at Kairana (district Muzaffarnagar); the Tomb of Sultan Nisar Begum at *Khusrau Bagh*, Allahabad; the *Naulakha Pavilion* and *Shah Burj* at Lahore Fort; the upper portions of the interior walls of the *Diwan-i Khas*, Agra Fort; and the *Bhadon Pavilion* at the Delhi Fort.

As far as the *chahartaq* is concerned, it was formed in Iran through intersecting arches. Generally, a square vaulted chamber spanned by four large intersecting arches, resting on massive wide piers, form a cruciform with an open square in the centre. This square is then turned into a polygon or circle with the help of smaller arches, supplemented by decorative ribs rising from the main arches. In this *chahartaq* plan, the Iranian architects improvised a new type of vaulting system, now generally known as the Khurasanian vault. The Khurasanian (multi-partite) vault was invoked by the Timurid architects by reviving the Ilkhanid and Seljuq stelliform vault on the system of intersecting arches. This type of vault consists of four large intersecting ribs which create a central vaulted area, four lozenge-shaped squinches and four rectangular fields. In this plan, the centre of each side of the square contains an arched recess, the width of which is equivalent to the diameter of the dome, supported by the four arches which in turn spring from the forward edge of the recess arches, each adjacent pair intersecting to form the square. The secondary ribs springing from the haunches of the arches converts the square into an octagon by a series of lozenge-shaped squinches. At the second stage of the phase of transition, sixteen fan-shaped pendentives complete the transition to the circular dome. With this system the vaulting techniques reach perfection. The need of supporting walls is eliminated and the dome now sits directly on the four arches. The first

building based on this pattern was the twelfth-century Jami' Masjid of Isfahan. Under the Timurids, this type of vault was employed in the Bibi Khanum Mosque at Samarqand (1398–1405), the *Musalla* of Gauhar Shad at Herat (1417–38), the Mosque of Turbat-i Shaikh Jam (1440–43) and the *Madrasa* at Khargird (1442). In the Mughal empire, we find its occurrence in the imperial *hammam* (the so-called Hakim's Baths), the private *hammam* in the *daulatkhana*, the *hammam* attached to the *Haramsara* ('Jodhbai Palace'), all at Fathpur Sikri, as well as at Akbar's *Khilwatgah* in Allahabad Fort, the Barber's tomb in the garden of Humayun's Tomb and the Govind Dev Temple at Vrindavan near Mathura (1590s).

The *Kabuli Bagh* Mosque of Babur at Panipat and the Kachhpura Mosque of Humayun at Agra, on the other hand, depict the arch-netted transition zones in pseudo-structural plaster relief work applied to the pendentives of the small domes of the lateral side bays. These are also later found in the central dome of Humayun's Tomb and at the Tomb of Tambolan Begum at *Khusrau Bagh*, Allahabad. This 'arch-net' or 'squinch-net' in the form of fake arches in plaster was also inspired by Timurid architecture. The corbelled pendentive concealed by elaborate plaster ribs is first found at the *Khanqah* (hospice) of Mulla Kalan, Ziyaratgah (1472–1501). Arch-netting similar to that on Tambolan Begum's tomb occurs at the *Khanqah* of Khwaja Zainuddin at Bukhara (sixteenth century).

The *chahartaq* plan was extensively employed by the Mughals in their mosque and tomb architecture. The naves of the western *liwans* of the Jami' Masjids of Fathpur Sikri and Shahjahanabad (Delhi), and the Badshahi Masjid of Lahore, are all constructed on the *chahartaq* pattern. The earliest Mughal example is the *Kabuli Bagh* Mosque (c. 1527) of Babur at Panipat, where the *chahartaq* is employed on its central nave. The nave and aisles of the central rooms of Muqarrab Khan's *baradari* at Kairana (district Muzaffarnagar) are also constructed on the *chahartaq* pattern. The square Mughal tombs, such as the *Khusrau Bagh* Tombs at Allahabad, are also *chahartaq* structures.

Axiomorphic borrowings from the Persian style are also quite prominent in Mughal architecture. They are in the form of gatehouses, portals (*peshtaq*), pillared halls (*aiwans*) and plans of tombs and mosques.

In Iran and Central Asia (Trans-Oxiana), masonry buildings were constructed with 'post-and-beam' (timber) porches. Two promi-

nent examples are Ali Qapu in the *Maidan-i Shah*, Isfahan and the Balyand Mosque in Bukhara. Porched pillared halls raised on slender wooden pillars were known as *talar* in Iran and *aiwan* in Trans-Oxiana. In Iran, the term *aiwan* was used for an open-fronted room with a barrel vault. The use of the term *aiwan* to designate pillared constructions was adopted by the Mughals. Most such pillared constructions in India took place during the reign of Akbar. The *Badgir* ('*Hawa Mahal*') of the Jodhbai Palace, the *Chahar suffa* ('*Panch Mahal*'), the *Aiwankhana* ('*Diwan-i Khas*' or 'Jewel Treasury'), the entrance to the *Naqqarkhana* near Hathipol, the '*Rang Mahal*', all at Fathpur Sikri, and the inner quadrangle of the *Jahangiri Mahal* at Agra Fort, are examples of quadrangular *aiwans* inspired by Iranian prototypes. This building form was also sometimes adapted to an octagonal plan. The '*Qush-khana*' near the *Ajmeri Darwaza* at Fathpur Sikri, the *Chihilsutun* in Allahabad Fort and the *Shah Burj* at Agra Fort are all octagonal *aiwans*.

Iranian architecture also initiated the expression of the aesthetics of the facade in its portal (*peshtaq*), an endeavour that was brought to fruition in Turkey and Mughal India. The construction of high *peshtaqs* and *aiwans* had long been established in the Iranian tradition.¹³ The high *peshtaq* of the sanctuary chamber was also an important feature of the Sharqi architecture of Jaunpur.¹⁴ It has generally been argued that the high *peshtaq* of the Mughals, especially under Babur, was a result of the influence of Sharqi architecture. Parallels have been drawn between the facade of the Atala Masjid and Jami' Masjid, Jaunpur, and the facade of the Baburi mosques, the *Kabuli Bagh* Mosque of Panipat, the recently destroyed Mir Baqi's Mosque at Ayodhya and the Mir Hindu Beg Mosque at Sambhal.

A closer look of our sources and a comparison of the plans of these mosques with Iranian-Timurid structures however unfold a different story. Before coming to India, Babur had briefly occupied Samarqand (c. 1501), and re-occupied it later (1507) and campaigned in Bukhara up till 1511. The Sambhal Mosque was constructed by one of his nobles in 1526. Soon after his victory at Panipat in 1526 Babur had ordered the construction of the *Kabuli Bagh* Mosque. In 1528-29, Mir Baqi had the Ayodhya Mosque constructed. In 1530, during the reign of Humayun (and with four years of Mughal conquest) the Kachhpura Mosque was constructed. It was too short a time for the Mughals to familiarize themselves with the regional

architectural traditions of India. Further, as we have noted earlier, Babur had been accompanied to India by two master masons who were well-versed in the Timurid traditions of architecture.

If we compare the plan of the *Kabuli Bagh* Mosque and the Kachhpura Mosque with the *Namazgah* Mosque at Qarshi, a town southwest of Samarqand, we encounter a striking similarity of style and planning. In all the Baburi and Humayuni mosques, as in the Qarshi mosque, we find the high *peshtaq*, *chahartaq* nave and lower lateral wings with four domed bays. It is also interesting to note that in his memoirs, Babur mentions the town of Qarshi near Samarqand.¹⁵ Coupled with the existence of the typical Timurid feature of arch-netted transition zones in pseudo-structural plaster relief covering the pendentives, we can safely assume that these mosques took shape under the Iranian–Timurid influence.

The high *peshtaqs* subsequently emerged as the hallmark of Mughal architecture, not only in mosque but also in tomb construction. The earliest Mughal tombs with elongated *peshtaqs* are the *Sabz Burj* and *Nila Gumbad* near Humayun's Tomb.¹⁶

As far as the ground-plan is concerned, the Mughal mosque closely followed the Iranian axiomorphic prototypes. By the fourteenth century, the Iranian architects had perfected the two- and four-*aiwan* (open-fronted construction with a barrel vault). The form of the two-*aiwan* mosque was achieved by having the sanctuary chamber with a high *peshtaq* preceded by an enclosed open quadrangle. The entrance portal (*aiwan* of the Iranian architecture) was constructed on the same axis as the *peshtaq*. The centrally located courtyard, which was also an indigenous idiom, was surrounded by double-storeyed cloisters (*riwaq*). Under the Mughals, this Iranian–Timurid prototype was used in conjunction with Delhi Sultanate elements to produce a new form. Thus, in the Khairul Manazil Mosque at Delhi we find that the tall *peshtaq* of the western *liwan* and the double-storeyed *riwaq* are typically Timurid. The single-aisled western *liwan* was itself built on Delhi Sultanate traditions. As in the Iranian examples, this single-aisled, five-bayed mosque has a single dome. In the Akbari Masjid near the Ajmer Dargah, the western *liwan* with multiple aisles and a dominant dome over the nave is Timurid, while the low single-aisle cloisters are typical of Delhi Sultanate architecture. The Jami' Masjid of Fathpur Sikri is again a two-*aiwan* mosque, which acquired its third portal (*Buland Darwaza*) at a later stage.

By the twelfth century the four-*aiwan* congregational mosque with domed chamber and cloisters had been perfected in Iran. In fact, it was the Jami' Masjid at Varamin (1322–26) which established the general plan for the subsequent Jami' Masjids of Iran.¹⁷ In this type of mosque a harmonious synthesis of such traditional elements as the *aiwan*, the four-*aiwan* court and *aiwan*-dome combination was effected. The courtyard was framed by cloisters (usually double-storeyed) of equal height, on three sides, while the prayer chamber (western *liwan*) was given a heightened importance through its crowning dome and a higher *peshtaq*. In the middle of each of the other three arched faces of the interior court, an *aiwan* (in the form of an arched and vaulted niche) is introduced. As in the overall plan, these four *aiwans* can be seen as the arms of a cross. This type of mosque plan has been termed a cruciform plan.

The cruciform or four-*aiwan* mosque made its appearance in India during the Sultanate period (*supra*). Under the Mughals it is first encountered during the reign of Jahangir, but it became popular during the reign of Shahjahan. The first cruciform mosque constructed under the Mughals appears to be the Begum Shahi Mosque at Lahore (1611–14). The second mosque on the same plan is the Wazir Khan Mosque (1634–35), again at Lahore. Later, the Jami' Masjids of Agra and Shahjahanabad were also constructed on the same pattern.

Contrary to the Iranian four-*aiwan* mosques, these Mughal mosques emphasized the importance of the sanctuary by tending to isolate it from the cloisters of the courtyard and by diminishing the size and width of the latter. The Wazir Khan Mosque has two other changes. As at the Taj Mahal, this mosque has an additional court in front of the entrance (*jilaukhana*) which acted as a *bazar*. Secondly, the transverse *aiwans* of this mosque are no longer open-fronted in the Iranian manner, but are gate-houses with doors.¹⁸

Iranian architects and builders of the fourteenth century had also developed a technique for providing domed roofing to long rectangular structures. This was the technique of applying transverse arches and groin vaults.¹⁹ In such construction the rectangular space to be covered was divided into square units by crossing it transversely from one longitudinal wall to the other. Short arches were applied to bridge the transverse arches, and provide the base for the domical vaults erected on the top. The in-filled spaces between the transverse arches were pierced with windows to let in light. This technique made

its appearance in Eastern Iran where it was adopted in *Masjid-Kirmanī* near the Tomb of Turbat-i Shaikh.²⁰ It is then found in such religious structures as the oratory near the Jami' Masjid at Yazd and the Tomb of Shaikh Ahmad Yasavi in Turkestan. In India we find one example of this kind of elongated vaulted structure from the reign of Shahjahan. But here it is in the form of a Safavid-inspired *bazar*, the *bazar-i musaqqaf*. This unique structure is the covered *bazar* adjoining the *Lahori Darwaza* of the Delhi Fort.

One of the most important axiomorphic impresses of Iranian tradition on Mughal architecture was in the form of a plan which has been labelled *hasht bihisht* or noni-partite plan.²¹ In this plan the layout, which is preferably an irregular octagon (a chamfered square—*musamman-i baghdadi*), is divided by four intersecting constructional lines into nine parts, comprising a domed octagonal chamber in the centre, rectangular open halls (in the form of either *peshtaq* or flat-roofed *aiwans* supported by pillars) and double-storeyed octagonal vaulted chambers in the corners. This plan provided the buildings a radial symmetry which hitherto was missing. The radial symmetry was further emphasized by the axial and radial passages which linked the nine chambers with each other. Typical Timurid examples of this were the Tomb of Abu Nasr Parsa at Balkh (c. 1460), the *Ishratkhana* at Samarqand (1464) and the Tomb of Sharif Abdullah at Herat (1487). A direct influence of the Tomb of Abu Nasr Parsa is found during the Mughal period in at least four tombs, three of which are in Delhi. The *Sabz Burj* and *Nili Gumbad* Tombs (c. 1530–40) near Humayun's Mausoleum, the 'Afsarwala Tomb (1560s), again at Delhi, and the Tomb of Shamsheer Khan at Batala (1588–89) have a noni-partite plan with angular units as semi-octagonal niches. As at the Abu Nasr Tomb, their central chamber is on a square plan.

The most famous Mughal monumental funerary structures constructed on this Timurid plan are the Humayun's Tomb at Delhi and the Taj Mahal at Agra. The plan of Humayun's Tomb also appears to have been inspired from a 'boat-house' which, according to Humayun's court historian, was contrived on the orders of the emperor himself. Khwand Amir writes:

Of all the wonderful innovations (*ikhtara'at*) prepared in that time on the Imperial orders, which owing to their novelty (*gharaib*) and beauty (*nazahat*) have spread to all parts of the world was the one

Medieval Indian Architecture

which on royal directions, the royal carpenters constructed with the help of four boats in the river Jamuna (*Jayhun*). On each of these (boats) were constructed platforms (*saffa*) which are double-storeyed *chahartaqs* of elegant style. These four boats were joined with each other in such a way that these *chahartaq* (platforms) face each other. And in between each two of the four boats, another apartment (*taq*) was produced. Consequently an octagonal tank (*hauz*) resulted in the middle. And these *chahartaqs* were decorated with fine cloths and other valuable objects, due to which the mind of the intelligent (*aql-i darrak*) would be amazed by its beauty and magnificance.²²

If we compare the plan of Humayun's Tomb, which was designed by Mirza Ghiyas, the master architect who had accompanied Babur to India, the tomb appears to be a copy of Humayun's boat-house. The *chahartaqs* of the boat pavilions were transformed into stone double-storeyed vaulted octagonal corner chambers. The four 'apartments' connecting the boats were transformed into rectangular side chambers, and the central octagonal tank was now transformed into the octagonal domed sepulchral chamber. The Taj Mahal, on the other hand, is a single *baghdadi octagon* (chamfered square) laid out in the typical noni-partite plan. The Iranian axiomatics are brilliantly coupled with indigenous idiomatics and aesthetics.

Another example of a noni-partite tomb is the Tomb of Anarkali at Lahore, which, again, is one of the most ingeniously planned of Mughal structures.

The noni-partite plan was also applied by the Mughals to tombs which were regular octagons. The Tomb of Shah Quli Khan at Narnaul, the Tomb of Haji Muhammad at Sirhind and the Tomb of Qutbuddin Muhammad Khan at Vadodara are some of the funerary structures of Akbar's reign which were regular octagons with noni-partite plans.

This plan was applied to palace buildings like Akbar's Pavilion at the Ajmer Fort and the *Buland Darwaza* at Fathpur Sikri, and *Ranika Mahal* at Allahabad Fort. Pleasure pavilions and water palaces like the *Hada Mahal* at Fathpur Sikri, Shah Quli's Water Palace at Narnaul and I'timad Khan's Water Palace (popularly known as *Burhia ka Tal*) at Etmadpur (Agra) were also constructed on this pattern.

The noni-partite plan was also applied to square structures.

Akbar's Ajmer Pavilion and Shah Quli's Water Palace were square structures. The best example of this type is, however, the Tomb of I'timadud Daulah at Agra. These square noni-partite structures were probably constructed in the style of the *Khanqah* of Qasim Shaikh at Kermin, Bukhara and the Tomb of Ulugh Beg and Abdur Razzaq in the vicinity of Ghazni.

This plan was applied to a large number of Mughal *hammams*, for example, the *hammam* of Abdur Rahim Khan-i Khanan at Burhanpur and the imperial *hammams* at Fathpur Sikri.

From the above description it thus appears that the medieval Indian architects and planners, especially those of the Mughal period, heavily borrowed their idiomatic, axiomatic and aesthetic traditions from Iran. The beauty and uniqueness of the medieval Indian and Mughal architecture, however, was owing to these inspirations being intelligently synthesized with older indigenous elements. This synthetic tendency is seen at its best in the Taj Mahal, making it one of the best architectural achievements of world civilization.

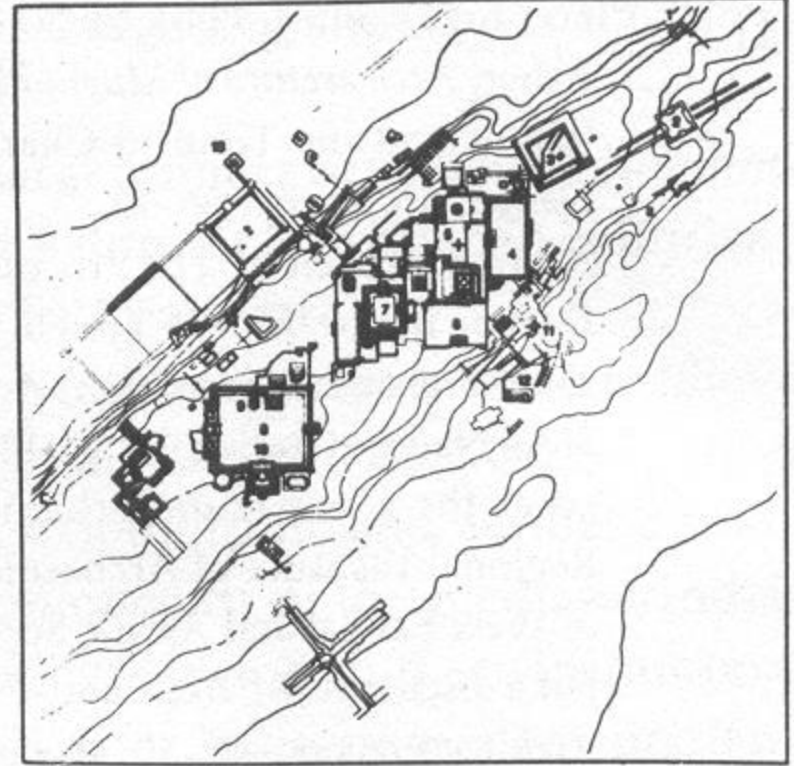
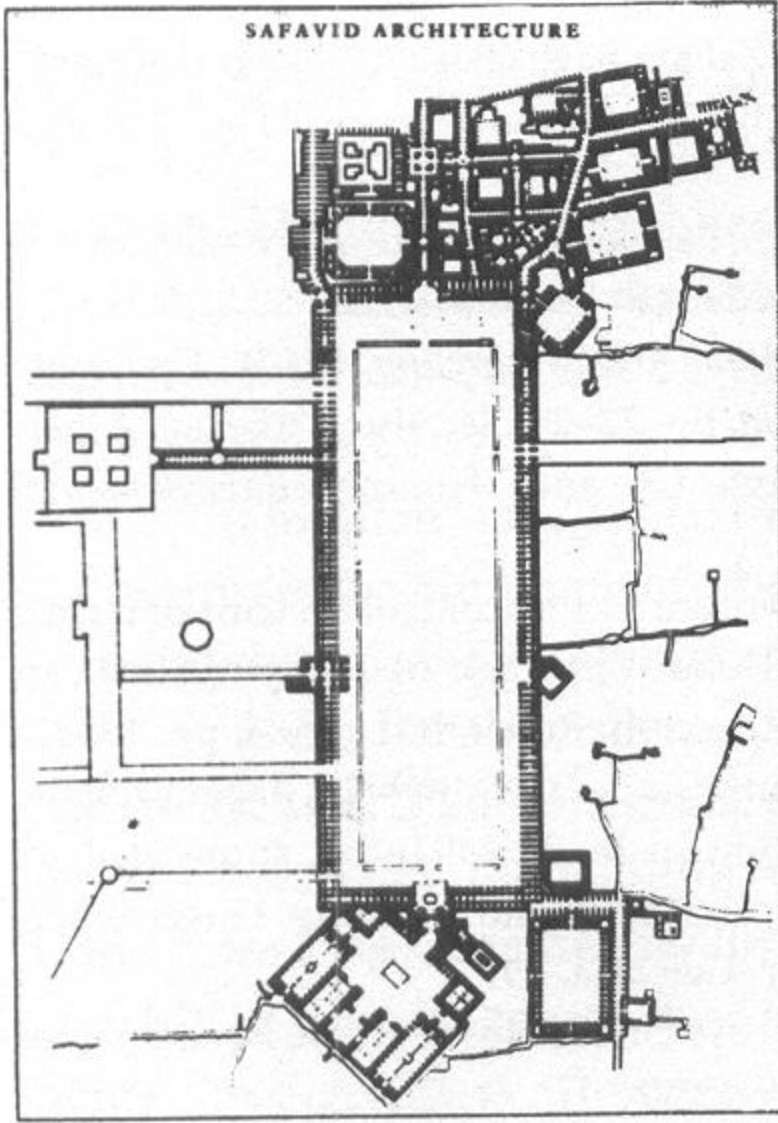
Notes

- ¹ See, for example, Ebba Koch, *Mughal Architecture: An Outline of its History and Development (1526–1858)*, Prestel-Verlag, Munich, 1991; and Catherine B. Asher, *Architecture of Mughal India*, being Vol. I, pt. 4 of *The New Cambridge History of India*, Oxford University Press, 1995. See also Lisa Golombek, 'From Tamerlane to the Taj Mahal', in *Essays in Islamic Art and Architecture in Honor of Katherina Otto-Dorn*, (ed.) Abbas Daneshwari, Malibu, 1981 (reprinted in Monica Juneja, *Architecture in Medieval India*, New Delhi, 2001, pp. 315–27).
- ² See Jose Pereira, *Islamic Sacred Architecture: A Stylistic History*, New Delhi, 1994, pp. 4–5.
- ³ Ebba Koch, on the other hand, differentiates between the Iranian and Timurid styles of architecture; see Koch, *Mughal Architecture*, p. 14.
- ⁴ Tokifusa Tsukinowa, 'The Influence of Seljuq Architecture on the Earliest Mosques of the Delhi Sultanate Period', *Acta Asiatica*, No.43, 1982, pp. 54–60.
- ⁵ *Baburnama*, (tr.) A.S. Beveridge, New Delhi, 1970, pp. 343, 642.
- ⁶ Lisa Golombek, 'From Tamerlane to the Taj Mahal', pp. 43–50.
- ⁷ For a study and survey of Mughal gardens, see S. Ali Nadeem Rezavi, 'Exploring the Mughal Gardens at Fathpur Sikri', *Proceedings of the Indian History Congress*, Indian History Congress, Bangalore session, 1997.
- ⁸ For further such examples from the reigns of Jahangir and Shahjahan, one might refer to the *Buland Bagh*, *Bagh-i Nur Afshan* and *Bagh-i Jahanara*, all situated on the left bank of the Yamuna at Agra. For the *Bagh-i Jahanara*

Medieval Indian Architecture

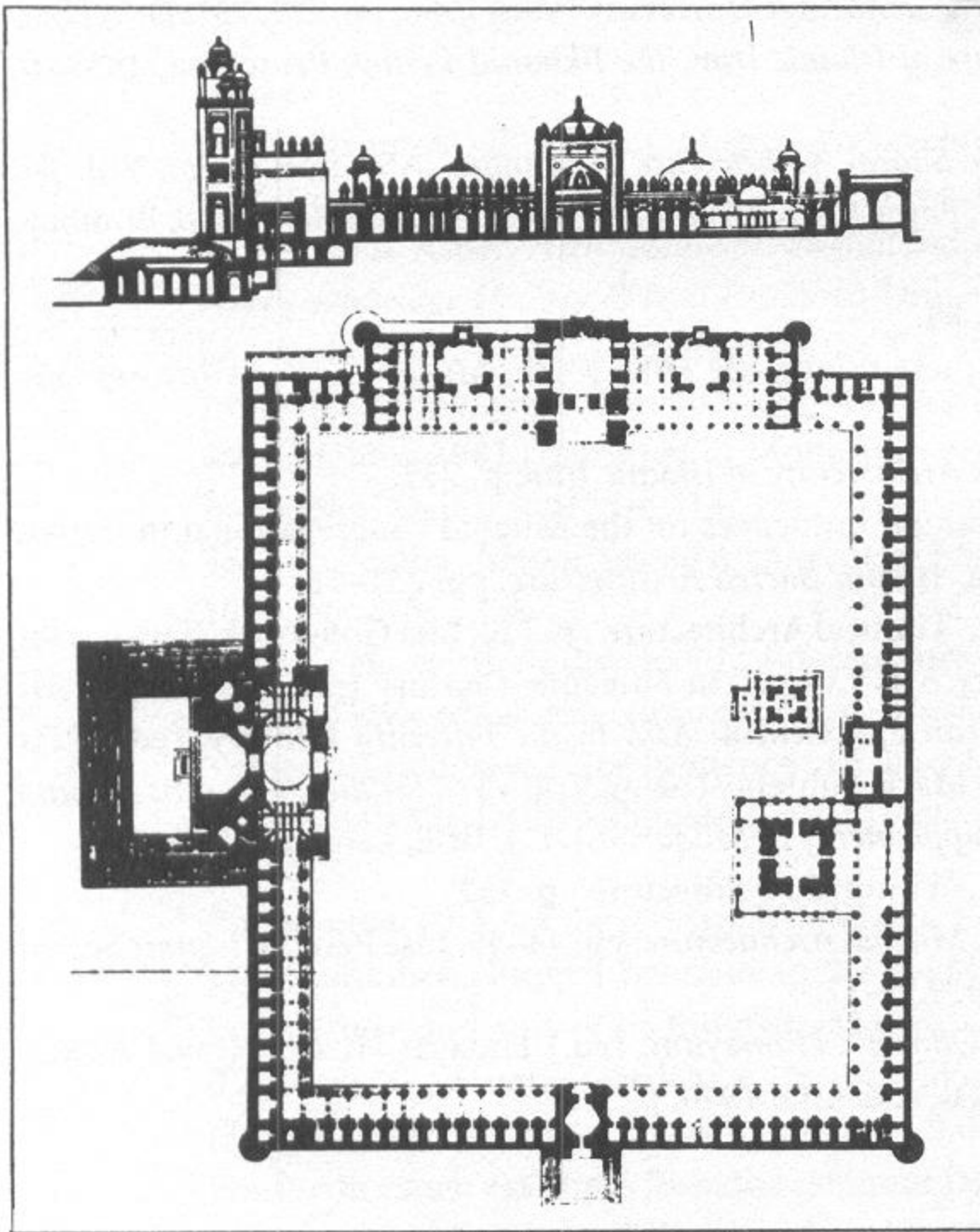
- (Zahra Bagh) see Ebba Koch, 'The Zahara Bagh (Bagh-i Jahanara) at Agra', *Environmental Design*, n.d., pp. 30–37 (special issue on 'The City as a Garden').
- ⁹ For the identification of this garden, its plan and its site, see S. Ali Nadeem Rezavi, 'Exploring the Mughal Gardens at Fathpur Sikri'.
- ¹⁰ See, for example, Ebba Koch, *Mughal Architecture*, pp. 32–33; Catherine Asher, *Architecture of Mughal India*, pp. 22–24. See also Catherine Asher, 'Babur and the Timurid Char Bagh: Use and Meaning', *Environmental Design*, no. 11, pp. 56–73.
- ¹¹ Attilio Petruccioli, 'The Process Evolved by the Control Systems of Urban Design in the Mogul Epoch in India: The Case of Fathpur Sikri', in *Environmental Design*, (ed.) A. Petruccioli, Roma, Italy, 1984, pp. 18–27; S. Ali Nadeem Rezavi, 'Town Planning under the Mughals', paper presented at the seminar on Urbanization in Medieval India, sponsored by Regional Institute of Archaeological Studies and Training, Government of West Bengal and Asiatic Society, Calcutta, 1997.
- ¹² For a discussion of 'Arch-and-Panel System', see Jose Pereira, *Islamic Sacred Architecture*, pp. 249–50, also pp. 92, 100.
- ¹³ See, for example, Pinder-Wilson, 'Timurid Architecture', in *Cambridge History of Iran: The Timurid and Safavid Period*, Vol. VI, (eds) Peter Jackson and L. Lockhart, Cambridge University Press, 1986, pp. 729, 731; D. Wilber, *The Architecture of Islamic Iran, the Ilkhanid Period*, Princeton, 1955, p. 158.
- ¹⁴ A. Fuhrer, *The Sharqi Architecture of Jaunpur*, ASI, new series, Vol. XI, Calcutta, 1889; Percy Brown, *Indian Architecture, Islamic Period*, Bombay, 1958.
- ¹⁵ *Baburnama*, p. 84.
- ¹⁶ For details on these tombs, see Ebba Koch, *Mughal Architecture*, pp. 36–37.
- ¹⁷ D. Wilber, *The Architecture of Islamic Iran*, p. 731.
- ¹⁸ For the non-Iranian influences on the Mughal congregational mosques, see Jose Pereira, *Islamic Sacred Architecture*, pp. 231–32.
- ¹⁹ Pinder-Wilson, 'Timurid Architecture', p. 732; Lisa Golombek, 'Discourses of an Imaginary Arts Council in Fifteenth-Century Iran', in *Timurid Art and Culture: Iran and Central Asia in the Fifteenth Century*, (eds) Lisa Golombek and Maria Subtelny (being Vol. VI of *Studies in Islamic Art and Architecture: Supplements to Muqarnas*), E.J. Brill, Leiden, 1992, p. 5.
- ²⁰ Pinder-Wilson, 'Timurid Architecture', p. 732.
- ²¹ See Ebba Koch, *Mughal Architecture*, pp. 44–45; Jose Pereira, *Islamic Sacred Architecture*, pp. 236–37.
- ²² Khwand Mir, *Qanun-i Humayuni*, (ed.) Hidayat Husain, Royal Asiatic Society of Bengal, Calcutta, 1940, p. 52.

A SHARED HERITAGE



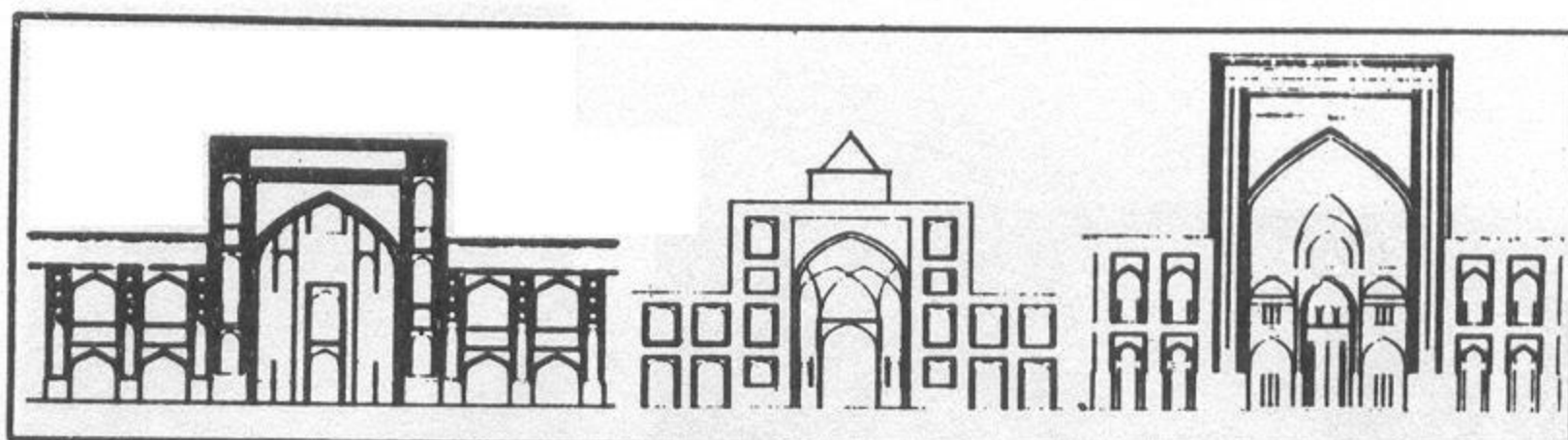
Town Planning: Plan of Maidan-i Shah, Shiraz

Town Planning: Plan of Fathpur Sikri



Mughal Pishtaq: Jami' Masjid, Fathpur Sikri.
(Note the two-aiwan plan)

Iranian Influence on Mughal Architecture



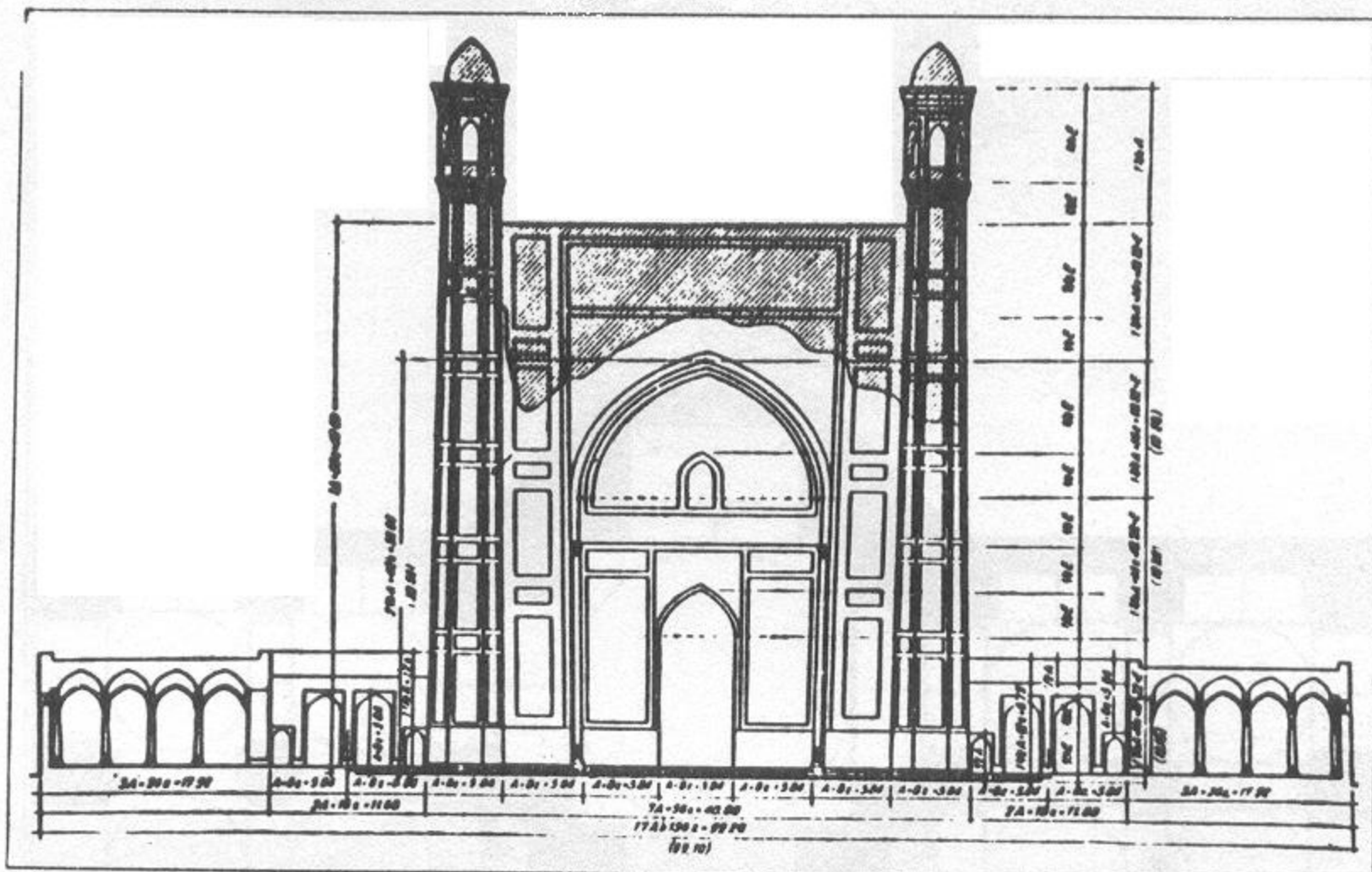
Mashhad, Gaushar Shah, 1416-1418

Isfahan, Masjid-i Shah, 1612-1638,

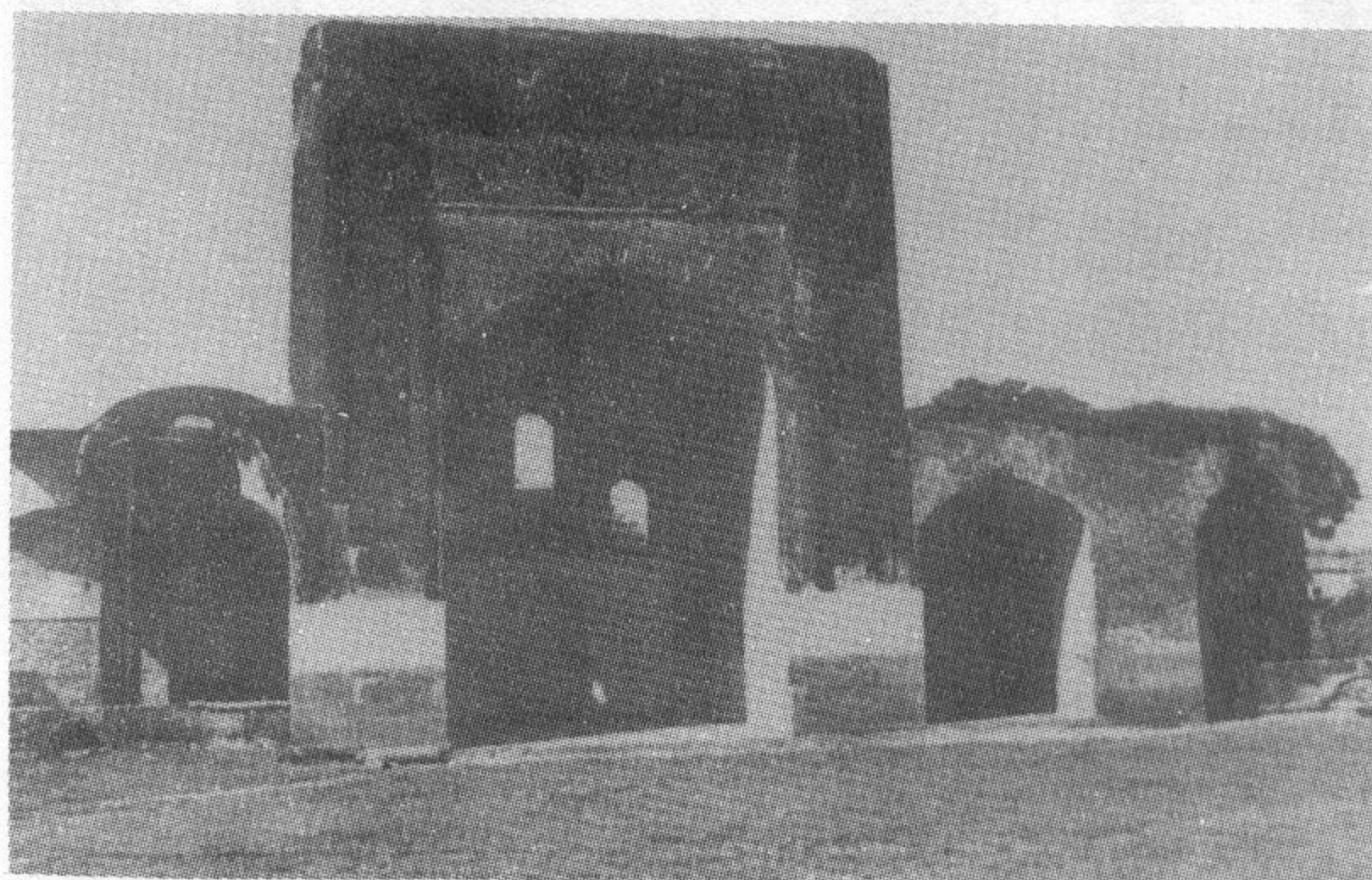
Mashhad, Imam Reza, 1416-1418

USTAD ABU'L-QASIM

Iranian Aiwans: Mashhad and Isfahan

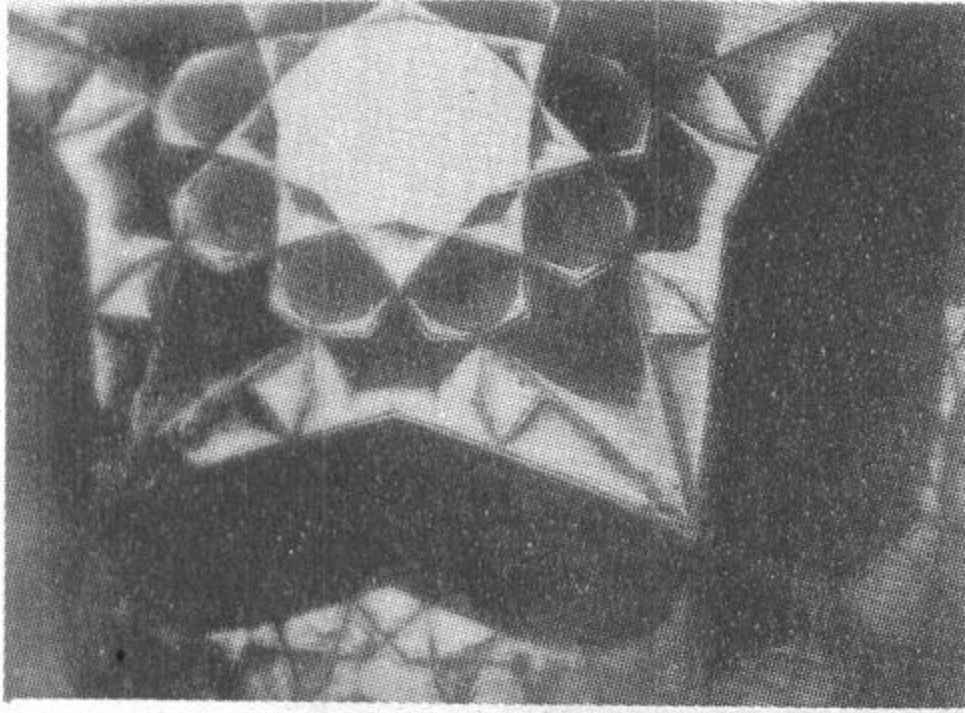


Iranian Aiwans: Bibi Khanum, Samarqand

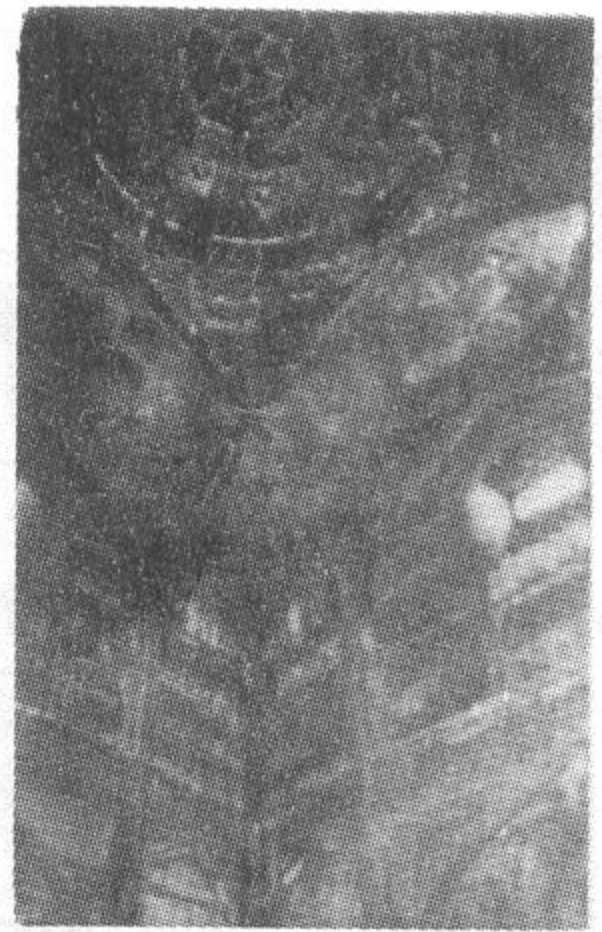


Mughal Aiwans: Kachhpura Mosque, Agra

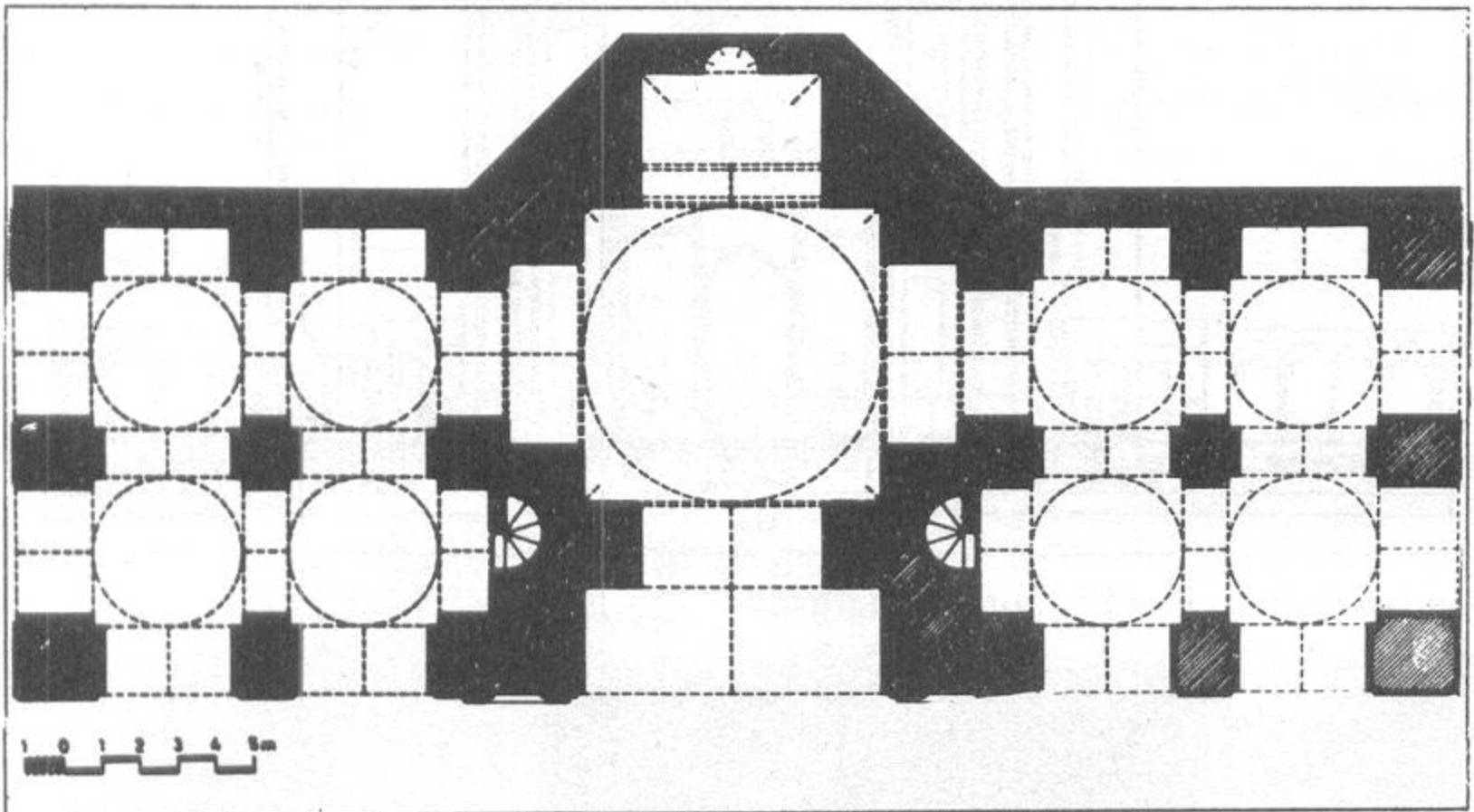
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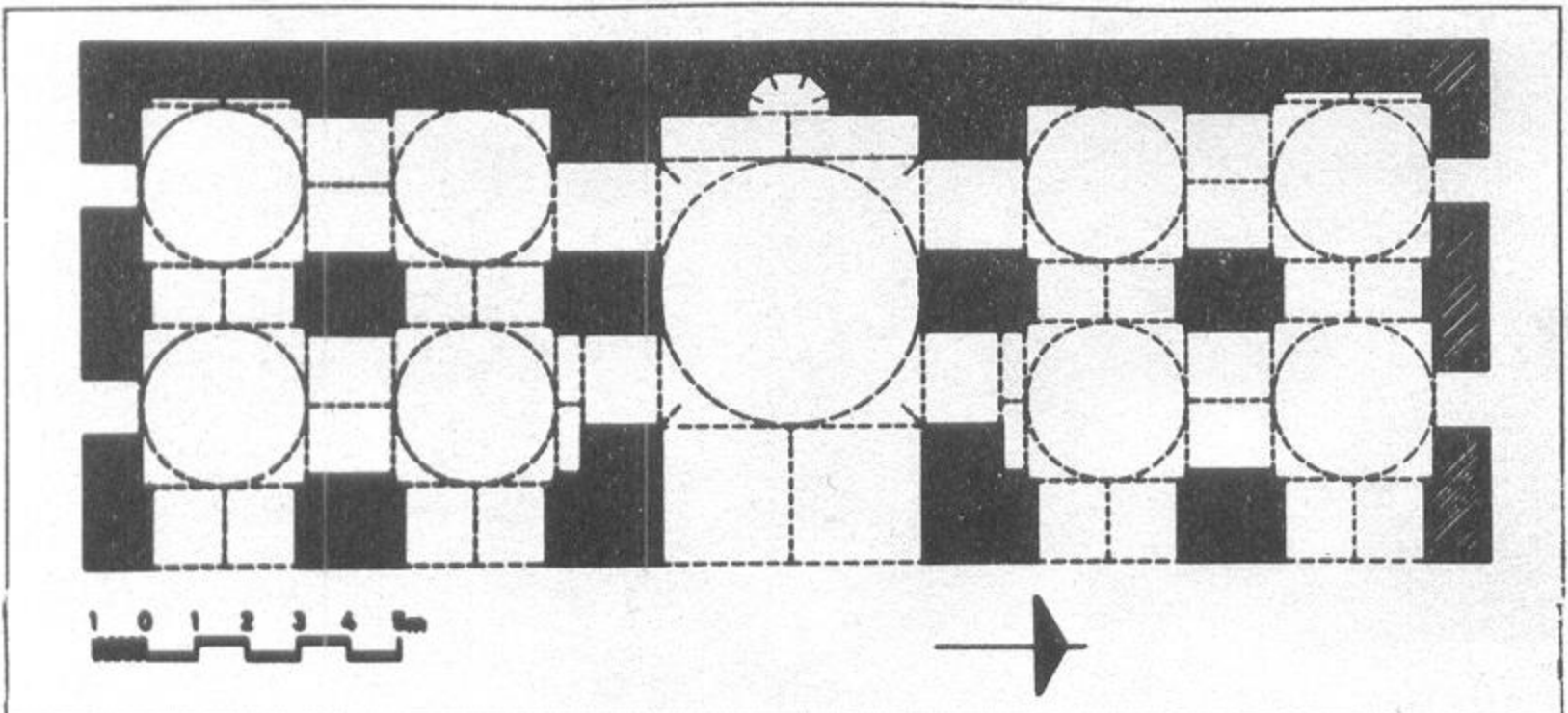
Khurasanian Vault: Imperial Hammam,
Fathpur Sikri



Khurasanian Vault: Tomb of
Barber, Delhi

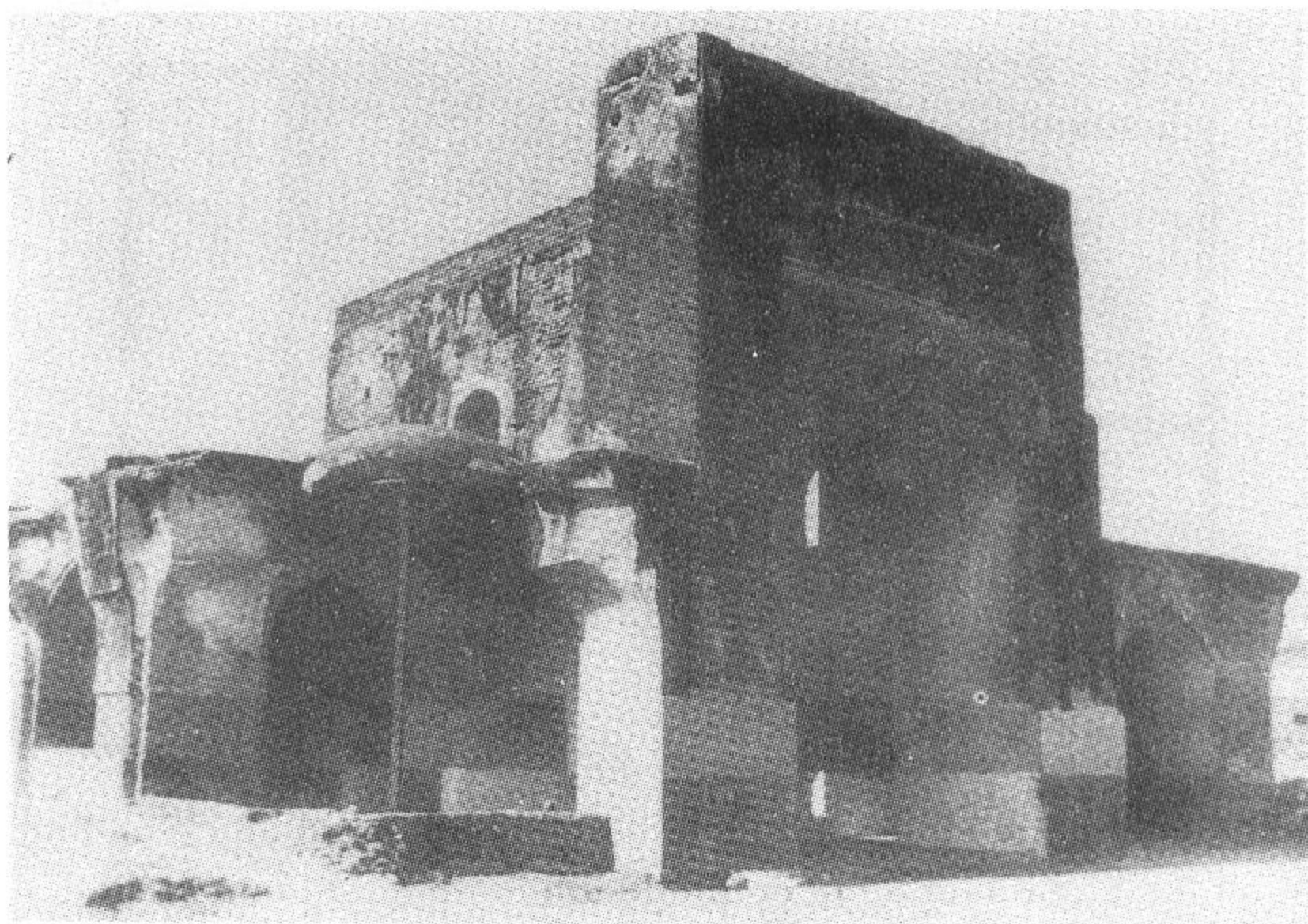


Chahartaq Mosques: Plan of Namazgah Mosque, Qarshi

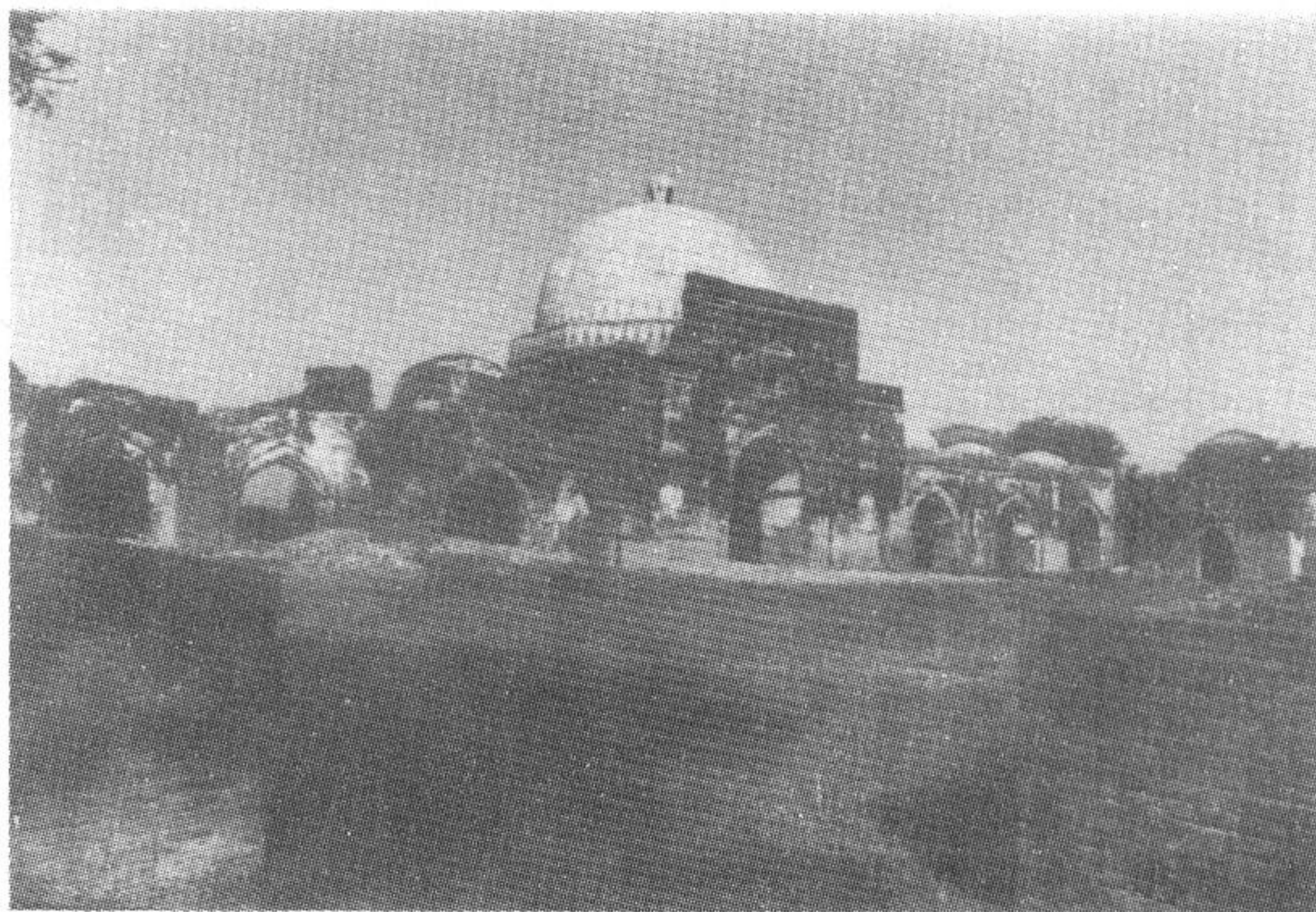


Chahartaq Mosques: Plan of Kachhpura Mosque, Agra

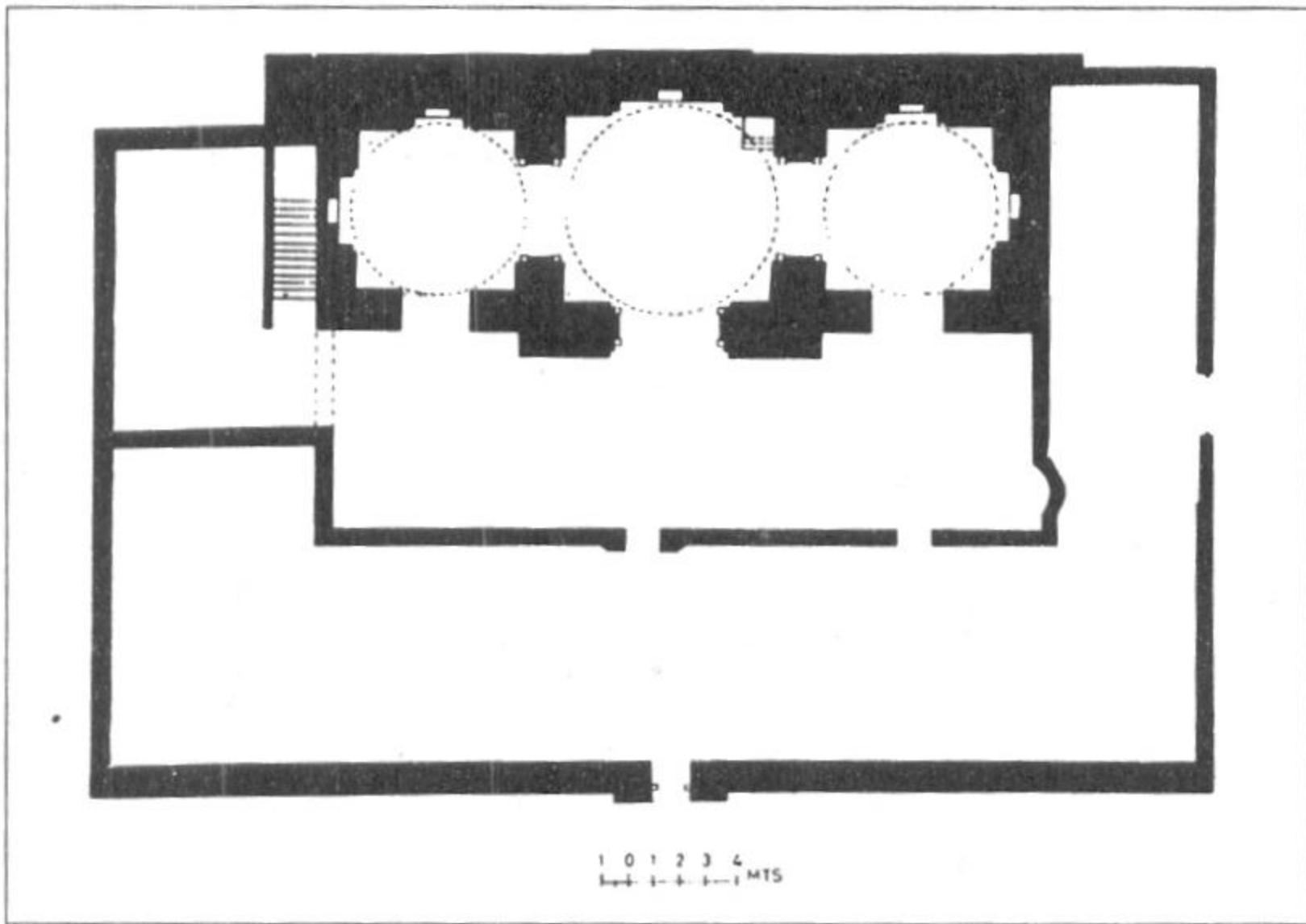
Iranian Influence on Mughal Architecture



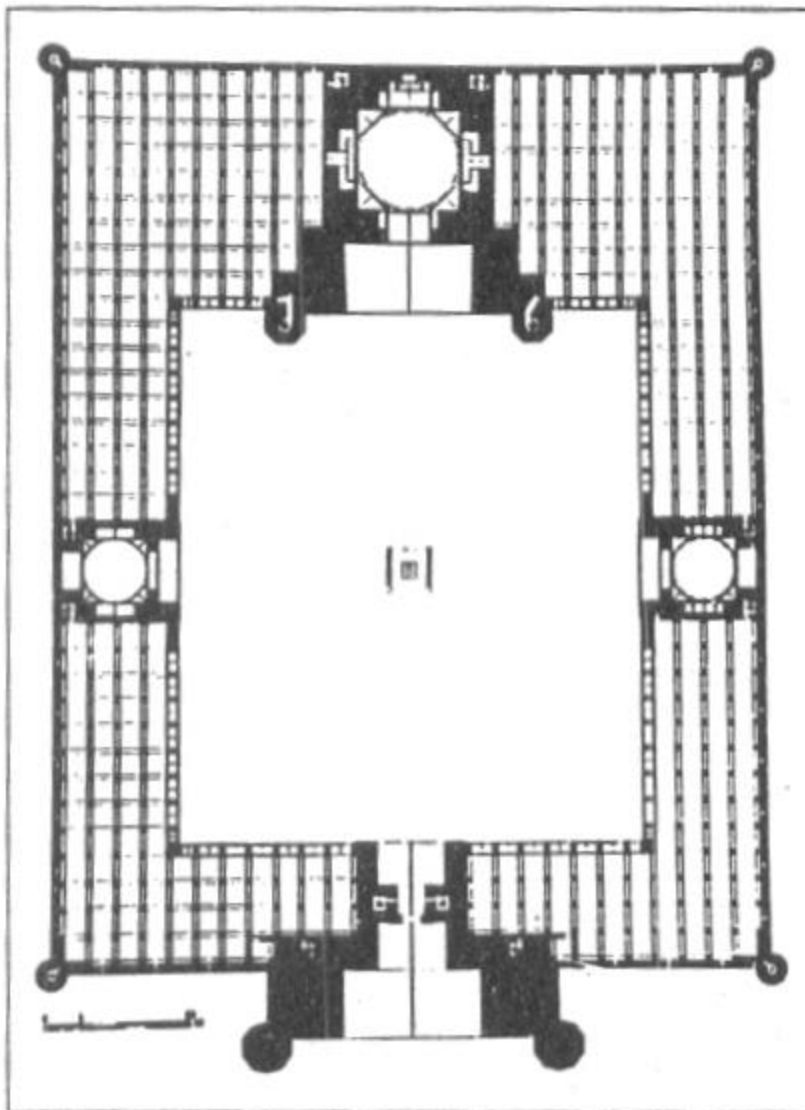
Chahartaq Mosques: Kachhpura Mosque, Agra



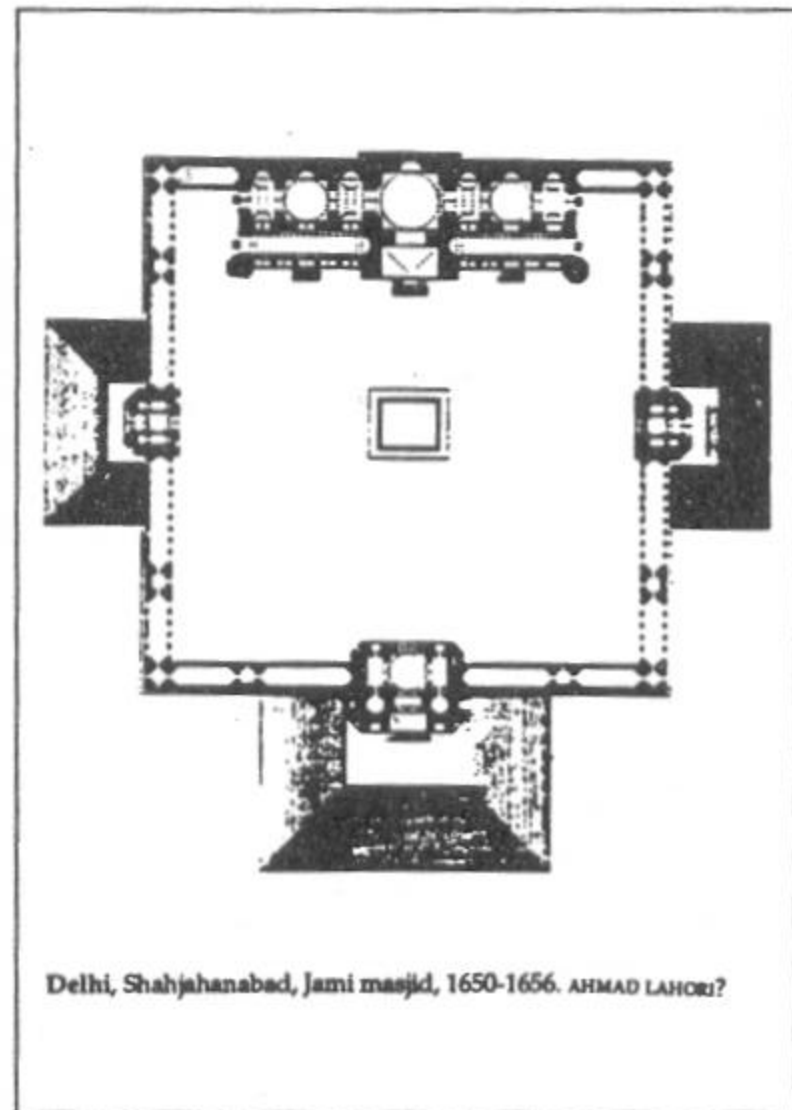
Chahartaq Mosques: Kabuli Bagh Mosque, Panipat



Chahartaq Mosques: Plan of Baburi Masjid, Ayodhya



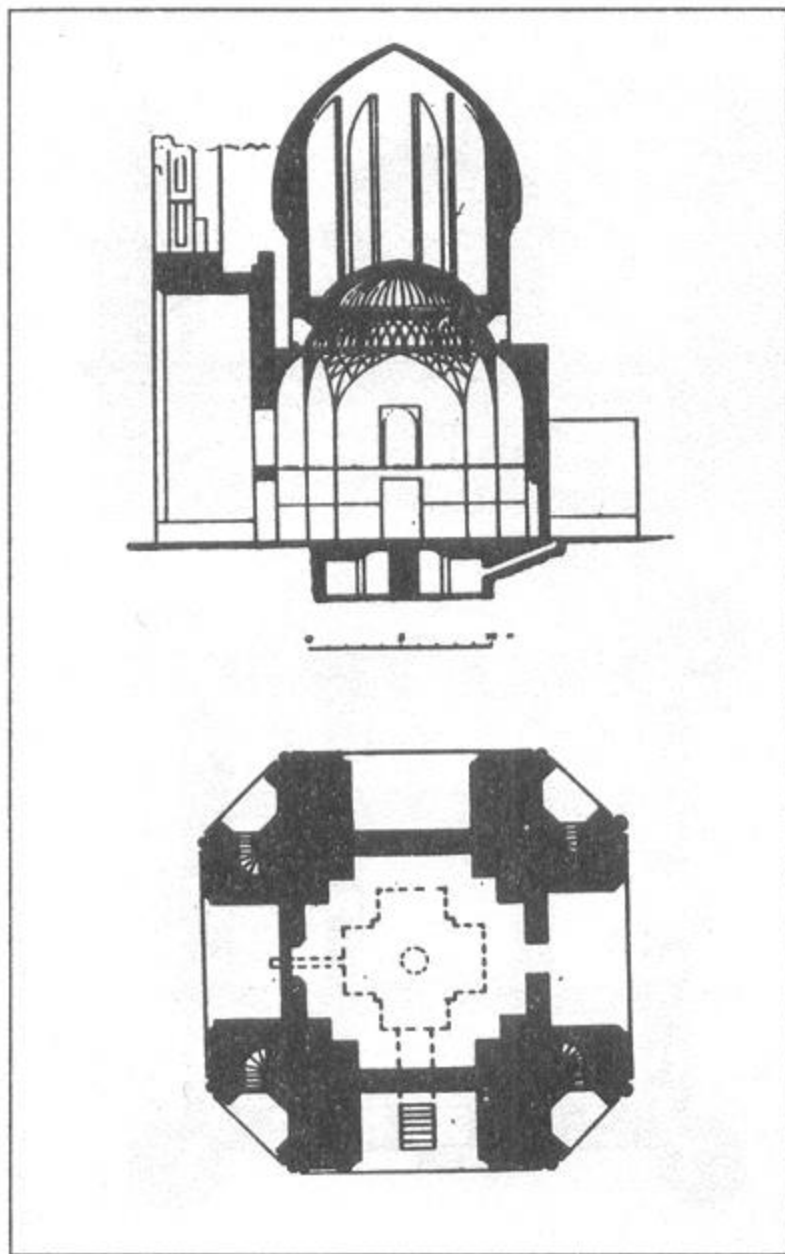
Timurid Four-Aiwan Mosque: Plan of Bibi Khanum Mosque, Samarqand



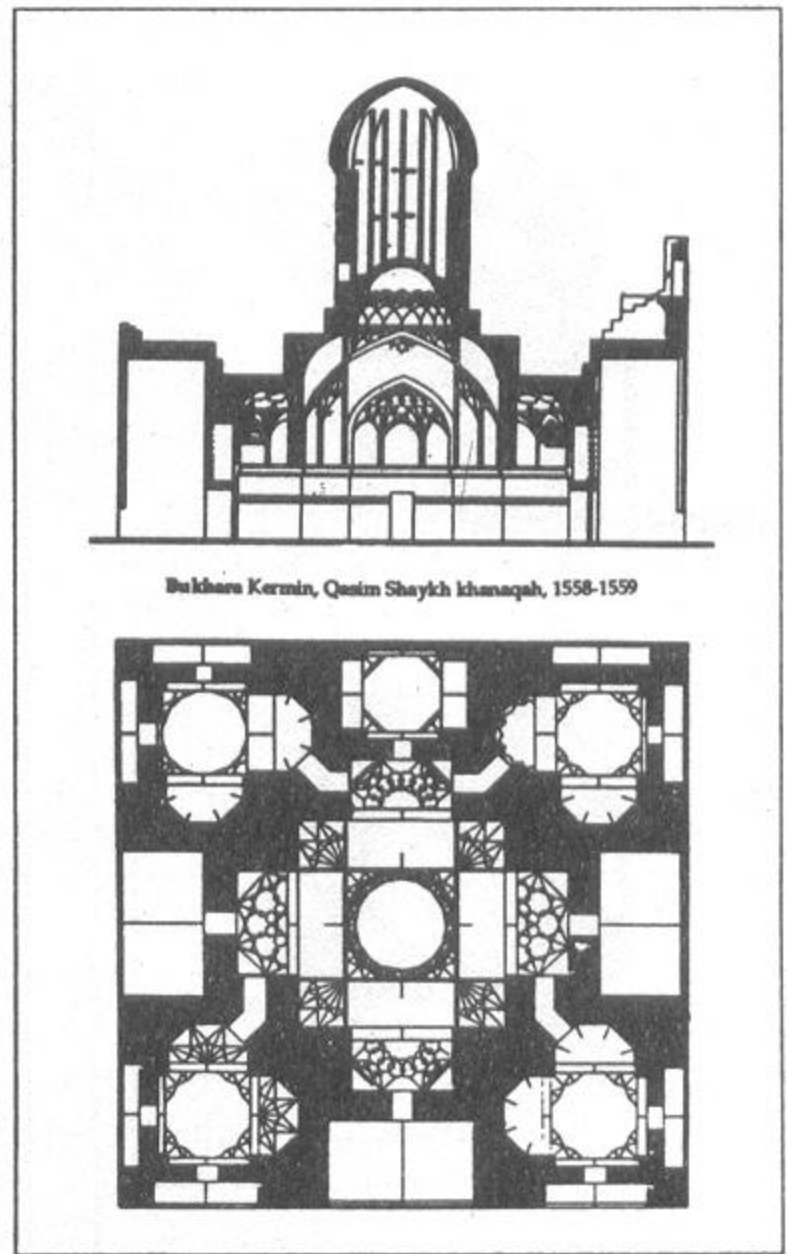
Delhi, Shahjahanabad, Jami masjid, 1650-1656. AHMAD LAHORI?

Mughal Four-Aiwan Mosque: Jami' Masjid, Shahjahanabad

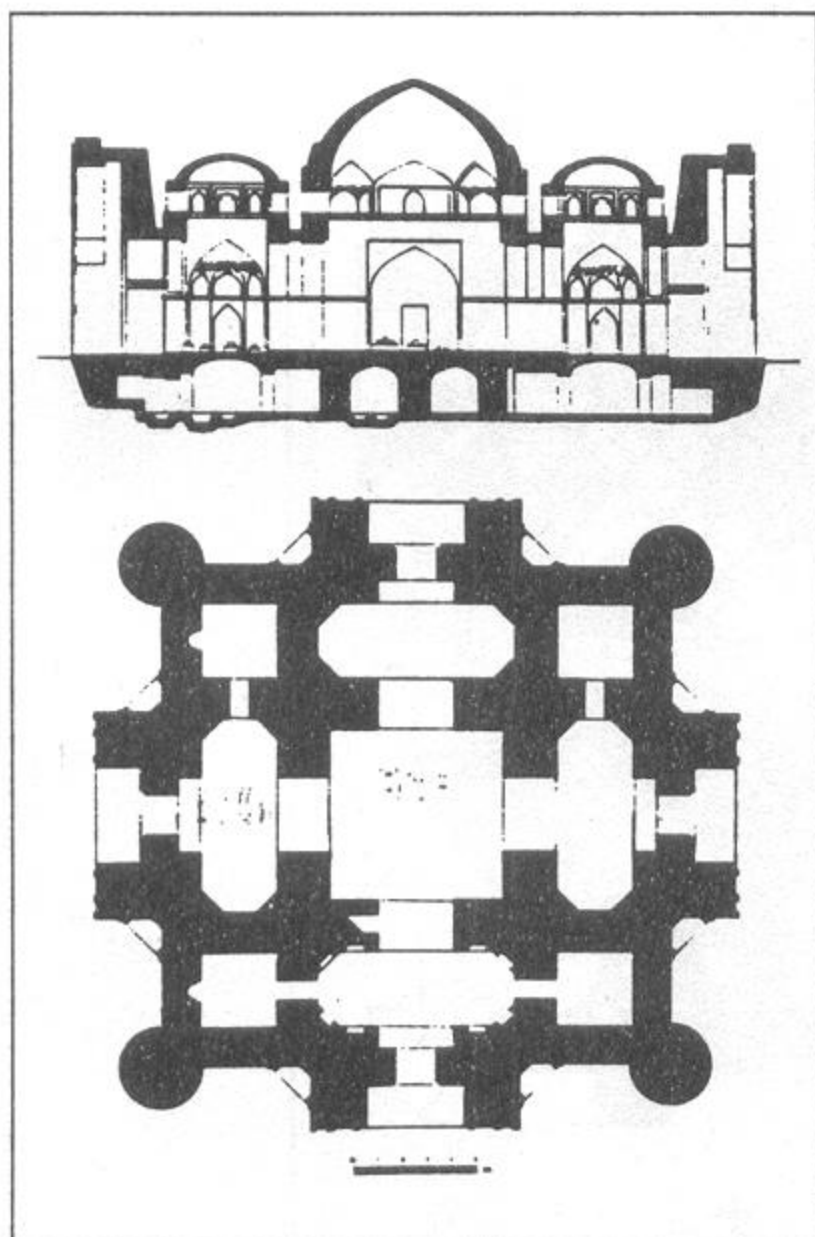
Iranian Influence on Mughal Architecture



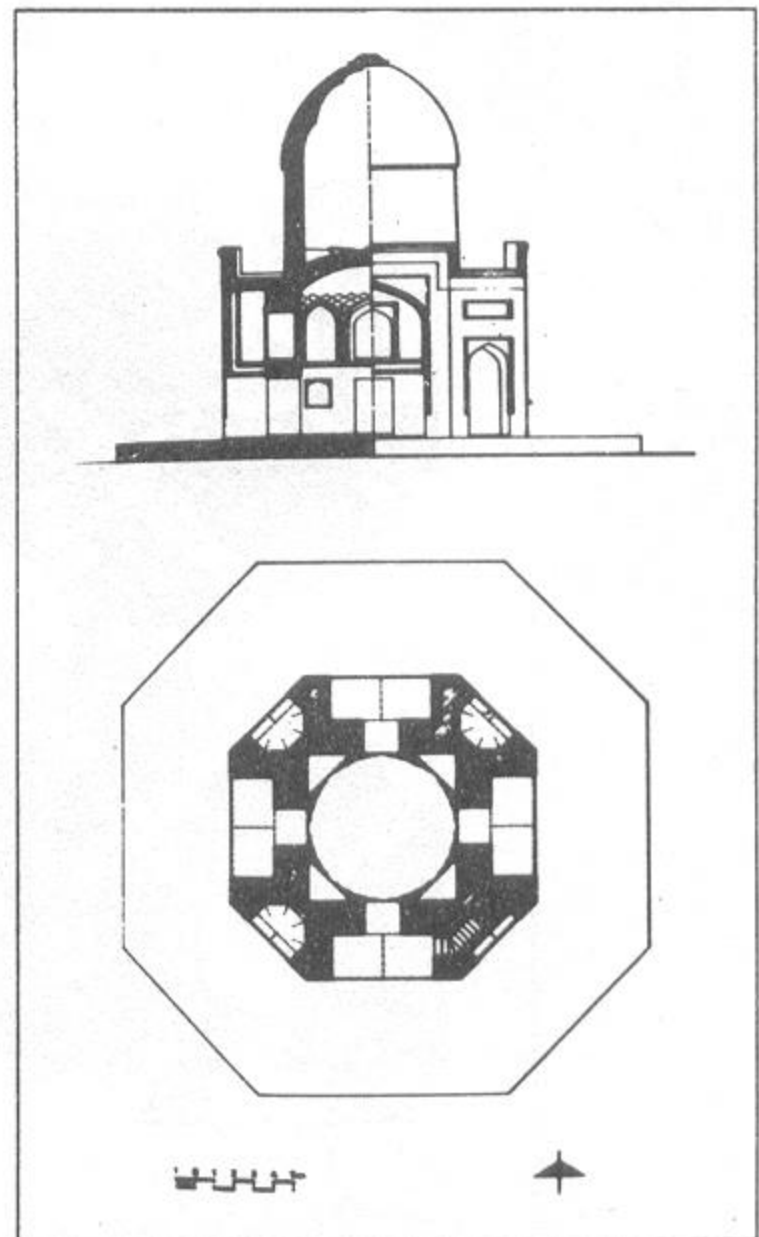
Nonipartite Plan: Tomb of Abu Nasr Parsa, Balkh



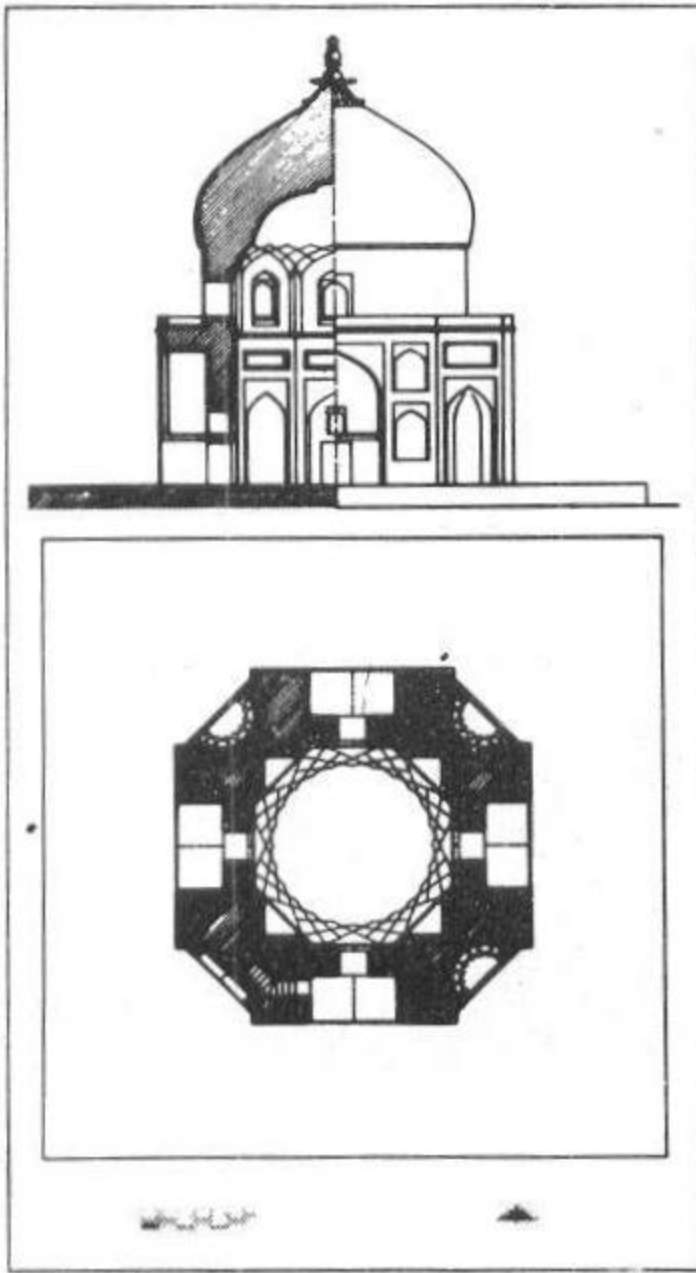
Nonipartite Plan: Khanqah of Qasim Shaikh, Bukhara, Kermin



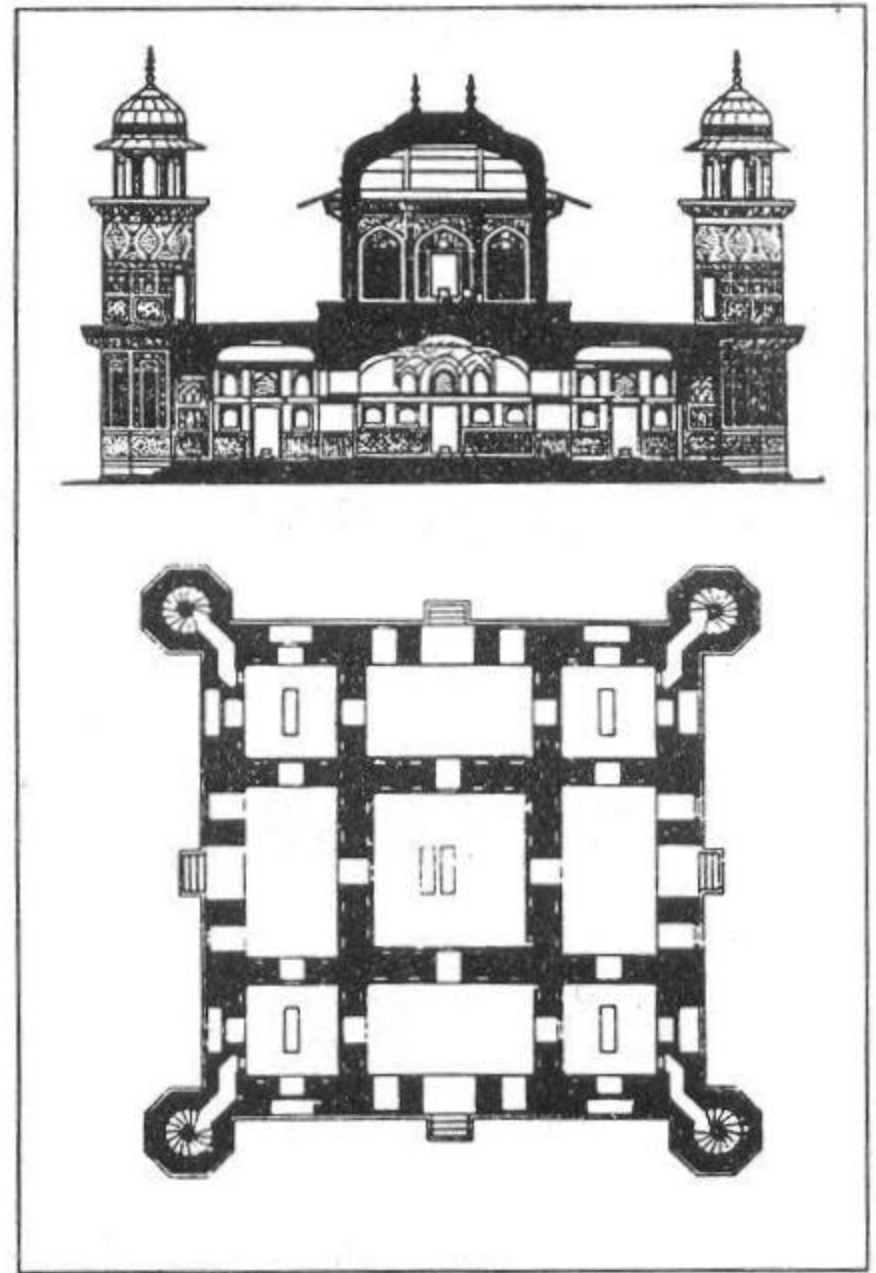
Nonipartite Plan: Tomb of Ulugh Beg and Abdur Razzaq, Ghazni



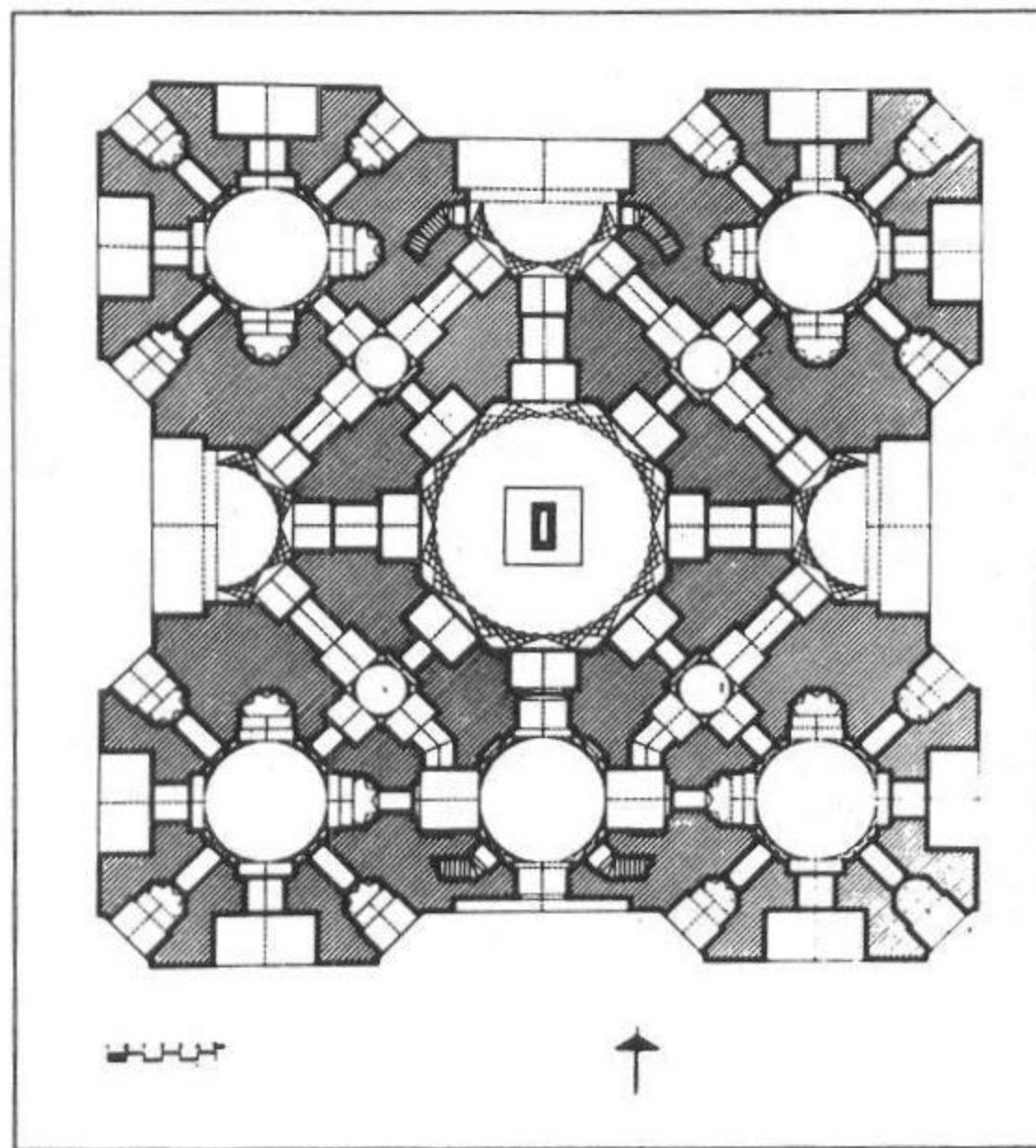
Nonipartite Plan: Sabz Burj, Delhi



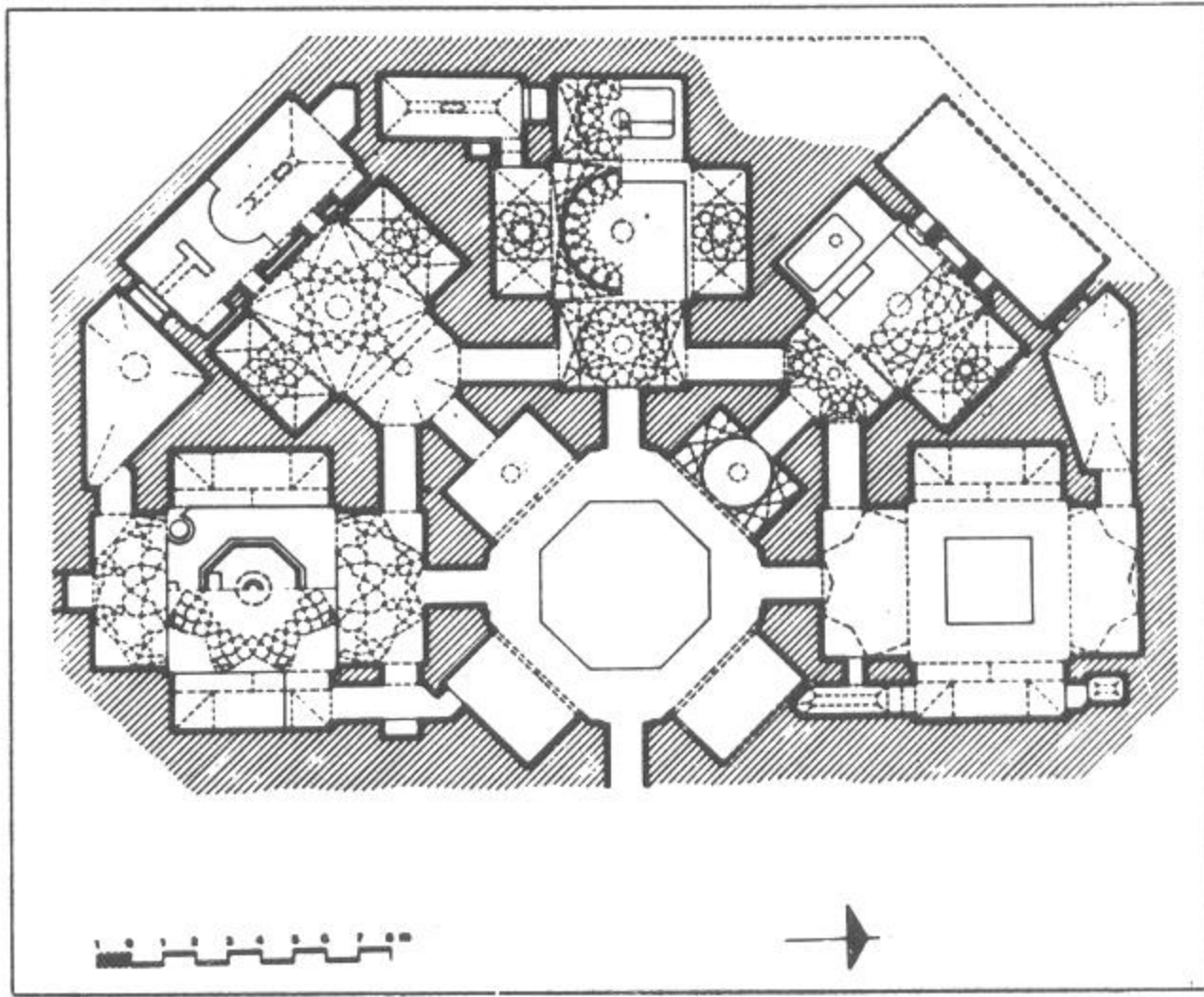
Nonipartite Plan: Nili Gumbad,
Delhi



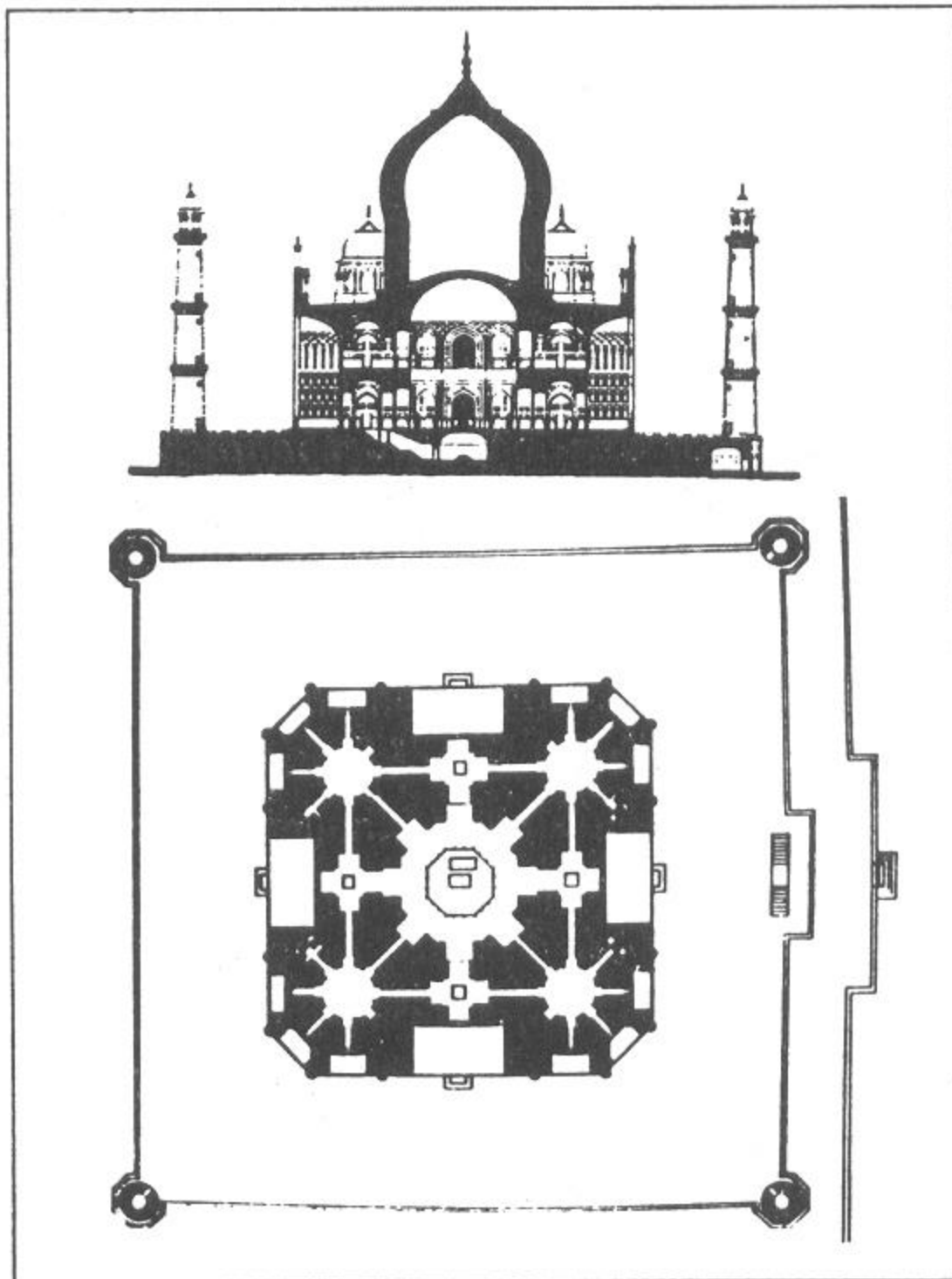
Nonipartite Plan: Itimad ud Daulah, Agra



Nonipartite Plan: Humayun's Tomb, Delhi



Nonipartite Plan: Hammam of Khan-i Khanan, Burhanpur



Nonipartite Plan: Taj Mahal, Agra