K. A. C. CREWSWELL

A Short Account of

Early Muslim Architecture

Revised and supplemented by James W. Allan

The American University in Cairo Press
CHAPTER 10

The Foundation of Baghdād

The Fall of the Umayyads and the Rise of the ‘Abbāsids

The last Umayyad Khalīf was Marwān II, who became Khalīf at the end of 744 and made Harrān his residence, greatly offending the Syrians thereby. His reign was a continuous struggle against Khārijite and ‘Abbasid conspiracies, and the latter eventually brought about the fall of the dynasty. The Persians were ready to revolt, for great numbers had gone over to Islam without receiving the promised advantages, viz. exemption from the poll-tax paid by all non-Muslims.

In 747 the Umayyad garrisons were expelled from Merv and Herāt and the whole of Persia was lost the following year. Marwān was defeated in ‘Irāq in January 750 and put to death in Egypt in July. Meanwhile as-Saffāh, the first ‘Abbāsid Khalīf, had been proclaimed at Damascus in April. He was constantly occupied in exterminating the male descendants of the Umayyads, of whom hardly any escaped except ‘Abd ar-Rahmān, destined to be the founder of the Umayyad Emirate of Cordova.

The Dār al-Imāra of Abū Muslim at Merv

Abū Muslim, who had been chief agent of the ‘Abbasid family, built a Dār al-Imāra at Merv, and we fortunately possess sufficient information to form a general idea of its form. Istakhrī says:

Among the buildings of Abū Muslim is the Dār al-Imāra, and it is at the back (zahr) of the mosque. And in this dār is a domed chamber, in which he used to sit. It is a domed chamber made of burnt brick and its measurement (ṣu‘ā) is 55 cubits. There is access to the flat part of the roof from the interior. And the domed chamber has four doors, each leading to an iwan, and the height of each iwan is . . . (blank). And in front of each iwan is a square zahr.¹

The missing dimensions of these iwanāt are given by Mustawfi as 36 by 60 cubits.² As for the date, it must have been built between December 747 or January 748, when Abū Muslim had driven the Umayyad Governor out of Merv, and January 755, when Abū Muslim was executed by his savage and ungrateful master, al-Mansūr, the second ‘Abbāsid Khalīf. Figure 136 is an attempt to give form to this description. It almost follows from the plan that the diameter of the dome was equal to the width of the iwanāt.

One cannot help being struck by the close resemblance of Abū Muslim’s palace to the Palace of al-Mansūr at Baghdād and, later on, to the throne-room group in two of the palaces at ‘Irāq, viz. the Jausaq al-Khāqān and Balqūwārā.

The Foundation of Baghdād

The Khalīf as-Saffāh died in June 754 and al-Mansūr was proclaimed his successor. The outlook of the ‘Abbasids being towards the East, it was evident that a

Note.
This chapter remains as in the first edition, except for the addition of a sub-section at the end entitled Lassner’s Reconstruction of the Round City, Palace and Mosque.
site on the Tigris or Euphrates was required, and al-
Mansūr made many journeys in search of a site for his
new capital, until he finally fixed on the site of
Baghdād.8

Having decided on the site on 1 August 762, al-
Mansūr wrote to every city to send engineers and
people acquainted with building, surveying, and men-
suration. Engineers, architects, and land-surveyors
from Syria, Mosul, Western Persia, Kūfa, Wāsit, and
Basra were gathered together, and not until thousands
of men had been assembled did the work begin.4

Tabari says that the plan of the city was first traced
on the ground with lines of ashes, for al-Mansūr wished
to see its actual form.5 The plan was circular, with four
equidistant gateways named after the city or province
towards which they opened (137): the Kūfa Gate (SW.),
the Basra Gate (SE.), the Khurāsān Gate (NE.) and the
Damascus Gate (NW.). The foundations were laid at
a moment chosen by the astrologer Naubakht, and the
Arabic authors are almost unanimous as to the date,
nearly all giving 145 H. (762–3), and most say the date
of completion of the whole work was 149 H. (766–7).
As for the size, the dimensions given by Ya'qūbī do not
agree with the various traditions recorded by al-
Khatīb: I am inclined, like Herzfeld, to adopt
the figure which has come down from Rabāh, who was the
actual architect of the walls, viz. circumference 16,000
cubits, which gives a diameter of 5,093 cubits.6

The Bricks

The walls were made of mud bricks a cubit square (the
thickness is not stated) and reeds were set in as a bond
between each course. Burnt bricks were employed for
the tunnel-vaults and domes.

al-Khatīb, on the authority of Rabāh, the architect of
the walls, says: ‘In each of the courses of mud bricks,
there were 162,000. When we had built a third of the
wall, we made it thinner and only laid 150,000 to a
course; when we had built two thirds we reduced it
again and only laid 140,000 bricks to the course up to
the summit.’7 Herzfeld remarks that as the distance
from gate to gate was 4,000 cubits, total 16,000 cubits,
i.e. bricks, the lower third of the wall must have been
10 cubits or bricks thick, which would require 160,000, leaving 2,000 over for the towers. The number 150,000 for the courses of the middle third would provide for a wall 9½ bricks thick (= 148,000) plus 2,000 over for the towers; 140,000 for the courses of the upper third provide for a wall 8½ bricks thick (= 136,000), plus 4,000 over, which would enable the towers to be carried up above the crest of the wall. 8

Reconstruction of the Fortifications

I shall begin with al-Khatib’s description, supplementing it by Ya’qūbī, whose description fills some of the gaps:

The height of the inner wall, which was that of the city, was 35 cubits. On it were towers which rose 5 cubits above it . . . Then came the fasıl between the two walls [fasıl, therefore — intervallum], 60 cubits wide, finally the first [i.e. outer] wall, which was the wall of the fasıl, and beyond was the ditch (khandaq). The city had four gates . . . each was composed of two gateways, one in front of the other, separated by a passage (dīhlīz) and a door opening on to the fasıl between the two walls; the first gateway was that of the fasıl, the second that of the city. When one entered by the Khurāsān Gate, one first turned to the left in an oblong passage with a vault of brick, 20 cubits wide by 30 long, the entrance of which was in the width and the exit in the length, and passed out into a courtyard, 60 cubits long and 40 wide, leading to the second gateway. At the far end of this court was the second gateway which was that of the city. To right and left of this court were two doorways opening on to the two fasıls; that to the right opened on to the fasıl of the Damascus Gate, that to the left opened on to the fasıl of the Basra Gate, which continued round to the Kāfā Gate. The four gates were constructed on the same model . . . The second gate, which was that of the city . . . gave access to an oblong passage vaulted with bricks, 20 cubits long and 12 wide; it was the same with the other gates. Above the vaulted chamber of each gate was an audience-hall, with a staircase against the wall, by means of which one ascended to it. These halls of audience were each covered by a great dome 30 cubits high and gilt. Each dome was surmounted by a figure which turned in the wind. 9

The Moat

This is mentioned by Ya’qūbī, Tabari, and al-Khatib, but they do not give its width.
The Outer Gateways

It is clear from the words of al-Khatib – 'when one entered by the Khurāsān Gate, one first turned to the left in an oblong passage', etc. – that the outer gateway was a bent entrance, a remarkable fact which is discussed later (below, pp. 237–9). Only one turn is mentioned, and as one passed into a courtyard at the far end of which was the main gateway, and as it follows that the first direction must have been at right angles to the direction of exit, it is evident that the entrance must have been in the flank of the gateway tower.

The Outer Wall

This was naturally thinner than the main wall, but that is all we are told about it.

The Main Wall

Its height, according to al-Khatib, was 35 cubits, and we have seen that its thickness was probably 10 cubits. The towers were 5 cubits higher than the wall, i.e. 40 cubits (= 20-70 m.; 68 ft). In the wall between each gate and the next were twenty-eight towers, except between the Basra Gate and the Kūfa Gate, where there was a tower extra.

The Main Gateways

We have seen that the passage through each main gateway was 20 cubits long by 12 wide; to this must be added 5 cubits for each end wall, for they were meant to withstand assault and to carry a domed upper storey; this gives a total depth of 30 cubits for each gateway tower. Herzfeld assumes its width to have been the same as the court in front of it, i.e. 40 cubits. From the ground to the top of the dome measured 50 cubits. On the analogy of the central portion of the Palace of al-Mansūr, which consisted of two superimposed domed chambers, each 20 cubits square and of equal height, totalling 80 cubits, let us assume that the vaulted hall and the domed chamber of each main gateway were of equal height, also that the apex of the dome was 1 cubit.
The Foundation of Baghdad

233

The Inner Zone and the Arcades

al-Khatib continues:

One enters afterwards by the second corridor (i.e. the vault of the main gateway) into a court 20 cubits square, and on the right of one entering is a road and another on the left; that to the right leads to the Damascus Gate, that to the left to the Basra Gate. . . . Then this fasıl runs past all the other gates; the gates of the streets open from it; it extends all round the enclosure wall. The width of each of the fasıls from the wall to the entrance of the streets is 25 cubits. From the court which we have described one enters towards the arcades (iğār) which are 53 in number, excluding that of the entrance of this court. Here is placed a great double door of teak. The width of the arcades is 15 cubits and the length 200 [we shall see that this figure is much too small]. . . . On both sides of these arcades, between each of them, are rooms reserved for the guard; it is the same for the other gates. . . . After these vaults one passes out into a court 20 cubits square. On the right is a road which leads to the corresponding court of the Damascus Gate, and which curves round afterwards to that of the Kūfa Gate, then towards that of the Basra Gate. These gates are all alike. Into the fasıl open the gates of certain streets and in front of one is the Little Arcade . . . by which one passes into the circular area in which are the palace and the mosque.11

The Residential Area

There was therefore a residential zone between the main wall and the central palace area. This zone was divided into four equal quadrants by the vaulted arcades which ran from the main gates to the gates of the palace area; it was bounded externally and internally by the ring streets, 25 cubits wide, from which opened the gates of the streets of the quarters. The latter, which ran like the spokes of a wheel, had a strong gate at each end. Ya'qūb remarks the names of all these streets, of which there were from eight to twelve in each quadrant.12 He expressly says that none of these streets was connected with the central area, 'for the road runs all round the wall of the Rahaba', by which he means the Palace Enclosure.

The Great Arcades

Now let us attempt a reconstruction. In the first place we must imagine a long gallery, 15 cubits wide, spanned by fifty-three transverse arches. We have seen that to right and left were side rooms for the guard. There were therefore fifty-four rooms a side, for the fifty-three arches must have been independent of the end walls. Now, al-Khatib says that there was a guard of 1,000 men at each gate.13 For these and their officers we therefore have 108 rooms, say 100 for the men at ten per room, and eight for their officers. If we assume a width of 10 cubits and a depth of 15 for each room, with partition walls of 2 cubits and end walls of 5, then 54 by 10 = 540, 53 by 2 = 106, 2 by 5 = 10, total 656 cubits, or 340 m. If we assume that the rooms were only 8 by 12, we get 54 by 8, plus 53 by 2, plus 5 by 2 = 548 cubits, or 284 m. Herzfeld adopts this figure, and I follow suit (140). If we add 25 by 2 cubits for the two ring streets, we get 598 cubits as the depth of this zone.

It is obvious that the spacing of the arches must have corresponded with the partition walls, for the sake of abutment, i.e. 8 cubits apart. But Ya'qūb speaks of Byzantine windows (kivā' rimīya) in the vault, which admitted light but not rain.14 Where were these windows placed? They must have been in the side walls above the level of the crown of the vaults of the rooms. Ya'qūb15 and Ibn Rusta16 expressly say that these arcades were vaulted with burnt brick. If we assume that a tunnel-vault rested on the side walls its springing must have been very high, in order to clear the windows, and that would at once involve abutment difficulties, to say nothing of the difficulty of finding an analogy for such construction in our present field of study. There can be no doubt that such a series of transverse arches can only have served to support a
140. Baghdād: the arcades (tāqāt) (a) Creswell’s version; (b) Lassner’s version (from Lassner, op. cit.); (c) gates of Qasr Kharāna and Ukhaidir; (d) main gate of Baghdād, upper floor
series of transverse vaults (139, 140), exactly as in Tāq Īwān, Qasr Kharāna, Qusayr ‘Amra, Hammām as-Sarakh, the Mosque at Qusayr al-Hallābāt, Ukhaidir, and, several centuries later, in the famous Khān Ortma of 760 H. (1359) at Baghdad.

The Little Arcades

Ya'qūbī says: ‘When one comes out from the Arcades one comes into a court, then to a long passage consisting of a vault of brick, which had iron doors, whence one went out into the Great Rahabā’ (i.e. the central area). He does not give any measurements, but Herzfeld suggests 10 cubits wide and 15 long. This would make it project beyond the inner ring wall. To avoid this he restores the Little Arcades as a free-standing vaulted arcade, but his restoration does not provide abutment for the thrust of the transverse arches.

On the analogy of the Court of Honour at Ukhaidir (below, pp. 255–6) and the walls of the Ziyādas of the Great Mosque at Sāmarrā, I prefer to restore them as a blind arcade on half-round piers as shown, the four entrances being flanked by quarter-round piers of the same projection as the half-round ones. This involves a slight reduction of the dimensions of the passage to 8 cubits and 10 long, as shown (140).

The Central Area

In the Central Area was the Palace (below, p. 239) and the Mosque (below, p. 249). In addition there were seven Dīwāns (Government Departments), residences for the younger sons of al-Mansūr, and a kitchen.
ARCHITECTURAL ORIGINS

The Circular Plan

The ‘Round City’ of al-Mansūr may fairly be considered as one of the most remarkable examples of town-planning that have come down to us. The Muslim historians insist that the circular form of the city was a feature that had never been known before, but such is far from being the case.

It appears probable that the earliest circular enclosures were the Assyrian military camps. Some, it is true, were oval, but one at least, shown on a slab found by Layard at Nineveh, is a true circle, with cross-roads from north to south and east to west. But at least ten circular cities, dating from before Islam, are known:

1. Sinjerli, a Hittite city with a double wall forming an almost exact circle about 700 m. (770 yd) in diameter.

2. Abra (about 60 km. (37 miles) east of Nisibis). Circular enclosure 450 m. (490 yd) in diameter.

3. Hagmatana, known to the Greeks as ‘Agbatana’, built by Deioces the Mede in the first half of the seventh century BC. According to Herodotus it had walls ‘rising in circles one within the other’.

4. Mantinea, built by Epaminondas in 371 BC. Fougères, who surveyed it, found it to be a fairly regular ellipse with a major axis of 1,340 m. (1,470 yd) and a minor axis of 1,080 m. (1,180 yd).

5. Ctesiphon, built by the Parthians. Reuther makes it an oval of 3,300 by 2,800 m. (3,610 by 3,060 yd).

6. Takht-i-Sulaymān, Parthian, probably end of second century BC. Oval enclosure about 1,250 by 1,050 m. (1,370 by 1,150 yd).

7. Hātra, first to second century AD. A roughly oval enclosure, 1,700 by 2,000 m. (1,860 by 2,190 yd).

8. Harrān, likewise oval.

9. Dārābjerd was first examined by Flandin and Coste in 1840. It bears a remarkable resemblance to al-Mansūr’s foundation because not only is it surrounded by a circular wall with four gates and a ditch, but there was an inner circular area with a concentric wall 675 m. (740 yd) in diameter. Between the two was a ring-shaped area 262 m. (286 yd) wide, exactly like the residential area at Baghdād. Sir Aurel Stein’s expedition made a plane-table survey in 1933, according to which the area enclosed by the wall measured almost exactly 1 mile and 1 furlong, say 1,810 m., in diameter. The four gates, or rather gaps in the wall, were nearly but not quite equidistant, and a road could be traced leading from each towards the centre.

10. Gür (later Firuzābād), built by Ardashir, the founder of the Sasanian dynasty, in AD 224, was circular ‘even as though drawn with a compass’, as Ibn al-Balkhi expresses it, and what is most interesting for our purpose is Ibn al-Faqih’s statement that it was built after the pattern of Dārābjerd, like Dārābjerd it had four gates. It was surveyed by Sir Aurel Stein’s expedition, according to which it had an inner and outer wall, its overall diameter, scaled off his plan, being 2,240 m. (2,450 yd). Erich Schmidt’s air photograph shows its form to be a remarkably accurate circle.

We are therefore justified in saying that circular cities had been known for fifteen centuries before the foundation of Baghdād, and concentric circular cities for several centuries before, in the region between Eastern Asia Minor and South-Western Persia, and it is possible that Dārābjerd directly inspired the ‘Round City’ of al-Mansūr.

Apart from any military advantages, such as the avoidance of dead angles, there is another practical consideration which may have led to the adoption of the circular plan, viz. economy of walling, for if a given area has to be enclosed, the shape with the shortest boundary is the circle, the economy being roughly 11.38 per cent, which would represent a very considerable sum in the construction of the walls of a city.

Other Muslim examples of round cities are Heraqlah (see below, pp. 275–8), Isfahān, of which Ibn Rusta says that it was ‘evenly round’ and 6,000 cubits (say 3,000 m.; 3,270 yd) in diameter, and Sabra (close to Qairawān), built by Ismā‘īl, the third Fātimid Khalif, in 337 H. (948–9), which, according to Muqaddasi, was ‘circular like a drinking glass’ with ‘the palace of the Sultan in the centre as at Madinat as-Salām’ (i.e. Baghdād).
Reeds Used as a Bond

This is an ancient Babylonian practice. At Aqarqûf, attributed to the Kassite dynasty (thirteenth century BC), Peters says that after every seven courses of bricks is a layer of palm matting. Herodotus says that at Babylon they used hot bitumen for their cement, with a layer of plaited reeds at every thirteenth course. Koldewey found that such layers occurred in the qasr at Babylon at a maximum distance of thirteen courses and a minimum of five. The same practice was followed at Assur in all periods, the reeds being laid criss-cross. In Sasanian times the same thing is found at Daulîbî, where a layer of reeds occurs between every course. A later, ninth-century, example of reeds being used as a bond is Zibliyât (see below, p. 413).

The Bent Entrance

This presents a curious problem, for although it was known in Ancient Egypt, it apparently does not occur again anywhere until the eighth century AD. The two Egyptian examples are at Kôm al-Almar and Shûnet az-Zebîb. The former is a mud-brick fortress on the Nile about 6.4 km. (4 miles) from al-Kabîb. The walls are still about 9 m. (30 ft) high, and form a rectangular enclosure measuring about 75 by 66 m. (250 by 220 ft), surrounded by a thinner outer wall. The entrance consists of two gateways on opposite sides of a court about 5 by 4 m. (16' by 13 ft), but they are not quite on the same axis. The outer wall is so ruined that it is not possible to say where the corresponding gateway was.

At Shûnet az-Zebîb, near Abydos, the arrangement is more advanced. Like Kôm al-Almar, it consists of a rectangular enclosure measuring 131 by 78 m. (430 by 255 ft), the walls being 11 m. (36 ft) high and 6 m. (19' ft) thick at the base. At a distance of about 3 m. (10 ft) all round is an outer and lower wall, at present about 6 m. (20 ft) high. There are four entrances, two straight through and two bent. The best designed is at the north corner. The gateway in the outer wall is placed opposite the gateway in the inner wall. The latter opens at the back of a recess 8 m. wide and 3.50 m. deep (26' by 11' ft), and leads into a small court 3.40 m. (11' ft) wide, a veritable pit, in fact; the exit from it is at right angles to the entrance. These two forts are generally regarded as dating from the sixth to twelfth Dynasties.

But now comes a gap of at least 2,500 years, which is remarkable, as there is no lack of gateways. We have the city gateway at Atchana, excavated by Woolley and placed by him in the thirteenth century BC; the Hittite city of Boghaz-Keui, where all four gateways provide a straight passage through the double walls. At Sinjerli we have an outer gateway flanked by square towers, a courtyard, and a second gateway on the same axis, a forerunner, therefore, of the Roman propugnaculum. The same with the three gates of Shalmaneser III (858–824 BC) at Assur, and in the seven gates of Khorsabad, built by Sargon (722–705 BC). At Babylon the famous Ishtar Gate of Nebuchadnezzar (604–561 BC) follows the same pattern.

Neither did the Romans know the bent entrance. All the forts of the Roman limes in Transjordan have simple straight-through entrances, likewise the north gate of Baalbek and the Roman gateway of Qasr ash-Sham at Old Cairo. It was the same also in Roman Africa, where all the gateways of the Roman period are straight-through entrances. Even at Rome itself, all the gates of the city wall (Nomentana, Latina, Appia, Asinaria, Pinciana, Tiburtina, etc.) built by Aurelian, AD 271–5, are of this type.

The first step forward was to arrange things so that the assailants, after passing through the outer wall, had to turn to the left and move along the intervallum towards the main gate, which, instead of being on the same axis as the outer gate, was a little distance from it. This would compel them to present their right sides, i.e. the side not protected by a shield, to fire from the top of the wall. It recalls the passage in Vitruvius: "The roads should be planned so as to approach the gates, not in a straight line, but from right to left, for as a result of this, the right-hand side of the assailants, unprotected by their shields, will be next the wall." This system may be called 'the oblique approach'; we will meet it at Raqqa (below, pp. 246–7).

When did the bent entrance first appear? Diehl, Monneret, and Deschamps say that it occurs in certain fortresses of the period of Justinian in North
Africa. It is not going too far to say that no example of such an entrance is to be found in any work that is certainly of Justinian's reign, or before it, either in North Africa or anywhere else in the Byzantine Empire.

Let us begin on the eastern frontier. On the Euphrates, about 80 km. (50 miles) south-east of Raqqá, is Halabiya, the ancient Zenobia, whose walls were rebuilt by Justinian. There are two straight-through entrances flanked by square towers. On the opposite bank is Zalubiya, which has one straight-through entrance only. About 48 km. (30 miles) south-west of Raqqá is Rusafa, also built by Justinian. It has four gates, one of which is single, the other three consisting of two gates on the same axis, with a small court between. At Palmyra all the gates of the enclosure of Justinian shown on Gabriel's plan are simple, straight-through entrances. The same remark applies to Antioch. At Ancyrá (Angora) all the gates except one, which is of the ninth century, are of the usual type; according to Jerphanion they date from about AD 630. To these may be added the Constantinople Gate and the Lefka Gate, at Nicaea. Even at Constantinople, the capital of the Empire, we have no example of a bent entrance, in either the work of Theodosius II (413 and 447), or Heraclius (627), or later.

We have seen that all the gateways of existing Roman enclosures in North Africa are the ordinary type; if we take those known to date from the time of Justinian, the same remark holds good, e.g. Madaura and Tebessa, both built by his general Solomon.

In addition to this there are several enclosures which, although not exactly dated, are known to have been built by Justinian, viz. Ammaedara, Laribus, Milevum, Tigisis, Timgad, and Lems. To these may be added two of uncertain date: Tifech and Tobna. All these, without exception, have straight-through entrances.

The four alleged examples of a bent entrance are Gigthis, Thelepta, Thignica ('Ain Tunga), and Belleze ma. Gigthis may be eliminated at once, for Constans says that the entrance is 'précédée d'un palier carré surélevé auquel on accédait non point de face, mais par le côté gauche'. It therefore belongs to the 'oblique approach' class.

Diehl gives a plan of Thelepta showing a rectangular enclosure flanked by twelve towers with only one entrance, a bent one, in the central tower of the west side. He says:

Unfortunately the fortress of Thelepta is one of the worst preserved of those that have come down to us from the Byzantine period. Its fallen walls can no longer be distinguished except as confused piles of stones; its towers can be recognized with difficulty by slightly higher mounds. However, important excavations, carried out in 1885 under the direction of Commandant Pédoya, have laid bare a part of the ramparts.

Pédoya, therefore, is our basic authority. He says:

The walls are completely overthrown. . . . Excavations, very difficult because of the enormous clearance which had to precede them, permitted us to reach the foundations and to trace the perimeter of the fortifications with sufficient exactitude, as well as a great part of the detail of the towers and bastions.

And what did he find? Six gateways, two in the east, south, and west sides, as well as a small postern, all of the straight-through type. As for Diehl's alleged bent entrance, Pédoya shows it as a hollow square tower with a small door leading from the town into its interior! I therefore decline to accept the alleged bent entrance at Thelepta, for Diehl, who did not stop there long enough to make excavations, appears to have modified Pédoya's plan without secure grounds for doing so.

'Ain Tunga (Thignica), however, is certainly a good example of what we are seeking, the entrance being in the flank of a tower and wide enough to serve as the main entrance. But Saladin calls attention to the setting of the masonry round the entrance and exit arch, and points out that both door-frames and arches have been taken, stone by stone, from some ruined Roman monument and re-erected here, and that there is no proper fitting of the masonry round the stepped extrados of the two arches. What are we to think? The masonry of the rest of the enclosure and towers does not show such gross incompetence. Is it not possible that these two archways are a subsequent insertion, and that the original entrance was somewhere else? So convinced was I that this must be the case that I decided to visit 'Ain Tunga when I was in Tunisia in 1934. I examined the bent entrance and noticed the bad jointing and packing round the extrados, and I ob-
served at the same time that the masonry was perfectly fitted round the stepped extrados of an arched doorway leading into the south-east corner tower. I then proceeded to walk round the enclosure. When I arrived on the west side I saw, in the centre of the curtain-wall, the very thing the existence of which I had predicted, but scarcely expected to find visible above ground — viz. the top of an arch with enormous voussoirs about a metre (34 ft) deep, which can only be the top of the original straight-through entrance to the fortress, standing as it does on the road from Carthage to the interior.

This leaves Bellezma only, a rectangular fortress measuring 125 by 112 m. (410 by 370 ft), flanked by eight rectangular towers. According to Diehl, the only entrance is in the central tower on the west side; he shows it as a bent entrance, with entrance and exit only 1.25 m. (4 ft) wide. Is it possible that the only entrance to an enclosure of this size was a little postern, too narrow even for a loaded donkey to pass? So convinced was I that this cannot have been the main gate that when I met Monsieur Leschi of the Service of Antiquités in 1937, I mentioned my doubts to him, saying that I was convinced that the original entrance, when found, would prove to be of the normal Roman propylaculum type, and I expressed the hope that excavations might be conducted to settle the question. He replied that this had already been done by his predecessor, M. Albertini. The north gate, which formed a rectangular salient, had been laid bare, and was found to consist of two gateways on the same axis, with a court 6.35 by 6.10 m. (20 3/4 by 20 ft) between. Above the inner gateway was a lintel with a much-damaged inscription in the name of Solomon, Justinian’s Prefect of Africa. In other words, it was exactly the type of gateway I had predicted. As for Diehl’s west gate, it was covered by earth and nothing was to be seen (if indeed it ever existed).

So we need have no hesitation in saying that there is no known Roman or Byzantine bent entrance in North Africa or Syria, and that the four entrances of al-Mansūr’s city are the earliest examples of a bent entrance after Shūnet az-Zebib.

The next example of a bent entrance would appear to be the south gate of the Citadel of Ančyra (Angora). On the south side is a gate in the flank of a great salient, leading into a court measuring about 17 by 11 m. (56 by 36 ft), from which a gate about 3 m. (10 ft) wide, at right angles to the first, gives access to the Citadel. There are two inscriptions in the name of the Emperor Michael; Grégoire has shown conclusively that the Emperor in question must be Michael III (847–67), and he has succeeded in deciphering the date at the end of the second as the Year of the World 636, 7th Indiction = 10 June 859.

This is the first example known to me of a Byzantine bent entrance; so we most certainly cannot say, with Deschamps, that it was ‘un procédé emprunté à la construction militaire byzantine qui en présente de nombreux exemples’.

The Palace of al-Mansūr at Baghdād

al-Mansūr’s palace was known as the Palace of the Golden Gate. It was a square of 400 cubits a side, and lay in the middle of the ‘Round City’. There was an īmān, that is to say a tunnel-vaulted hall open at one end, measuring 30 cubits deep and 20 cubits wide, with a room at the back, 20 cubits square and 20 cubits high, covered by a dome. Above this was a second room, of the same area and height, also covered by a dome. This was the celebrated Green Dome, on account of which the palace was also known as al-Qubbat al-Khadrā. The total height was 80 cubits.
THE GREAT MOSQUE OF AL-MANSÛR

The only description of this mosque that we possess is that given by al-Khatib. It runs as follows:

Abū Ja'far al-Mansūr had established the principal mosque . . . in contact with his palace - it is [what is now known as] the Old Court - he built it with sun-dried bricks and clay; its dimensions were as follows: the dimensions of the palace of al-Mansūr were 400 by 400 cubits and those of the mosque 200 by 200; and the columns of wood of the mosque each consisted of two pieces. . . . Ibn ʿArabī says: the qibla needed turning slightly towards the Basra Gate. The great mosque remained in the same state until the time of Ḥārūn ar-Rashīd. Ḥārūn ordered its demolition and reconstruction with kiln-baked bricks and gypsum. This was done and they inscribed the name of Ḥārūn ar-Rashīd on it, mentioning . . . the name of the architect, of the carpenter, and the date; this inscription is to be seen to this day, on the outside wall of the mosque on the side next to the Kuhrāsīn Gate. [Here follows another account.] The mosque of Abū Ja'far al-Mansūr was demolished, enlarged, and solidly rebuilt; the work, commenced in 1392, was finished in 1393 (= 808-9). The Friday prayer was celebrated in the Sahīr al-ʿātiq (the old court), which had been the mosque before it had been enlarged by taking in the Dār al-Qattān which had been a Government Office of al-Mansūr. This became the praying place for the people and that in the year 260 (873-4) or 261 (874-5). al-Mu'tadid billāh afterwards added the first court, which was [part of] the Palace of al-Mansūr; he joined it to the mosque by opening 17 arches in the partition wall between the Palace and the Old Mosque, of which 13 opened into the sahū and 4 into the side arcades. He transported the pulpit, the mihrāb and the maqṣūra into the new mosque. [Another account,] al-Mu'tadid billāh was informed that there was not sufficient room . . . and that this want of room compelled people to pray in places where prayer was not permissible (i.e. the Dār al-Qattān). He then ordered its enlargement at the expense of the Palace of the Commander of the Faithful. A mosque was built there after a pattern of the first one, of the same size of nearly so. Then the sa'dr [i.e. the qibla wall] of the old mosque was opened and joined to it, and the people found ample room there. The completion . . . took place in 280 H. (893-4).60

Reconstruction

Herzfeld remarks61 that the statement that seventeen arches were made in the partition wall, of which thirteen opened into the court and four into the side aisles, shows that the old mosque must have had seventeen aisles from left to right and that the side aisles must have been two deep. As for the aisles of the sanctuary, he suggests five on the analogy of the Mosque of Ibn Tūlūn. That is as far as I follow it. I must emphasize that al-Khatib merely says the mosque was built in contact with the palace, without specifying on which side. We are therefore free to choose so let us place it, not as Herzfeld does on the south-west side of the Palace, but where one would expect it to be, viz. on the north-east side, with its qibla wall in contact with the Palace, so as to enable the Khalif to pass from the latter directly into the maqṣūra through a door in the qibla wall, as was the practice in the first few centuries of Islam, and see how this fits the facts. Now for the part added, which was (1) built against the sa'dr, i.e. part farthest from the entrance, and (2) built on part of the ruined Palace area. Let us cut arches in the back wall, as shown (141) and add a duplicate of the first mosque, minus the north-eastern riwash, which obviously is not needed, and transfer the mihrāb, pulpit, and maqṣūra to the new mosque, in accordance with al-Khatib. We now have a mosque nearly but not quite as large as the first mosque (as al-Khatib says: ‘of the same size or nearly so’), and separated from it by a covered colonnade, so that Muqaddasi, a century later, was able to say of the mosque of Ṣafā in Fās, that it had two sahnīs like that of Madinat as-Salām (i.e. Baghdad), and between them a covered part. Everything agrees perfectly with al-Khatib’s account, and there is no need to suggest (as Herzfeld does) that the Dār al-Qattān was any longer used for prayer, for that was the very thing the enlargement was intended to render unnecessary.

Lassner’s Reconstruction of the Round City, Palace and Mosque

In his recent book, Lassner proposes an alternative reconstruction of the round city.62 He points out that Ya’qūbī mentions two additional buildings in the central court, one adjacent to the Damascus Gate housing the chief of the guard and his troops, the other (location uncertain) being a large portico containing the dār of the chief of police and presumably room for his men. Moreover, Ya’qūbī also indicates that the residences for al-Mansūr’s younger children, his servants in attendance,
the slaves, the treasury, the arsenal, the ḍiwān of the palace personnel, the public kitchen and various other government agencies were built surrounding the central court, and must thus have formed a ring of buildings between the third intervallum, which marked the limits of the residential area, and the central court itself. This is supported by Tabari, whose text implies that the gates of the chambers of a group of al-Mansūr’s generals and scribes opened onto the court. Lassner concludes:

The textual evidence of a sizeable ringed structure between the intervallum of the residential area and the central court, is obviously more plausible than the enclosure wall invented by Herzfeld. Moreover, the existence of a ringed structure provides for a lengthening of the main gateways leading to the Caliph’s palace, thereby leaving sufficient space for the second series of arcades. The small arcades which framed the inner ring are presumably identical in structure with the large unit that framed the residential quadrants; both are situated along the same access leading to the great central court. The distinction between the two arcades is then in the number of arches, rather than the position or function.

Lassner’s suggested plans of the city and ṭāqāṭ are shown (138, 140).

As to the form of the palace itself, it should be noted that al-Khatib mentions only one ḍiwān. Creswell followed Herzfeld in drawing the palace as a cruciform four-ṭāqāṭ building, on the analogy of the Dār al-Imārah of Abū Muslim at Merv (above, p. 229). Lassner follows Grabar in reconstructing it as a single-ṭāqāṭ palace.

Turning now to the Great Mosque of al-Mansūr, Creswell overlooks the fact that one of the two accounts in al-Khatib says that Ḥārūn ar-Rashid enlarged, as well as rebuilt, the mosque of al-Mansūr. In this case, the approximate doubling of the mosque size by al-Mu’tadid billāh was not a doubling of al-Mansūr’s mosque, as Creswell suggests, but a doubling of Ḥārūn ar-Rashid’s mosque, which was already larger than al-Mansūr’s. Lassner further points out that there were three possible ways for Ḥārūn ar-Rashid to enlarge al-Mansūr’s edifice: he could have lengthened it, widened it, or combined a mixture of the two. Lassner prefers the latter possibility, which would have provided for either a square, or a rectangle of an acceptable ratio—presumably 2:1 or 3:2. He writes: ‘Since the theoretical possibilities are limited by the size of the adjoining palace (400 × 400 [cubits]) the most acceptable rectangle
would be $375 \times 250$ cubits, that is to say, an enlargement of 25 cubits for each side, and 175 cubits in the length, resulting in a ratio of $3:2$. The mosque of al-Mu'tadid billâh would then have measured 750 by 250 cubits, a ratio of $3:1$. If, on the other hand, Hârûn ar-Rashid had rebuilt al-Mansûr’s mosque as a square structure of 300 by 300 cubits, al-Mu'tadid’s mosque would have had a ratio of $2:1$.

NOTES

1. p. 259, ll. 4–9.
3. Compare this search for the site of a capital with that made by Idris in 805–6 before choosing the site of Fez (Rawd al-Qirâs, Beaumier’s transl., pp. 31–5), al-Mu’tasim’s search for the site of Sâmarra in 836, and the first Fatimid Khalif’s search for the site of Mahdiya in 912–13.
4. Ya’qubi, Geography, p. 238.
5. III, p. 277.
6. Taking a cubit at 51.8 cm., we get 2,638 m. for the diameter.
7. al-Khatib, pp. 8–9.
13. p. 17.
14. p. 239, ll. 16–17.
15. p. 239, l. 16.
29. Istakhri, p. 124.
33. p. 226, ll. 2–6.
34. Nippur, p. 188.
35. Bk. I, cap. 179.
36. Das wieder erstehende Babylon, p. 31.
37. Andrae, Die Festungswerke von Assur, p. 15.
40. Ayrton, Abydos, II, pp. 46–9 and pl. 69.
42. Bk. I, cap. 5.
43. L’Afrique byzantine, p. 160.
44. Il Monastero di S. Simeone presso Assuan, I, p. 20.
46. For Halabiya and Zulubiya, see Herzfeld, Archäologische Reise, II, pp. 377–89 and 374–81.
47. Spanner and Guyer, Rosafa, pp. 18–22.
49. In Syria, vii, pls xi–xiii.
50. In the Nouvelles Archives des Missions Scientifiques, n.s. Fasc. xiv, p. 98.
59. al-Khatib, p. 10.
60. pp. 59–61.
64. Lassner, pp. 189–93.