K. A. C. CREWSWELL

A Short Account of
Early Muslim Architecture

Revised and supplemented by James W. Allan

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Part One
THE UMAYYAD DYNASTY
CHAPTER I

Primitive Islam

THE KA'BA

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 these lived in dwellings which were scarcely more than hovels. Those who lived in mud brick houses were called ahl al-madar, and the Bedawin, from their tents of camel’s-hair cloth, ahl al-sahba.\(^1\)

The sanctuary at Mekka, in the time of Muhammad, merely consisted of a small roofless enclosure, oblong in shape, formed by four walls a little higher than a man, according to Ibn Hisham, or about 9 cubits (say 4.5 m.; 15 ft) according to Azraqi, built of rough stone laid dry. It was oblong in shape, the following being the measurements of its sides, according to Azraqi: north-east 32 cubits, north-west 22, south-west 31, south-east 20. Within this enclosure was the sacred well of Zemzem. This little sanctuary, known as the Ka’ba, lay at the bottom of a valley surrounded by the houses of Mekka, which came close up to it, and we are expressly told that when ‘Umar wanted to surround it by an open space, large enough to contain the Faithful, he had to demolish many houses.\(^2\)

The Rebuilding of the Ka’ba

The Ka’ba, being in a bad state, was demolished and reconstructed by the Quraysh, when Muhammad was in his thirty-fifth year, i.e. in AD 608. The Quraysh took the wood of a ship which had been wrecked, and employed a carpenter and builder named Bāqūm, who had been on the ship, to help them in the rebuilding. Azraqi\(^3\) says that the new Ka’ba was built with a course of stone alternating with a course of wood up to the roof, there being sixteen courses of stone and fifteen of wood, that is to say there were thirty-one courses, beginning and ending with a course of stone. Azraqi’s statement that Bāqūm was a builder and carpenter now becomes understandable – to erect such a structure a man would need to be both. The walls were probably covered with a coating of stucco, because it would appear, from

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Note.
In Chapter 1, a sub-section on minbars has been included, based on Early Muslim Architecture 1969, I, 1, pp. 13–14; additional information has been included on the Great Mosque at Kufa, based on Early Muslim Architecture 1969, I, 1, p. 48; and a section has been added on the Dār al-Imara at Kufa, based on Early Muslim Architecture 1969, I, 1, pp. 48–58. This latter material has been abbreviated and slightly rearranged to make the resulting information more logical, and two short sub-sections, on the dating of the palace, and the architectural origins of the triple-aisled hall, have been added. The latter sub-section draws on Early Muslim Architecture 1969, I, 1, p. 53, n. 4, which is worthy of more publicity.
Azraqi’s account of the burning of the Ka’ba in AD 683, that it was only then that the people discovered, apparently with surprise, that its walls were partly constructed of wood. The door, which had previously been at ground level, was now placed with its sill 4 cubits and a span from the ground. The roof rested on six pillars (sawări, plural of sāriya) arranged in two rows of three each. Total height of structure: 18 cubits, from which it follows that each course was roughly 31 cm. high. Azraqi says that on the ceiling, walls, and columns were pictures (sawar) of the Prophets, trees, and angels. On the column nearest the door was a picture of Abraham, and another of Mary with Jesus on her knee. This statement is so little known, and so remarkable, that I think it advisable to mention that Azraqi, who died in AD 858, is the oldest historian of Mekka. His history is mainly based on material collected by his grandfather before the end of the eighth century.

Architectural Origins

Where can this remarkable style of building, with alternate courses of stone and wood, have come from? Certainly not from a country like Arabia, where timber is scarce; it can only have evolved in a country where wood was plentiful, and it is precisely in such a country – Abyssinia – that many examples of this extraordinary technique are to be found, e.g. the churches of Debra Damo, Debra Libanos, Imrahanna Kristos (Imraha), and Asmara. Unfortunately the oldest of these churches does not go back beyond the ninth century; nevertheless it can be proved that this technique was employed in Abyssinia at a much earlier date, that is to say at the time when the great monolithic stelae of Aksum were carved. They are of oblong cross-section and are carved to resemble houses of many storeys, and the technique just described is counterfeited on the stone. The largest, now fallen and broken, measured 33.3 m. (109 ft) in height, tapered upward, and ended in a crescent-shape which was the symbol of Mahrem, the Abyssinian God of War. As King Ezana, the Abyssinian Constantine, was converted to Christianity in the fourth century and made it the State religion, it follows that the latest possible date for these stelae is the fourth century.

We are therefore fully justified in asserting that the peculiar technique employed in building the Ka’ba came from Abyssinia, and even more than that, for Dr Enno Littmann tells me that Bâqûm is probably an abbreviation of Endäšom, the Abyssinian form of Habakkuk, so the ‘carpenter and builder’ employed was most probably an Abyssinian.

EARLY MOSQUES

The Migration (Hijra) to Madina and Construction of Muhammad’s House

When Muhammad, as a result of the hostility of the unbelieving Mekkans, migrated to Madina in 622, he built a house for himself and his family. It consisted of an enclosure of mud brick about 100 cubits (c. 56 yd) square, with walls 7 cubits high and a portico on the north 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 (hijra) for the Prophet’s wives. All opened into the courtyard. We have a description of these huts preserved in Ibn Sa’d, due to a man named ‘Abd Allâh ibn Yazid, who saw them just before they were demolished by order of al-Walid in AD 707.

There were four houses of mud brick, with apartments partitioned off by palm branches plastered with mud, 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 by 3 cubits. One could touch the roof with the hand.

In the south-west corner of the courtyard was a primitive shelter similar to the portico on the north side, serving as a home for the poorest of those who had followed Muhammad from Mekka, who for this reason came to be known as the People of the Portico.

Such was the house of the leader of the community at Madina. Nor did Muhammad wish to alter these conditions; he was entirely without architectural ambitions, and Ibn Sa’d records the following saying of his: ‘The most unprofitable thing that eateth up the wealth of a Believer is building.’ At this time Ta’if was the only
town in the Hijāz that possessed a wall. When Madinah was attacked in 5 H. (627) it had no wall, so Muhammad had a ditch dug to defend it; the idea is said to have been due to a Persian slave named Salmān, and it created a great sensation, for nobody had ever heard of such a thing before. The word Khandaq given to it is Persian. Madinah was first surrounded by a wall in 63 H. (682–3).

The Qibla, or Direction of Prayer

At first Muhammad prayed towards Jerusalem, probably because of the immense veneration in which he saw it was held by the Jews, who at this time formed the leading community in Madinah. To enable Islam to expand there, it was obvious that an agreement would have to be reached with them, either to convert them or to oblige them to leave the place; their adhesion to Islam would be a great triumph, whereas their enmity would be the greatest danger to his ambitions. To the conversion of the Jews he therefore attached a special value; to them he made large concessions and put forth his warmest appeal. They, on the contrary, showed themselves irrevocably hostile to all his efforts, and intercourse with them became more and more strained in the second year of the Hijra, and at last he decided to break with them.

The first manifestation of this decision was the changing of the qibla, the abandonment of the idea of Jerusalem as the centre of the world, and the substitution of the Ka’bah in its place. The change came quite suddenly; Muhammad was in the Musallah (or praying place) outside Madina, and had just made the second prostration towards Jerusalem, when he received an inspiration to pray in future towards Mekka, and immediately recited the revelation recorded in the second Sūra of the Qurān. He then turned towards the south, and the whole congregation did likewise. The Musallah was henceforth known as the ‘Mosque of the two Qiblas’.

Arnold regards this event as of fundamental importance:

This change of direction during prayer has a deeper significance than might at first sight appear. It was really the beginning of the National Life of Islam: it established the Ka’bah at Mecca as a religious centre for all the Muslim people, just as from time immemorial it had been a place of pilgrimage for all the tribes of Arabia. Of similar importance was the incorporation of the ancient Arab custom of pilgrimage to Mecca into the circle of the religious ordinances of Islam, a duty that was to be performed by every Muslim at least once in his lifetime.10

Minbars

Muhammad is said to have delivered his addresses leaning against a palm-trunk fixed in the ground, but in 7 H. (682–9) according to Tabari he had a pulpit (minbar) made of tamarisk wood. It was a chair consisting of three steps, on the third and last of which the Prophet used to sit, keeping his feet on the second. Becker has shown that the minbar lacked any religious significance in the early days of Islam, and that it was a kind of elevated throne used by the temporary head of the community. Hence Abū Bakr received homage seated on the minbar, as did succeeding Khalifs, and provincial governors also ascended the pulpit on their appointment to indicate their authority. The development of the minbar into a pulpit commenced when it was introduced into the services held at the Musallah, an innovation attributed to Mu’āwiya (AD 661–80) or Marwān I as the latter’s representative. In Egypt all provincial mosques received minbars in the year 132 H. (749–50).

Minarets

In the time of Muhammad no such thing as a minaret was known, and when he and his followers first came to Madinah they prayed, according to Ibn Hishām, without any preliminary call to prayer. But having heard that the Jews used a horn (shofar) and the Christians a nāqūs or clapper, they wanted something similar for their own use. Muhammad therefore ordered Būlāl to give the call to prayer, which he was accustomed to do from the highest roof in the neighbourhood.

Death of Muhammad

No further change had taken place in Muhammad’s house at the time of his death on 8 June 632. He was buried in the room which he had occupied in his
lifetime. His house had not yet become a mosque and its transformation to such was by no means a rapid process. It apparently remained a house long after his death, for Abū Bakr, on being elected Khalīf, or Successor, made use of it in the same way as Muhammad himself. It was still a house in AD 655, when the Khalīf ‘Uthmān was murdered there, in the room next to that in which the Prophet lay buried. Caetani considers that the fundamental change took place when ‘Ali transferred the seat of government to Kūfah in 657 and Madīnah sank back to the status of a provincial town. It was then that the memories of the Prophet, with which it was so intimately associated, raised it to the grade of sanctuary, as the place where more than half the Qurān had been revealed, the place which had been his home for ten years, and finally his grave. In any case the transformation to a mosque was completed by AD 674, when the Feast of the Pilgrimage was celebrated there instead of at the Musallā, which was henceforth abandoned.

Election of Abū Bakr

Abū Bakr was then elected Khalīf, or Successor. It must be clearly borne in mind that up till now there had been no foreign conquests, and a whole year had to be spent in putting down revolts before campaigns outside Arabia could begin. But clashes with Arab tribes on the borders of Syria and ‘Irāq soon led to great expeditions against the Byzantine Empire on the one hand, and the Sasanian on the other. By the end of AD 637 the whole of Syria and ‘Irāq was in the hands of the Arabs, and the conquest of Egypt was to follow.

To understand how Muslim architecture was born and to explain its early evolution and duality we must study the circumstances of the Arab Conquest. The Arab advance was fanatical. At first they followed approximately the line taken by the present Hijāz Railway; then one detachment turned left at the level of Jerusalem, a second at the level of Damascus, whilst a third turned 45° to the right to the conquest of ‘Irāq, and reached the Euphrates at the place where Basrah was founded. The armies soon found themselves in two totally different cultural environments. Those who had entered Syria found themselves in a region which had been under Hellenistic influence for nearly a thousand years, i.e. from the time of Alexander down to the Arab Conquest in AD 637–8. Those who entered ‘Irāq (and Persia shortly after) found themselves in a region which had been under Persian influence for even longer.

And not only were the cultural conditions different, the material conditions were different also. Syria was a country of splendid building materials. Syrian limestone was the best of its kind, resisting weathering and acquiring a beautiful amber tint on exposure, and cedarwood was plentiful, for the Lebanon had not yet been deforested. So the seventh-century invaders found themselves in a country of splendid buildings — churches of cut stone, some of ashlar in courses 90 cm. (3 ft) high, with arcades on marble columns, gable roofs of cedarwood and large surfaces decorated with paneling of quartered marble, and coloured glass mosaics on a glistening gold background.

In the other cultural sphere they met with buildings of brick, sometimes only of mud brick, sometimes vaulted, and sometimes with flat roofs of palm-trunks, palm-leaves, and mud.

Conversion of Churches into Mosques

In these early days, the Muslims, when they conquered a town in Syria, usually took one of the churches and used it as a mosque, or merely divided one of the churches if the town had surrendered without resistance. At Homs, for example, they took a fourth part of the Church of St John. At Aleppo, according to Baladhuri, they took half the churches. How was a church converted into a mosque? One can easily guess. In Syria the qibla (direction of Mekka) is due south, whereas churches are turned towards the east. Under these circumstances it was only necessary to close the western entrance (or three entrances), pierce new entrances in the north wall, and pray across the aisles. That this is exactly what happened can be verified in the Great Mosque of Hamā, where the west front of the Kanisat al-Uzma (Great Church), which was converted into a mosque in AD 636–7, now forms the west end of the sanctuary. Its three western doors have been converted into windows and it is now entered from the north.
The Situation in Persia and 'Irāq

In Persia the Muslims apparently utilized existing buildings also, for Muqaddasi says: 'The Friday Mosque at Istakhr [Persepolis] . . . is constructed after the fashion of the congregational mosques of Syria with round columns; on the top of each column is a cow. They say that it was formerly a Temple of Fire.'12 From the reference to bull-headed capitals I conclude that it was originally an apadāna, or hypostyle hall of the Persian kings, with a flat roof resting on columns with double bull-headed capitals (1).

At Qazvin the first Friday Mosque, built by Muhammed the son of Hajjāj (d. 710), was known as the 'Bull Mosque.' This again suggests the use of ancient Persian columns, perhaps even the actual conversion of an apadāna.

But the situation was different in 'Irāq, for here the Arabs founded new towns (which they did not do in Syria),13 so pre-existing buildings could not be employed, and they had to construct some sort of place for themselves, and although none of these primitive mosques has survived to the present day, descriptions of several have come down to us. What manner of buildings were the first mosques of the earliest towns in Islam?

At Basra, founded about AD 635, the first mosque, according to Baladhuri,14 was simply marked out (ikhtatta), and the people prayed there without any building. According to another version, also given by Baladhuri,15 it was enclosed by a fence of reeds. At Kūfā, founded in AD 638, the first mosque was equally primitive. Its boundaries were fixed by a man who threw an arrow towards the qibla, then another towards the north, another to the west, and a fourth to the east.16 A square with each side two arrow-casts in length was thus formed. This area was not enclosed by walls but by a ditch only, and the sole architectural feature was a covered colonnade (sulla), 200 cubits long, which ran the whole length of the south side.

The columns were of marble, taken from some buildings of the Lakhmid Princes at Hira, about 4 miles away. This sulla was open on all sides, so that, in the words of Tabari17, a man praying in it could see the convent
known as Dayr Hind and the gate of the town known as Bāb Jisr.

On the qibla side, and only separated from the praying place by a narrow street, was built an official residence (Dār al-Imāra) for Sa‘d, the Commander-in-Chief. Included in it was the public treasury (Bayt al-Mā‘l). One night some thieves made a hole in the wall and stole the money, whereupon Sa‘d wrote to the Khalīf ‘Umar informing him of the fact and describing the topography of the spot. ‘Umar replied ordering him to shift the mosque so that it was in contact with his residence, ‘for the mosque has people in it day and night; they are the best safeguard for their treasure’.18

It is important to observe that already at this early date we have a group – a square mosque with a Governor’s residence built against its qibla side – which we shall persisting for more than two centuries although derived from two trivial facts – viz. the marking out of the mosque by arrow-casts and a burglary.

The First Mosque at Jerusalem

None of the early Arabic historians, such as Baladhuri and Tabari, speaks of the construction of a mosque when Jerusalem capitulated to ‘Umar in 637, and the statements of Christian historians such as Theophanes, Elias of Nisibis, and Michael the Syrian that a mosque was built are accompanied by legendary details. However, there is no doubt that some primitive structure was erected at this time, for the early pilgrim Arculf, who visited Jerusalem c. AD 670, gives a description of it, saying:

But in that renowned place where once the Temple had been magnificently constructed, placed in the neighbourhood of the wall from the east, the Saracens now frequent a quadrangular place of prayer, which they have built rudely, constructing it by setting great beams on some remains of ruins; this house can, it is said, hold three thousand men at once.19

This may be called the First Aqsā Mosque. As for these ruins, they must have been those of the Royal Stoa of Herod, destroyed by the army of Titus in AD 70. According to the description of Josephus,20 it consisted of a three-aisled portico which extended the whole length of the south side of the Temple area. It was like a basilica, of which the side aisles were 30 ft wide and 50 ft high and the central aisle half as wide again and twice as high, which certainly implies clerestory lighting. There were 162 columns of the Corinthian order, set in four rows, of which the southern were bonded into the outer wall, whereas the northern formed the façade on the court.

Eutychius tells a curious story in connexion with the capture of Jerusalem which shows that the early Muslims were not particular as to where they prayed. He says that ‘Umar visited the Basilica of Constantine and prayed at the top of the flight of steps leading up to the entrance, after which he went to Bethlehem and prayed in the southern apos (al-haniya al-qibiyah) of the Church of the Nativity. He adds that in his day (AD 939) the Muslims had taken possession of half the narthex of the Basilica of Constantine at Jerusalem.21

The First Mosque in Egypt

The conquest of Egypt took place in 640–41, and the Mosque of ‘Amr was built at Fustāt in the winter of 641–2. Here again we have the testimony of an eye-witness, Abū Sa‘īd Sulaf al-Himyari (preserved in Maqrizi),22 who was present one day when ‘Amr presided at the Friday prayer. It was small and primitive and measured only 50 by 30 cubits, say 29 by 17 metres (95 by 56 ft). It had two doors on every side except on the qibla side. The roof was very low and there was no interior court. The floor was not paved, but simply strewn with pebbles. Although small, it was too large to be spanned by single beams: we are not told how the roof was supported, but there can be little doubt that palm-trunks were used as columns to support beams of split palm-trunks and a thatching of palm-leaves and mud, exactly as in Muhammad’s house at Medina twenty years earlier. The walls were not even plastered and were doubtless of mud brick.

Introduction of the Maqṣūra

According to Ibn Khaldūn, the enclosure in which the Sultan stands during public prayers is an enclosure which includes the mihrah [praying niche] and its neighbourhood. The first maqṣūra was established by Mu‘āwiya as
a result of the attempt of the Kharijite who had struck him with a sword. According to another account it was [the Khalif] Marwan the son of al-Hakam [AD 683–5] who introduced the custom after having been stabbed by a Yemenite. 23

This, the explanation usually accepted, has been contested by Lammens, who points out that the date 44 H. (664–5) given by Ya'qubi24 antedates the attempt on Mu'awiya's life and puts Ibn Khaldun's explanation out of court. Admitting this, the fact still remains that of the first four Khalifs, three were murdered, two in the very mosque itself, so Mu'awiya already, before 664, had ample reasons for taking such a precaution. All existing maqsuras are open screens of mashrabiya, the oldest existing one being that of Qairawan (first half eleventh century).

The Great Mosque of Basra, rebuilt AD 665

In Syria at this time we do not hear of any building activity, no doubt owing to the fact that in most towns the Muslims had either divided or taken complete possession of the principal church. In Mesopotamia, however, conditions were different, for two new towns, Basra and Kufa, had been founded, and it is here apparently that Muslim architecture really began to make progress under Ziyad ibn Abihi, who was appointed Governor of Basra in 665.

The mosque at this time, according to the expression of Wellhausen, was the forum of primitive Islam, the place of assembly, where decisions affecting Islamic society were taken. Thus we see Khalifs on the first day of their reign, and Governors arriving at the capital of their province, going directly to the mosque to meet their new subjects. Only after this ceremony of installation did they begin to exercise their new functions. If there were important despatches to be communicated, or if it were necessary to influence public opinion to get a measure adopted, a general assembly was called without waiting for Friday. Take the example of the trial of Khalid ibn al-Walid at Homs. We read that the Khalif's representative summoned Khalid from Qinnasrin, proclaimed an assembly in the Great Mosque and, standing in the pulpit, began the trial.

Ziyad, who was well acquainted with the turbulent spirit of the cities of 'Iraq, thoroughly realized the political importance of the mosque, that dominating position in which was concentrated at that time the political and social life of the Arab Empire. At the same time he felt that the masjids of the tribes were a danger to him, hence his anxiety to embellish and enlarge the Great Mosque, so that by its splendour and proportions it would eclipse the tribal masjids and attract all to it.

Baladhuri says that Ziyad greatly enlarged the mosque, using burnt brick and mortar, and roofed it with teak. The roof of the sanctuary rested on five rows of columns, the stone for which came from Jabal Ahwaz. Pebbles were spread on the ground, because when people prayed their hands became covered with dust, which they used to remove by clapping. This caused Ziyad to say: 'I am afraid that in the course of time the clapping of hands will be taken as part of the religious ceremony.'

At the same time Ziyad removed the official residence from the north-east to the qibla side of the mosque, saying: 'It is not fitting that the Imam should pass through the people.'

The Great Mosque at Kufa, rebuilt AD 670

Tabari26 says that Ziyad summoned masons 'of the Days of Ignorance' (i.e. non-Muslims), saying that he wished to erect a building that would be without equal. A man who had been one of the builders of Khusrau replied that that could only be accomplished by using columns from Jabal Ahwaz, the drums of which should be hollowed out, drilled, and fitted together by means of lead and dowels of iron. The roof should be 30 cubits (15 m.; 49 ft) high. He built it with sides (side porticoes?) and back (porticoes?). Ziyad then said: 'That is what I desired, but I could not express it.' The height of the roof struck all observers. Ibn Jubayr, who saw it in 1184, speaks of it as a vast mosque, the qibla side has five aisles, whereas the rest have two only; the aisles are supported by columns like masts, composed of hard blocks of stone superimposed piece by piece, bedded on lead, and not surmounted by arches; extremely high, they go up to the ceiling of the mosque. I have nowhere seen a mosque of which the columns are so long or the ceiling so elevated.
It is obvious that its roofing system resembled that of an apadana, or Hall of Columns of the old Persian kings.

Nebuhr\textsuperscript{**} gives a little plan of this mosque which he found in a ruined and eviscerated condition in 1765. He shows it as a square measuring 68'6 double paces a side. If we take a pace to be 30 inches, then a double pace equals 60; the mosque therefore must have measured 343 feet or 104.5 m. a side. But we have seen that the original mosque of Sa'd (17 H.) measured 200 cubits a side. If we take a cubit as 51/8 cm. (1 ft) we get 103.6 m. (339 ft) a side or almost exactly the same measurement, a very satisfactory confirmation; the mosque therefore was not enlarged.

In fact the remains of the Great Mosque still exist at Kūfā, and the ‘Irāqi Department of Antiquities, some thirty years ago, made an excavation at the side of it. Internally, the present mosque measures 100'80 m. (330 ft) in width and 108 m. (354 ft) in depth, with walls 2'80–3 m. (9'1–9'9 ft) thick, strengthened with half-round buttresses. Its north and south sides are exactly parallel, and the east and west sides nearly so, so that it is not exactly rectangular, being slightly deflected towards the east. The excavators found that the half-round buttresses of the present mosque went down some 2 m. (6 ft) into the ground, at which point there was a break in the brickwork where they rested on the half-round buttresses, slightly differing in size, of an earlier mosque.

When I was in Baghdad on 25 March 1965, Dr Fuad Safar gave me the very important information that the excavations in the re-entrant angle between the qiblah side of the mosque and the west side of the Dār al-Imāra showed the wall of the mosque and the outer wall of the Dār al-Imāra to be one piece of work.

THE DĀR AL-IMĀRA AT KŪFĀ

The Excavations

In 1936 I was asked by Sāti' Beg al-Husari, then Director of Antiquities in ‘Irāq, to suggest two Muslim sites likely to repay excavation. I proposed Wāsit (see below, pp. 40–1) and Kūfā, where, I suggested, extensive remains of the Dār al-Imāra of Ziyād ibn AbīHī probably existed on the qiblah side of the Great Mosque. The first season of excavation took place in 1938, the second in 1953, and the third in 1956. They were subsequently published by the excavator Muḥammad ‘Ali Mustafā.

During the third season it soon became clear that the area examined contained the remains of a number of buildings, constructed one above the other. Three particular layers were distinguishable.

The lowest layer

The lowest layer on the site consists of foundation walls standing on virgin soil. These show that the earliest building was a palace some 114 m. (374 ft) square, with corner towers c. 6.6 m. (21 ft) square protruding 1.6 m. (5 ft) from the walls, and four rectangular towers per side. The walls are between 1'80 m. (6 ft) and 2'90 m. (6'1 ft) thick. Between the two central towers of the north side are the foundations of the gateway. These consist of an oblong bench 10'90 m. (35'1 ft) long and 1'15 m. (3'1 ft) wide adjoining the outer face of the wall between the two towers, and it is evident from these foundations that the gateway was not in the centre of the north side but slightly displaced westwards.

This layer is constructed of bricks of a large uniform size, measuring $36 \times 36 \times 9$ cm. ($14 \times 14 \times 3$ in.), regularly set and with their outer faces smoothed. Remains of separation walls for the inner dependencies, where they were discovered, showed that these were built much more carelessly, with bricks of varying sizes, and brick fragments, being used. They had, however, the same gypsum bonding.

The second layer

The second layer is composed of a palace surrounded by an inner and outer enclosure. The walls of the outer enclosure form a nearly square rectangle measuring
168-20 m. (551½ ft) from north to south and 169-68 m. (556½ ft) from east to west. The thickness of the badly damaged outer wall, as far as it could be ascertained, was about 4 m. (13 ft). It had a round tower at each corner, except the north-western, where it is in contact with the mosque, and six intermediate towers, averaging 3-60 m. (11½ ft) in diameter, on each side except the northern where there are only two, because more than half this side is contiguous with the mosque. The average distance between the towers is 24-60 m. (80½ ft).

The inner enclosure internally measures 110-24 m. (361½ ft) from north to south and 110-36 m. (362 ft) from east to west. Its walls vary in thickness from 1-78 to 1-82 m. (5½-6 ft). It is flanked by four round towers and sixteen half-round towers, with an average diameter of 3 m. (9½ ft). The entrance to the inner enclosure is exactly in the middle of its north side. The plan must be modified at this point, as later excavations have shown that it was flanked by two quarter-round towers and a pair of mastabas, and that the thickness of the enclosure wall between them and the nearest half-round towers was the same as elsewhere.

The interior of the enclosure is divided into three parts running north-south, exactly as at ‘Anjar and Mshattā.

The gate opens into a long transverse corridor (79) parallel to the outer wall. This corridor originally had an inner width of 2-70 m. (8½ ft) reduced on its outer side by two extraordinary jambs, each projecting 55 cm. (1½ ft), to a width of 1-60 m. (5½ ft) only. Later the wider part was narrowed to the same width as the outer end. There is a bench on either side of the recess and two more low benches extend from this door to a recess 1-75 m. (5½ ft) wide and 45 cm. (1½ ft) deep in the centre of the south wall of the corridor. In it were the remains of two steps, and although they found neither a sill nor any break in the brickwork, the excavators suggest that a door and sill may have disappeared in some reconstruction. About 6 m. (19½ ft) to the right of this recess is a door leading to a transverse hall (86), 5 m. (16½ ft) wide and 14-17 m. (46½ ft) long.

The long transverse corridor (79) turns at right angles at its eastern end and forms an arm (107) running south. To the west of it is a room (75), 11-15 m. (36½ ft) long and 4-17 m. (13½ ft) wide, which has a door into the transverse room (86). This door is provided with three steps because the former room is lower than the latter. It also has a door (cut later on) into portico 85. On the south side of 86 a door leads into the triple-arched portico (85). This measures 14-17 by 4-65 m. (46½ by 15½ ft), and opens onto the great central court (91). This court is almost exactly 37 m. (121½ ft) square, and it has similar triple-arched porticos to east and west, and a wider one on the south side. The latter, however, forms the main façade of a large hall, measuring 17-86 m. (58½ ft) from east to west and 16-20 m. (53 ft) from north to south, which is divided into three aisles by two rows of three columns each. The central aisle is 5-74 m. (18½ ft) wide, whereas the side aisles are only about 4-20 m. (13½ ft). But as the half-round responds of the triple-arched façade project about 75 cm. (24 ft) towards the centre, the lateral arches thereby become less than the width of the side-aisles, roughly 3-20 m. (10½ ft) as against 5-20 m. (17 ft) for the central opening. This being so, the central arch must have risen

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\frac{5^{20}-3^{20}}{2} = 1 \text{ m. (3½ ft) higher than the lateral ones,}
\]

which justifies us in assuming a ḫisṭāq, or frontispiece, here, as in the façade of the basilical hall at Mshattā (below, p. 206) and later on at Ukhaidir.

A door at the back of the central aisle opens into a room (34), 5-90 m. (19½ ft) square (which was probably domed) with a recess 1-85 m. (6 ft) deep on each side, so that its maximum width becomes about 9-60 m. (31½ ft). There is a door, 1-45 m. (4½ ft) wide, in the centre of each recess, the jambs of the northern one being decorated with stucco ornament. This ornament includes a pattern of degenerated vine-leaf with four drill holes which cannot be earlier than the beginning of the tenth century.

This hall is flanked to east and west by two rooms unequal in size. That to the east (88) measures 9-17 by 3-30 m. (30 by 10½ ft), and in its east wall are two doors opening into the passage which separates it from a large court (10) with dependencies. That on the west side of 34 (33) measures 9-60 by 6-95 m. (31½ by 22½ ft), with a door in each side. Rooms 33 and 34 each have a door into rectangular courtyard 6, which has two square
2. Kūfah: Dār al-Imāra, plan
rooms on its south side and a passage leading to a door in the outer wall of the inner enclosure.

The eastern rectangle of the palace is 35'17 m. (115\(\frac{1}{2}\) ft) wide. It is divided into a rectangular courtyard (102), measuring about 30 by 17'80 m. (98\(\frac{3}{4}\) by 58\(\frac{1}{2}\) ft), and several groups of rooms. It is not possible to say whether this courtyard was connected with the central court (91) because the débris has not yet been removed at this point. However, doors lead from it to rooms 71, 73, 78 and 105. Rooms 73, 76 and 74 are reached from room 78. Rooms 73, 76 and 74 were all paved with square bricks, measuring 22\(\times\)22\(\times\)4 cm. (8\(\frac{3}{8}\)\(\times\)8\(\frac{1}{4}\)\(\times\)1\(\frac{1}{2}\) in.) in the lateral rooms and 20\(\times\)20\(\times\)4 (7\(\frac{3}{8}\)\(\times\)7\(\frac{1}{2}\)\(\times\)1\(\frac{1}{2}\) in.) in the central one.

The complex on the south side of courtyard 102, which faces the main courtyard 91 consists of a triple-arched portico (93) on round brick piers, about 1'50 m. (5 ft) in diameter, the central opening being about 5'35 m. (17\(\frac{1}{2}\) ft) wide and the lateral ones about 1'65 m. (5\(\frac{1}{4}\) ft). This corresponds perfectly with the triple-arched façade (90) opposite, and indeed, when I was in Baghdad in May 1964, I was told that further excavations had shown that a bayt, a self-contained residential unit, must have existed behind 90 corresponding to that on the east side. At the back of 93 is an imán (95), or vaulted hall, flanked by two oblong rooms (104 and 92). A door at the back of 95 leads into a slightly smaller room (103), measuring 6'45 by 5'40 m. (21 by 17\(\frac{1}{2}\) ft). The back wall of this room has disappeared, so that it is not possible to say whether it was connected with the small courtyard (72) or not. We have here what we shall see is an 'Irāqi-Persian type of bayt (see pp. 145-6).

The portico (93) and room 92 are both connected with courtyard 19, of which only the north section has been explored. The courtyard measures about 24 by 12 m. (78\(\frac{1}{2}\) by 39\(\frac{1}{4}\) ft); it has a corridor, divided into two (94 and 18), on its east side, and another (21) on its south side, with both of which it is connected by doors.

It was found that the space between 106 to the north and 16 and 13 to the south had undergone many alterations ending in the formation of one large courtyard entered by a new door in the east side of the inner enclosure wall. In the south-eastern corner of the building are two courtyards (10 and 24). Only rooms 26 and 31 were excavated completely; in the former, basins and earthenware drainage pipes were found, in the latter ledges on which earthenware jugs had been placed.

Most of the rooms in the north half of the western rectangle belong to the third layer of the building (see below). The group of rooms on the west of courtyard 54, however, are part of the second layer and appear to constitute a typical Syrian bayt. If so, the structure is a unique example of this form in 'Irāq, where the bayt of Ukhaidir and later those of Sāmarrā follow the type found in the Sasanian palace of Qasr-i Shīrīn (see below, pp. 145-6). The rest of the dependencies of the west part consist of a great dār (dwelling unit) surrounding courtyard 35; part of this dār looks onto courtyard 54.

The third layer

The third layer may be assigned to two periods. To the first belongs the complex at the northern end of the western rectangle. This is easily distinguished by the unusual way in which the bricks are set, viz. a course set perpendicularly alternating with three to five courses laid flat, recalling Dāmghān and Ukhaidir. This complex consists of a nearly square courtyard (100), which measures 25'30 m. (83 ft) from north to south and 24'60 m. (80\(\frac{1}{2}\) ft) from east to west, on the south side of which is a large hall (55) measuring 10'40 m. (34 ft) by 18'40 m. (60\(\frac{1}{2}\) ft). Hall 55 is surrounded by small rooms all 2 m. (6\(\frac{1}{2}\) ft) wide.

On the three other sides of the courtyard are shallow niches separated by pilasters formed by pairs of engaged columns. Some are still completely preserved on the north and west sides, and traces of them exist on the east side, but there were none on the south side where three doors opened into 55. On the north side the inner face of the enclosure wall had been cut away to a depth of 42 cm. (1\(\frac{1}{2}\) ft) after which the pilasters and niches between them were constructed.

A door in the centre of the south side of 55 opened into courtyard 54. The east and west walls of hall 55 are distinguished by their great thickness, roughly 2'30 m. (7\(\frac{1}{4}\) ft), whereas the other walls of the complex are about 1'50 m. (5 ft) only. It is evident that the hall must have been covered by a vault on the north-south axis
A long descending staircase was discovered in the north-west corner of courtyard 100, and at a distance of 2 m. (6½ ft) from its west side. A door on the right at the bottom opened into a narrow vaulted gallery running parallel to the side of the staircase: this gallery formed the vestibule of a vaulted sirdāb (cool, underground room), about 10 m. (32½ ft) long and 6 m. (19½ ft) wide. Since the level of the pavement of the entrance to the staircase is 10 cm. (4 in.) higher than the level of the latest pavement of courtyard 100, the sirdāb must have been constructed later than the panelled walls which surround it on three sides.

In the second period indicated by the third layer there was little building activity, but significant changes were made in the use of the whole area, as follows:

1. Elimination of the main entrance complex, including two-thirds of the northern enclosure wall and the main entrance.

2. Elimination of courtyard 100 and all rooms to the west of it, as well as the northern part of the west side of the inner enclosure wall.

3. Elimination of a great part of the middle of the east rectangle, and its transformation into a large courtyard connected with courtyard 91.

4. Elimination of the west side of courtyard 91, and the joining of portico 90 to it.

5. Elimination of the west part of the dependencies of the hall with ailes, and merger of this area with courtyard 54.

6. The opening of many new doors and the closing of many original doors.

The result of these alterations was that the palace became open in its northern part, and a large L-shaped courtyard was formed and associated with the dependencies of the outer enclosure wall. This L-shaped area was paved with brick at a level 40-60 cm. (1½-2 ft) above the gypsum pavement of the first period of the third layer, though there are now great differences of level due to subsidence.

The Dating

How can we date these three layers and the building periods they indicate? Muhammad ‘Ali’s conclusions in the preliminary report of the second season of excavation were as follows:

1. The first layer goes back either (a) to the time of the Islamic conquest of ‘Irāq and may have been the Dār al-Imāra constructed by Sa’d ibn Abi Waqqās, or (b) it is the foundation of a dār built before the Arab Conquest.

2. The second layer with its outer and inner enclosure walls goes back to Umayyad times.

3. The third layer goes back to the first ‘Abbāsid epoch and ends at the second half of the second century h.

After the third season, Muhammad ‘Ali called attention to the form of the tower bases of the first layer, which indicates that the towers themselves were rectangular. Such towers are not known from the Islamic period, which is characterised by round ones. He also cited some important coin finds. In the unit composed of hall 55 and courtyard 100, in the second brick pavement from below, were found two copper coins bearing the name of the ‘Abbāsid Khalif ‘Abd Allāh as-Saffāh minted in Kūfā in 136 (753-4), the last year of his reign. Contrary to what Muhammad ‘Ali concluded, this indicates that that pavement cannot be earlier than 136 h. It is also notable that there were no coin finds in the latest pavement of this area dating from the reign of Hārūn ar-Rashid or later; the latest coin found was one of al-Mahdi minted in Kūfā in 167 (783-4).

Now, what do we know of the history of the Dār al-Imāra from historical sources?29 We have already seen how the first Dār al-Imāra constructed by Sa’d related to the mosque (see p. 8). Following ‘Umar’s comments, a Dīhqān of Hamadān named Rūzbih ibn Buzurgmīhr advised Sa’d as follows: ‘‘I will build it for you, and I will build you a palace (qasr) and join the two so that they will form one building.” He planned the Qasr al-Kūfā as it is, and built it with baked bricks from the ruins of a palace that had belonged to the Akāsira [i.e. the Kings of Persia] on the outskirts of Hira…. He placed the mosque in front of the rooms of the Treasury at the end of the palace to the right of the gibla [i.e. towards the west], and he extended it to the right of that as far as the rahaba [public square] of ‘Ali ibn ‘Abi Tālib so that the rahaba was in front of it. Then he extended
it [still more] so that the qibla of the mosque faced the rahaba and the right side of the palace. There is also brief mention of the dār in Baladhūrī, where it is said that Sa'd received a rebuke from 'Umar for putting a fence of reeds round his dwelling and having a wooden door made for it.30

How are we to weigh these diverse bodies of information? The answer is that they cannot be completely reconciled, but the following is a possible solution. The earliest building of Sa'd has not survived archaeologically, but its simplicity is indicated by the story in Baladhūrī. Layer 1 on the site seems to correspond to Sa'd's first strong building, built by Rūzbih using pre-Islamic bricks and forms. In this case either the mosque at this period was further south, or there remain earlier walls under the layer 2 outer enclosure walls yet to be discovered. Layer 2 indicates another pre-Umayyad or Umayyad phase, when the palace achieved its most splendid and most complete form; this was probably the work of Ziyād ibn Abīhi. Finally, layer 3 indicates that alterations were made in the early 'Abbāsid period, and the dār evidently remained important until it was abandoned sometime towards the end of the eighth century.

Architectural Origins31

The key architectural unit in this large palace complex is the triple-aisled hall with the domed room behind it.

\[ \text{Ziyād ibn Abīhi (620-632)} \]

OTHER EARLY DEVELOPMENTS

Enlargement of the Mosque of 'Amr and Introduction of the Minaret, AD 673

Thirty-two years after its foundation the people complained that the Mosque of 'Amr had become too small, so the Khalīf Mu'āwiya ordered Maslama, the ninth Governor of Egypt, to enlarge it. al-Kindi expressly says that he pulled down what 'Amr had built.32 He enlarged it towards the north-east and north-west, adding an open court in the latter direction. He also plastered the walls and spread matting on the floor in place of the pebbles which were formerly strewn there.

Maqrīzī says that the Khalīf Mu'āwiya ordered Maslama 'to build sawāmi' [plural of sawm 'a'] for the call to prayer. So Maslama constructed four sawāmi' for the mosque at its four corners. He was the first to construct them in it, there having been none there before his time'.33 This is our first reference to a minaret.

What were these four sawāmi'? Now the Khalīf who gave this order ruled from Damascus, where the Muslims at that time prayed in what had been the teūmenos, or sacred enclosure, of a Syrian temple. The teūmenos in
question was, of course, the enclosure which is now the Great Umayyad Mosque (see below, pp. 46–51). At the time of the Arab Conquest it had four square towers of no great height, one at each corner; these towers became the first minarets, for Ibn al- Faqih (c. AD 903) refers to them as such, although he knew that they were older than Islam, and Mas'ûdi says that when al-Walid built the Great Mosque 'the sawâmi' in it were not changed, they serve for the call to prayer at the present day'. There is therefore every reason for believing that the four sawâmi' of Maslama were suggested by the four towers at the corners of the temenos at Damascus.

Three words have been employed in Arabic to denote minarets: miḥāna, sawma'a, and manâra. The first is derived from adhâna, the call to prayer, and simply means the place where the call to prayer is pronounced. The second appears to have been the name given by the Arabs to hermits' towers. All Syrian church towers and minarets built before the thirteenth century are square, and in this connexion it is especially interesting to find that this word is employed throughout North Africa, where minarets are nearly always of this type. It was carried into Spain by the Arabs and has been incorporated into the Spanish language as zoma. The third term, manâra, literally means 'a place where fire (nâr) burns'. For this reason it was applied to the Pharos, at the top of which a fire burnt at night, then to lighthouses generally, and then, by analogy, to mosque towers, our word 'minaret' being derived from it.

**Death of Mu'awiya, AD 680**

Before his death Mu'awiya warned his son Yazid against Husayn and 'Abdallah ibn az-Zubayr, a warning that turned out to be fully justified, for a few months later the former set out for Kufa, intending to set himself up as Khalif. He was stopped at Kerbalâ, and a few days later met his death under very tragic circumstances. This produced a reaction in favour of the House of 'Ali, a reaction which grew rapidly and ultimately brought about the fall of the Umayyad Dynasty in 750. Its immediate consequence was that Ibn az-Zubayr set himself up as rival Khalif at Mekka, whereupon Yazid dispatched a force which took and sacked Madina in 683 and then marched on Mekka. After a siege of two months the Ka'ba caught fire (we have seen above that it was built of alternate courses of stone and wood), and was destroyed. Shortly after Yazid died the siege was raised, and Ibn az-Zubayr was left in possession as rival Khalif.

**Rebuilding of the Ka'ba, AD 684**

Ibn az-Zubayr demolished what was left of the Ka'ba in 684 and built a new one with walls 2 cubits thick entirely of stone. Mas'ûdi says that glass mosaics were taken from a church at San'a in the Yemen which had been built by Abraha the Abyssinian during the invasion in the middle of the sixth century. This is the earliest instance of the use of mosaics in Islam, for it antedates those of the Dome of the Rock by seven years. Also from San'a came the marble columns and the marble glazings for the windows. The ceiling beams were carved and gilded teak, and a carved and gilded frieze ran round the top of the walls. Persians were employed, for the Kitâb al-Aghâni mentions 'the Persians singing in Persian when they were building the Ka'ba for Ibn az-Zubayr'.

**Summary**

It would appear that the pre-Islamic Arabs had but the crudest notions of building, that their principal sanctuary before 668 was nothing more than four walls the height of a man enclosing the sacred well Zemzem, and that in the early days of Islam they brought nothing architectural to the conquered countries beyond what would serve their simple ritual requirements. At this time nine-tenths of the population were nomads, for whom the finest architecture is the tent of camel's-hair. It is clear, as Richmond has expressed it, that their architectural resources, before they 'started on their career of conquest, were barely enough to give the rudest expression to their needs'. In other words, Arabia constituted an almost perfect architectural vacuum, and the term 'Arab' should never be used to designate the architecture of Islam. The first mosques in the great hirâs, or half-nomadic encampments of the conquest,
such as Basra, Kūfa, and Fustāt, were primitive in the extreme, and in Syria the first mosques were churches that had been converted or merely divided: in fact there is no reason for believing that any mosque was built as such in Syria until the time of al-Walid (705–15) or possibly ‘Abd al-Malik (685–705). For over a generation the Arabs remained quite untouched by any architectural ambitions and showed not the slightest desire to make use of the developed architectural talent of the conquered peoples. When they did begin to feel such ambitions it was chiefly for political reasons. They then turned to Sasanian architects on the Mesopotamian front (e.g. at Kūfa) and to Syrian architects on the Syrian front. We shall now study the splendid buildings for which the latter must receive the credit.

NOTES

1. B. Finster, ‘Zu der Neuauflage von K. A. C. Creswell’s Early Muslim Architecture’, Kunst des Orientis, IX (1973–4), pp. 88–98, suggests that Arabian towns of this period did indeed have buildings worthy of the name of architecture, in particular, forts, houses, shrines, and temples. [J.W.A.]
2. Baladhuri, Futūh, p. 46.
5. See Creswell’s ‘Ka’ba in AD 668’, in Archaeologia, xciv (1953), pp. 97–102. Finster in Kunst des Orientis, IX, pp. 88–98, draws attention to other cube-shaped buildings in Arabia mentioned in early Arabic literature, and suggests that the Ka’ba could therefore have been part of an Arabian building tradition. [J.W.A.]
9. Ibn Hishām, I, p. 427; Ibn Sa’d, I, pp. 5–3; Bukhārī, Bk. viii, c. 31–2; Tabari, I, p. 1279–81, etc.
13. With the exception of ‘Anjar, founded by al-Walid I, and Ramla, founded by the Khalif Sulaymān.
15. P. 346 and 350.
17. Tabari, I, p. 2494.
18. Tabari, I, p. 2491, l. 12 to p. 2492, l. 7.
27. de Goeje’s ed., p. 211.
29. Creswell in EMAI, (1969), pp. 57–8 never reaches a positive conclusion about the dating of the various phases of the Dār al-Ilmāra. The remainder of this section is an attempt to rectify that. [J.W.A.]
31. This section has been added to Creswell’s text, but in fact draws on a footnote in EMAI, (1969), p. 53, which seemed worthy of more consideration. [J.W.A.]
35. P. 108.
39. III, p. 85, l. 4.
CHAPTER 4

The Works of al-Walīd (2)

QASR BURQU'

Qasr Burqu' is situated about 25 km. (15½ miles) northwest of the pumping station H4 on the road from Mafraq to Baghdad, and was first visited by the Field Museum Arabian Desert Expedition in 1928. A short report on the site was published by Schroeder in 1960 and a more detailed study by Gaube in 1974.¹

Description

The ruins (56) consist of a courtyard enclosed on the north-west and south-west sides by plain walls, and on the south-east and north-east sides by ranges of rooms. In the courtyard is a rectangular tower. On architectural grounds four stages of building can be distinguished, excluding the rectangular tower. Stage ¹ consists of the circular room 11, which had a second storey and bears a Greek cross and some Greek letters on its lintel. Stage 2 consists of the enclosure and rooms 2, 3, 5, 7, 9, 10 and probably 6, though it should be noted that room 6 is not bonded into room 5. A third stage consists of room 4, which has been added to room 3, and possibly room 6; the final stage consists of rooms 1, 8 and 12. Traces of an upper floor are preserved in rooms 2, 8 and 12, as well as 11, but the staircase on the courtyard façade between the doors leading to rooms 3 and 5 can only have led for structural reasons to a roof terrace. This terrace was surrounded by a wall 1 m. (3½ ft) high.

The ruins lie on the bank of the Wādí Miqat, which is today blocked by a small dam some 2 km. (1½ miles) to the north-west of the site. When Gaube visited Burqu' a small lake had formed which reached the foundations of the south-west wall of the Qasr. From the fact that these foundations were in exact alignment with the limits of the water he concluded that a similar dam had existed when the enclosure was first constructed.

Note.

In Chapter 4, 'Qasr Burqu' is a new section based on recent archaeological work. So too is 'The Palatial Complex in Jerusalem'. As regards Qasr Kharrāna, Creswell believed it to be pre-Islamic, and the reasons for that belief are quoted in full. However, Gaube's historical studies of the period and various architectural features suggest to the reviser that Kharrāna is more likely to date from the reign of al-Walīd I. The section on that building has therefore been included in this chapter, along with a brief résumé of the arguments in favour of an Umayyad dating. To Creswell's section on Qusayr 'Amra have been added descriptions of paintings discovered by the Spanish Archaeological Mission, together with brief descriptions of the hydraulic works adjoining the palace and mention of the archaeological remains of certain other related buildings in the vicinity. The section on Jabal Sās is abbreviated from Early Muslim Architecture 1969, I, 2, pp. 472-7, with the addition of a general plan of the site published by Sauvaget and a few general details taken from Sauvaget and Brisch, while that on 'Anjar is abbreviated from Early Muslim Architecture 1969, I, 2, pp. 478-81.

57. Minya: plan of al-Walid's palace (from Putrich-Regniard, 'Die Palastanlage von Chirbet el Minje')
The Date

The rectangular tower in the courtyard is quite distinct from the rest of the complex but similar to structures to be found throughout eastern Syria. There is no doubt that it is a watch-tower of Romano-Byzantine date designed to guard the well on the site for the caravans using the great trading route from Arabia to Syria. A Greek tomb inscription found on the site suggests a third-century date. The cross and Greek letters on the lintel of room 11 suggest that the site became a monastic settlement in the fifth and sixth centuries, and this room is probably of the latter period.

The expansion of the site in Umayyad times, in the year AD 700, is proved by a stone with an inscription now used as the lintel of the door of room 7. This reads: ‘Oh God! In the name of God, the compassionate, the merciful! This is what the amir al-Walid, son of the Commander of the Faithful, built: these rooms. In the year 81’. This stone is not in situ: it was probably a lintel of one of the doors on the north-east or south-east side of the courtyard, most likely room 5, and it must therefore refer to these ranges of rooms, except rooms 1, 4, 6(?) and 11. Room 6 is somewhat problematic. Gaube feels that there would have been no purpose in building an apsidal annexe after al-Walid’s time, and that it must therefore date from the time of al-Walid. He suggests that it was probably the madaffah, or reception room, of al-Walid. It is perhaps conceivable that this apse was added some five years after the rest of the rooms, after al-Walid had succeeded to the Khalifate. In this case it would indeed be part of al-Walid’s work, and its form and function would be entirely appropriate.

al-Walid’s structures at Burqu’ can scarcely have been centred on agriculture, and the clue to their function is probably the water in the wadi. For not only would this have provided drinking water for men and animals, but it would also have attracted wild animals which could then be easily hunted. Burqu’ could thus be a hādiya, a place where the Umayyad prince spent some weeks of the year reaffirming his personal link’s with the tribes of the region, and enjoying the air and sport of the desert.

Architectural Origins

Qasr Burqu’ contains two features of importance for the history of Umayyad architecture – the apsidal room and the rooms grouped around a central courtyard. What are the origins of these two features? Gaube has shown that they are both Ghassānid. The apsidal room occurs in a square building outside the north gate of Rusafa, bearing in its apse the inscription ‘Vivat al-Mundhir’. Al-Mundhir was the Ghassānid Phylarch from AD 569 to 582, and Sauvaget concluded that this building was the reception hall of al-Mundhir. Rooms grouped around a courtyard are features of two other Ghassānid buildings – the house of Flavios Seos, procurator of al-Mundhir, at Hayyat, and a building east of Hayyat, Khirbat al-Ilaid. Gaube has pointed out that structurally the latter is a nomads’ encampment transformed into stone, the rooms around a courtyard taking the place of nomad tents around an open space.

The Ghassānids evidently moved around within the area they ruled in order to retain effective control of the tribes, and the Umayyad situation under al-Walid was similar. Hence it is no surprise to find that this, the earliest of al-Walid’s residences, has these two characteristic Ghassānid features. Nor is it surprising that both continued to be used by al-Walid and his successors. The apsidal room was admittedly not so common, though it occurs for example at Jabal Sayts, but the rooms grouped around a courtyard become henceforward the dominant feature of Umayyad palace architecture.

THE PALACE AT MINYA ON LAKE TIBERIAS

This palace, which is close to the north-eastern shore of the lake, and less than a mile to the west of Tabgha, was first investigated by E. A. Mader, who began its excavation in 1932. Further work was carried out by A. M. Schneider in 1936, by Schneider and Puttrich-Reignard in 1937–9 and by Grabar and three collaborators in 1960.2
It is a rectangular enclosure c. 67 by 73 m. (220 by 239 ft) which, as Schneider remarks, externally resembles the *castra* of the Roman frontier in Transjordan. It has a round tower at each corner and a half-round tower, 4 m. (13 ft) in diameter, in the centre of each side except the east, where there is a curious gateway tower 16·5 m. (54 ft) wide. The walls, which are 1·40 m. (4½ ft) thick, are carefully built of local limestone on a socle of basalt 40 cm. (15½ in.) high. They are still preserved in some places to a height of 4·5 m. (14½ ft), and they must have had a cresting of stepped and undercut crenellations, for one was found intact among the débris.

The gateway consists of a room about 6 m. (19½ ft) square, set between two quarter-round towers. There is a semicircular recess to right and left, and above was a dome decorated with a cornice and beautifully carved rosettes; it doubtless rested on spherical-triangle pendentives. On the inner side was an arched doorway, 3.75 m. (12½ ft) wide, opening into a hall, about 7 m. (23 ft) wide and 11½ m. (38 ft) long, which led directly into the central court. Excavation has revealed that a portico ran all round this court, resting on four L-shaped corner piers and six columns on each side (57).

In the south-east corner was a mosque, 13·10 m. (43 ft) wide and 19·42 m. (63½ ft) deep (proportions almost exactly as 3:2), the *mihrab* of which was laid bare in 1937. It could be entered from the corner of the central court, and also directly from the exterior by a postern gate, exactly as in Qasr al-Hair ash-Sharqi (below, p. 157).

The central part of the south side is occupied by a group of rooms, 19·42 m. (63½ ft) deep (like the mosque) and 42·20 m. (138½ ft) in width. They must have been intended for ceremonial purposes, for the decoration was of great magnificence. The central part consists of a great hall, nearly 20 m. (65 ft) square, which was entered from the court by three doors, and divided into a wide central aisle and two narrow ones by two rows of supports, of which the four wall piers existed, but the base of only one column. Its position showed that there must have been three in each row. The floor and walls were originally lined with marble slabs, remains of which were found *in situ* all round the base of the walls. This panelling only rose to a certain height, above
which the walls must have been decorated with mosaic, for the floor was covered with glass tesserae, some coloured, others white overlaid with gold leaf.

This great hall is flanked by two rectangles, the same in size and shape (19'42 m. (63½ ft) in depth and 9'70 (31½ ft) and 9'81 (32½ ft) in width), which were each entered from it by three doors; they cannot be entered directly from the court. The eastern rectangle was divided into two aisles by a row of three columns down the centre. Only one column-base was found in situ. A door near the back wall of this room opened into the back aisle of the mosque.

The rectangle on the western side consists of a group of five rooms: a large central one, with two small rooms to north and south opening into it. The floors of these rooms were all paved with mosaics in an extraordinary state of preservation, all the patterns being geometrical. That in the south-eastern room recalls a carpet, with a border of circles alternating with rhomboids. Equally uninjured were the mosaics of the door-sills.

Now it must be expressly noted that in the planning of this rectangle a system has been adopted which we shall meet with again at Mshattā in its fully developed form, viz.: the successive, symmetrical subdivision into three. If we take the area occupied by the state rooms we observe that it is divided into three by a wide central and two narrower flanking rectangles. These also, or at least two of them, the Throne Room and the five-room group, are again subdivided into three in exactly the same way—a wider central and two narrower side parts. At Mshattā this system is carried much farther (119).

In the masonry of the restored part of the gateway tower, Schneider found part of a marble slab with a Kufic inscription in the name of al-Walid, built in upside down. The date, unfortunately, was missing.

THE PALATIAL COMPLEX IN JERUSALEM

The area of Jerusalem below the Harām ash-Sharīf to the south-west of the Aqṣā Mosque was excavated by the Israel Exploration Society and the Institute of Archaeology of the Hebrew University in three seasons from 1968 to 1970. Six structures were found (58), evidently planned as a complex in conjunction with the Harām ash-Sharīf. The most important structure was Building II, which the excavators suggested was a palace, on the basis of its size, plan, and other particular features, such as the probable existence of a bridge spanning the street from its upper floor to the Aqṣā Mosque.

The Palace (Building II)

Building II measures approximately 84 by 96 m. (275½ by 315 ft), and its outer walls are 2.75-3.10 m. (9-10 ft) thick. The open central courtyard is paved with flagstones measuring between 30 by 30 (1 by 1 ft) and 60 by 70 cm. (2 by 2½ ft). The court was surrounded by a covered portico supported by columns, and the level of the courtyard and portico was slightly lower than that of the surrounding building. The latter consists of groups of rectangular halls, the northern and southern sides being similarly arranged, and the eastern and western likewise. The northern and southern halls are about 17 m. (55½ ft) long, while the eastern and western ones are about 20 m. (65½ ft) long. All the halls are either 4 m. (13 ft) or 8 m. (26½ ft) wide, and the vaulting was supported by piers adjoining the long walls. Several of the wider halls had columns along the longer axis; the purpose of these is not clear. Doorways led from the halls into the portico, and most of the halls in the northern side had doorways between them. There were two main gateways, in the centre of the eastern and western sides. The main gate was that on the eastern side, and was 4.5 m. (14½ ft) wide and 6.5 m. (21½ ft) high.

The walls of the building are homogeneous throughout their height, consisting of a gravel and cement fill between two rows of stone, the outer face being dressed. The foundations of the building are massive, and extend as deep as 9 m. (29½ ft) in certain areas. These suggest a two-storey structure. This possibility is supported by the vertical drains on the inside of the eastern and
southern exterior walls leading to sewage channels beneath the ground floor, which indicate kitchen or latrine facilities on an upper storey, and by the remains of a bridge on the southern wall of the Harām ash-Sharīf, which if restored would meet the northern wall of Building II immediately above the gate and would have provided direct access to the Harām from the upper storey.

Decorative elements found in the western side of the building included many fine fragments of marble columns, capitals, lattices and balustrades, all of Umayyad type, together with painted plaster showing typical Umayyad geometric and floral patterns. The interior plan of the building also bears comparison with other Umayyad palaces, and the fact that it does not have the usual external towers can be easily explained by its having been part of a larger complex within a city wall.

The Other Buildings

The other buildings on the site remain incompletely excavated. Building III is of similar form to Building II, but Buildings IV and VII are pillared. The excavators tentatively suggested, on the basis of its plan, that Building IV may have been a mosque. Unfortunately the southern wall has been totally destroyed, so that the existence of a mihrāb can be neither proved nor disproved.

The Date of the Complex

To whom then is this complex to be ascribed? The Aphroditos papyri from Egypt, dating from the time of al-Walid I, mention workmen and craftsmen in Jerusalem employed on the construction of a palace and a mosque, which would accord with the buildings described above. Furthermore, Muqaddasi in the tenth century mentions a gate to the Harām called Bāb al-Walid. Could this be the gate in the southern wall which adjoined the bridge linking the Harām ash-Sharīf to Building II? In that case the whole complex would indeed be al-Walid’s work. The destruction of the complex probably occurred in the earthquake of AD 747–8 (when the Aqṣā Mosque was so badly damaged), and the buildings were never reconstructed, although the site was reused at a later date.

QASR KHARĀNA

The palace at Khārāna is situated some 65 km. (40 miles) east-south-east of ‘Amman. It was first described by Musil, and later published in great detail by Jaussen and Savignac.

Description

Khārāna (59–64) is an almost square building measuring roughly 36–50 m. (119–164 ft) north to south and 35–45 m. (116–148 ft) east to west. It is built of badly quarried large stones usually stood on end; its courses are regularised with small pieces of stone placed flat, and with mortar. The courses are c. 55–58 cm. (11–2 ft) in height, and the whole building was originally covered with a mortar facing.

Three sets of windows are visible externally. The lowest are 50–60 cm. (11–2 ft) high and 25 cm. (10 in.) wide. They are not splayed on the interior, and opening into the ground floor rooms at a height of some 3 m. (9 ft) above ground level are air and light holes rather than arrow-slits. The holes on the first floor are more like arrow-slits, but are only 20 cm. (8 in.) wide on the interior. The tops of both sets of slits are decorated with mortar bricks. The top set of windows also gives light to the first floor. They are wider than those below and are evidently not designed for defensive purposes. Around the outside of the building above the second row of windows runs a band of mortar bricks inclined at 45° and set between two flat bands of bricks; a similar band occurs halfway up the towers. Above the upper band the stonework changes to smaller, irregular pieces of white limestone, whose use is probably due to the need for lighter stonework for the interior vaulting.

The building has four three-quarter-circle corner
towers, a semicircular tower in the middle of the west, north and east sides, and a quarter-circle tower on either side of the gate in the middle of the south side. The corner towers have a radius of 1:25–1:30 m. (4–4½ ft). The gate is 1:72 m. (5½ ft) wide and 2:74 m. (9 ft) high and is covered with a large stone lintel without a relieving arch. 2:75 m. (9 ft) above the door is a rectangular window 1:12 m. (3½ ft) high, and 0:57 m. (1½ ft) above that is a line of palmettes in mortar frames set back a few centimetres.

The Ground Floor

The entrance leads to a passage 3:50 m. (11½ ft) wide and 0:15 m. (0½ ft) long which leads in turn to the courtyard (60). This passage is covered by five small transverse vaults of varying width carried on slightly pointed arches which grow out of the side walls c. 1 m. (3½ ft) above the ground. The courtyard is 12:65 m. (41½ ft) north to south by 12:95 m. (42½ ft) east to west. On its north side are three doorways leading to a group of five rooms. On the east and west sides of the courtyard are two similar units or bayts but so positioned that only two doors can face the courtyard. The large doorways in the central room of each bayt are 1:26 m. (4 ft) wide and 2:20 m. (7½ ft) high. Each doorway has a pair of large stone lintels with a wooden beam between them, into which the door was set. Above each lintel is a tall arch, slightly pointed in its construction but made semicircular by the liberal use of mortar (62). The remains of a 50 cm. (1½ ft) high gash around the courtyard above the doorways, together with the remains of arches attached to the north and south walls, indicate the original existence of a portico on arcades supported by eight square piers.

The south side of the ground floor is occupied by two large halls separated by the entrance passage. Each hall is divided into two naves by a range of piers, and each nave communicated with the entrance corridor through a door. Room 1 is 12:85 by 8:30 m. (42½ by 27½ ft), room 2 is 12:87 by 8:14 m. (42½ by 26½ ft). The pillars and semicircular arches between them are irregular, and at each end of each row of piers is a pilaster. Each nave is covered by four very flat cross-vaults, their points
61. Kharāna: plan of first floor (from Jaussen and Savignac, op. cit.)
4.20 m. (13½ ft) above the ground. A 20 cm. (8 in.) high step runs along the line of the pillars and accentuates the division of the room into two parts.

Adjoining these two rooms are two staircases leading from the south-west and south-east corners of the courtyard. The rest of the ground floor follows a regular plan of three five-room hayts with two extra rooms each in the north-west and north-east corners. None of the room measurements are precisely identical. Each of the large rooms 7, 4 and 21 is covered with four cross-vaults on semicircular arches, the latter starting 1.25 m. (4 ft) above ground level. The small rooms are similar, with cross-vaults supported by arches, the number and size of the vaults and the positioning of the arches varying from room to room.

The First Floor

The first floor (61) is reached by twin staircases in two flights. That on the west is 1.13 m. (3½ ft) wide and is entered through a door 95 cm. (3 ft) wide. Its steps are 38-40 cm. (15-15½ in.) wide and 13 cm. (5 in.) high. Halfway up the staircase is a small landing 2.70 m. (8½ ft) long. The second flight leads to another landing from which open three doors - that straight ahead leads to the first floor of the portico, a second, on the left, leads to the apartments, a third, on the right, leads to a corridor from which another door opens onto the upper portico. The corridor itself leads past room 59 up a few steps to room 55, which was the latrine. From there stairs continue up to the roof terrace. The east staircase follows a similar pattern.

The layout of the first floor on the north, west and east sides corresponds to that of the ground floor, but the room sizes are not identical and the positions of the walls are not always exactly the same. On the south side the layout is different. Here we find two five-room hayts with a large room between them. The six large rooms on the first floor are like those on the ground floor except that their arches are supported by groups of three colonnettes (63). These are set 25 cm. (9½ in.) into the wall and are joined by semicircular arches forming wall niches. In the angles a square or rectangular pilaster replaces the colonnettes. The colonnettes are built of small stones
63. Kharāna: south-west corner of room 51
64. Kharāna: interior of room 59, north side
set in mortar and covered with a thick layer of plaster, and they vary in height from 1.60–1.65 m. (5½–5½ ft). They rest on a small plinth set on a step 11 cm. (4½ in.) high which runs along the side of the hall, and they are united at the top not by capitals, but by a sort of mortar abacus 3 cm. (1½ in.) thick. Both the abacus and the niche arches are ornamented with dog-toothings.

In room 29 the niches are 2.68–2.83 m. (8½–9½ ft) high and the vault arches are constructed in a similar way to the doorway arches. The façade of room 29 had a band of five windows, 2.50 m. (8½ ft) above floor level, with pointed horse-shoe arches supported on colonnettes. The surviving windows are 5.3 cm. (1½ ft) wide and the adjoining pairs of colonnettes 44.5 cm. (1½ ft) wide. A dog-tooth moulding runs round the arches.

Room 26 is different from the other large halls, for instead of six groups of colonnettes it only has four, the middle one on each side having been omitted. The niches between the colonnettes are thus more than twice their normal size, measuring 3.65 m. (12 ft) in width, i.e. approximately the same as the width of the room. A square was thus formed which was almost certainly covered by a dome originally. At one end of this room is a door 1.01 m. (3½ ft) wide and 2.30 m. (7½ ft) high leading to the upper portico; at the other end is the window above the palace gate.

Room 61 is of particular interest for its vaulting, which can be at least partially reconstructed. Two arches cross at right angles in the centre of the room, one being built up against the other, and four compartments approximately 1.30 by 1.45 m. (4½ by 4½ ft) were thus formed. These were covered by coffers, the lower parts of which consisted of three bands of overhanging stonework surmounted at the corners by flat stones making octagonal bases for the ceilings.

Room 59 is similar to 29 but its south end is covered with a semi-dome on squinches instead of a barrel-vault. The two doorways leading to rooms 58 and 61 have no arches. Instead their lintels are surmounted by a cornice which continues around the end of the hall and forms the base for the squinches. The latter are composed of three juxtaposed arches of unequal thickness. The actual semi-dome begins above the band of dog-tooth pattern 92 cm. (3 ft) above the cornice and 25 cm. (9 in.) above the squinches. On the side walls of the room, 1.35 m. (4½ ft) above the niches, are pairs of large rosettes cut into the plaster work. Each consists of six palmettes separated by six trefoils around a central eight-petalled rosette, the whole surrounded by a pearl border. The façade of 59 is similar to that of 29 but different in detail (64). It has four windows instead of five and above these windows is a band of eight niches, each consisting of three concentric and receding rectangles 49 cm. (1½ ft) high.

The principal room of the west wing of the first floor is one of the most curious in terms of structure and decoration. It has three groups of colonnettes supporting three arches, the two central vaults being barrel-vaults and the two end ones semi-domes. Again squinches are used but they are different in form to those in room 59. An arch is thrown across the corner of the room and the semi-dome is placed above it with no attempt to smooth over the angles by curving the wall as in 59. A small squinch has been added between the top of the main squinch and the adjoining arch to help support the curve of the semi-dome. The squinches have triple mouldings and the areas behind the large squinches are covered with flat ceilings. The main arches are constructed in a traditional style: the stones are placed on top of one another, slightly overhanging, until this is no longer possible, and the rest of the arch is then built of flat stones placed on their edges exactly as if they were flat square bricks. The upper parts of the two central walls on either side are decorated with roundels 46 cm. (1½ ft) in diameter, each containing a stylised plant form. There are three rectangular windows in the end wall, splayed towards the inside and ornamented with a triple moulding.

The four rooms around 51 are also decorated with special care, using roundels with plant forms like those in 51, in some cases separated by colonnettes. Room 48 appears never to have been vaulted – hence the small window from room 50. The large break in the north wall of room 48 suggests that the area may have been designed as a sort of veranda. Room 44 is ruined, and it appears that rooms 41–3 were never finished. A sort of groove running along the west wall of the courtyard above the first floor windows suggests that there was yet
another storey to the portico, but this too seems to have remained unfinished, and there are no traces of any arches attached to the walls. The nature of the original roof terrace is uncertain.

Architectural Origins

Structurally Kharâna has numerous Persian features – its masonry lays, its brickwork, its vaulting, its squinches, and its stucco ornaments, among others – but in plan it accords with the Umayyad palaces of Syria from the time of al-Walid I onwards. In size, admittedly, it is only half the normal dimensions, being 35 m. (115 ft) square as opposed to about 70 m. (230 ft) square, as are Minya and Qasr al-Hair al-Gharbi. But in its regular division into bayts, and in the form of those bayts, it is similar to the palaces at Jabal Says and Qasr al-Hair al-Gharbi, although all show variations on the theme. The ground plan of the portal is also like that at Jabal Says, although Kharâna’s portal is actually wider and thus gives a rather different impression.

The Date

In Early Muslim Architecture, Creswell wrote: ‘We now come to Qasr Kharâna, a building which every writer who has expressed an opinion regarding its date, with the exception of van Berchem, has regarded as Muhammadan. Our vaulting system [i.e. the vaulting system found in the audience hall at Qusayr ‘Amra] occurs in three halls on the upper floor. A terminus ad quem is fortunately provided by the preservation on its walls of the last three lines of an Arabic inscription painted in black, which was copied by Moritz, as follows: “… and ‘Abd al-Malik the son of ‘Ubayd wrote it on Monday three days remaining from Muharram of the year ninety-two (= 24th Nov. 710)’. Moritz suggests that ‘Abd al-Malik was probably a member of al-Walid’s suite on his return from the visit he made to Mekka in 91 H. Kharâna in any case was standing in 710, but the inscription is only a graffito and does not prove the Muslim origin of the building. Another significant feature may be cited, the indescribably shoddy construction of the arches, unknown in Umayyad work, their elliptical form recalling Sasanian monuments, and the pilasters, like engaged columns without capitals, from which the transverse arches spring just as in the Martyrium of Mâr Takhmaz-gerd at Kerkük c. AD 470 and at Sarvistân . . . .

‘In any case it is earlier than Qusayr ‘Amra, and it is therefore the earliest building on the Syrian side of the desert in which the transverse arches, instead of being covered by slabs of basalt, are covered by tunnel-vaults, a modification of Mesopotamian origin.

‘Revisited Kharâna on 23 April 1962, and again on 14 May 1964, and was more than ever convinced that it is a Sasanian building, on account (1) of its masonry, which resembles that of Dâmghân, (2) its squinches, for this device is unknown in Umayyad Syria except for the counterfeited example in the Citadel of ‘Ammān . . . and (3) the triple engaged columns without capitals, already mentioned.

‘And here is a new argument. The Umayyad qasrs were not fortified. For example, in al-Walid’s qasr at Minya the entrance is not fortified, the towers are all solid, except one open to the sky which served as a latrine, and there are no arrow-slits. The same remarks apply to Jabal Says. Neither is Qasr al-Hair al-Gharbi fortified, nor Mafjar, for the entrance is not fortified, the towers are solid and there are no arrow-slits. Exactly the same remarks apply to Mshattâ and Qasr at-Tûba, where the only towers that are hollow served as latrines.

‘The only Umayyad qasr with a fortified entrance is Qasr al-Hair ash-Sharqi, where there is a mâchicoulis now introduced into Islam for the first time, the idea having been derived from the mâchicoulis of the monastic tower of al-Mundhir, which had been incorporated into Qasr al-Hair al-Gharbi two years earlier. But here again the towers are all solid, except one of those flanking the entrance, which once contained a spiral staircase lit by a slit. Moreover, there are no arrow-slits, there are no openings in the western curtain-wall, and those in the southern and eastern curtain-walls and in what remains of the northern are square and served to light the wooden-roofed rooms of the upper floor.

‘Contrast this with Kharâna, where there are no less than twenty-seven arrow-slits. Their sills average 1.27 m. above the floor, and they are of a type unknown
in Syria before the twelfth century, at which time they penetrate it along the Euphrates Valley at Raqa, Abu Huraira, and Balis. But centuries before that the same peculiar type was employed at Akkaddir (c. 776), and earlier still in a large fort on the Balkh River near Chiiburj, twenty-eight miles from Zari, mentioned by Maitland. He says that it was built of "very large" mud bricks, which makes it probable that it dates from Sasanian times. . . . But it can be traced much farther back than that. At Ashur the Sargonid fortifications have slits in the floor of the rampart-walk which slope outwards and appear on the face of the outer wall as vertical slits with two sloping bricks as a hood.

'I am therefore convinced that Qasr Kharana was built during the Persian occupation, which lasted from AD 614 to 628. The form of its bayts is the only Syrian feature.'

Despite these strong arguments for a Sasanian dating for the building, there are also arguments against that dating and supporting an Umayyad one. (1) Gabe has shown that historically the Persian occupation of Syria between AD 614 and 628 was an unlikely time for buildings of this type to have been erected. For the Persian campaigns during this period had only one motive, plunder, although vengeance for the death of the Byzantine emperor Maurikios was the official reason. Killing, destruction of cities, the chopping down of olive trees, and deportation of the population were characteristic of these campaigns. It is therefore intrinsically unlikely that buildings such as Kharana or 'Ammān would have been built at this time. (2) In view of the way in which Persian and Syrian architectural forms and decorative styles are found side by side in Umayyad architecture in Syria there is no reason why a particular building should not show a strong preponderance of Syrian or, as in this case, Persian influence. (3) Why would a Persian patron have adopted Syrian bayts for his Persian building? Is it not more likely that an Umayyad patron would have made this choice - the only specification or preference dictated to craftsmen from elsewhere in the Empire? (4) Like 'Amra, Kharana contains barrel-vaults supported by transverse-arches. Far from Kharana having provided the model for 'Amra - over a period of some 100 years - is it not more likely that this parallel in construction technique indicates that the two buildings are approximately contemporary? (5) Although early and late Byzantine wares have been collected at the dumps near the castle, the majority of the pottery found on them is Umayyad in date, indicating that the principal period of occupation at Kharana occurred between the middle of the seventh century and the middle of the eighth. (6) Although the arrow-slits give an appearance of a military fort, they are in fact largely ornamental, since most of them are at inappropriate heights and positions for any defensive purpose.

On these grounds it seems equally possible that Kharana is an Umayyad building. 'Amra, or at least some of its wall paintings, must be dated between 711 and 715. Kharana was already standing then, since the graffito bears the date 92 H. (710). In view of 'Abd al-Malik's movements it is unlikely to have been built by him and could therefore belong to the period of al-Walid I, and more precisely 705-710.

QUSAYR 'AMRA

Qusayr 'Amra (the little palace of 'Amra) stands in the desert on the edge of the Wadi Butm, about 50 miles east of 'Ammān. It was discovered by Musil in 1898. He spent a fortnight there in 1901, accompanied by the Austrian artist Mielich, who copied some of the paintings.

It is a comparatively small building (63) and has been well defined by van Berchem as a 'pavillon de chasse doubled d'un bain'. It is built of hard reddish limestone from the neighbouring hills, and is composed of two principal elements: (1) a rectangular audience hall, A, measuring roughly 8.5 by 7.5 m. (28 by 24½ ft), with an alcove, B, opening on the south side, flanked by two rooms, C and C', apsidal in form and without windows, and (2) a bath, consisting of three little rooms, D, E, and F, the first tunnel-vaulted, the second cross-vaulted,
66. Qasayr 'Amra: plan

66. Qasayr 'Amra: view from the north-west
and the third covered by a dome (66). On the east side of the latter is a tunnel-vaulted passage, G, at present blocked-up, leading to an unroofed enclosure, H. The exterior corresponds exactly with the interior, and no attempt has been made to conceal the extrados of the vaults by raising the exterior walls, or otherwise.

On entering, the first thing to strike one is the curious vaulting system, the nearly square interior being divided by two transverse arches into three bays of almost equal width, on which rest three tunnel-vaults (67). The transverse arches spring from low pilasters, and are remarkable for being slightly pointed, one of the earliest examples of this feature in Muslim architecture. They have been struck from two centres one tenth of the span apart. There is a set-back of about 5 cm. (2 in.) at the springing, no doubt intended to support the centering.

At the back of the central bay is an alcove, B, which, although square-ended, resembles an apse; it is covered by a tunnel-vault, the crown of which is about 2·50 m. (8 ft) lower than the transverse vaults. There is a small window, placed as high as possible, at each end of the three tunnel-vaults, and two more high up in the eastern wall, making eight in all. A small door to right and left in the alcove opens into the flanking rooms, which are each roofed with a tunnel-vault ending in a semi-dome over the apsidal part. They lack windows and receive their light, such as it is, from the door. These two chambers were evidently intended for repose, the main hall being intended for official receptions.

Musil, and likewise Jaussen and Savignac,11 found that these little rooms had been paved with glass mosaic representing conventionalised foliage.12

A door on the east side of the main hall (66) leads into the little tunnel-vaulted room D (2·83 by 2·30 m.; 9½ by 7½ ft), which is lit by a window on the east side placed high up under the vault. Against the east and south walls is a little plastered bench 30 cm. (12 in.) high. Musil excavated in this and the two following rooms and found piers 70 cm. (27½ in.) high, which must have supported the original floor, the space between serving for the passage of heated air. The hypocausts in the Baths of Caracalla are constructed in this way. A door on the north side leads into a cross-vaulted room, 2·83 m. (9½ ft) square, with a little tunnel-vaulted alcove on the far side.
At about 2 m. (6ft) above the floor the walls overhang 12 cm. (4¼ in.), and in each corner beneath this projection are four clay water-pipes, about 7 cm. (2½ in.) in diameter, leading from the roof. The water was conducted along the roof in cemented channels.

A door on our right leads into E, a room quite different from any of the preceding. It consists of a central square practically the same in size as E, with a deep apsidal recess to north and south, both covered by tunnel-vaults terminating in semi-domes. The central part is covered by a dome, resting on spherical-triangle pendentives, between which and the dome is a stone cornice 30 cm. high, decorated with a triple chevron. The dome is pierced with four small windows which rest on this cornice.

The walls of these three rooms are all pitted with holes intended to provide a hold for a panelling of marble. The upper parts of the walls overhang as in the previous room, in each corner is a water-pipe, and under the floor are remains of hypocausts. At the far end of G, partly above and partly below ground level, is what appears to have been the furnace.

**Purpose of the Building**

A comparison with two little bath-houses at 'Abda and Ruhayba to the south of Beersheba suffices to show that the annexes on the east side of the main hall, A, was a bath. The first room, D, with its two benches but no pipes, must have served as the apodyterium, the second room, E, with its water-pipes and hypocausts under the floor, was the tepidarium, and the domed chamber next the furnace the caldarium.

**Recent Discoveries**

Between 1971 and 1974 the Spanish Archaeological Mission surveyed the area around 'Amra, and carried out excavations, restorations and cleaning at the building itself. The survey of the area led to the discovery that Qusayr 'Amra is only one of a larger group of constructions. About 300 metres to the north-west of the palace the remains of a small castle were found, consisting of rooms arranged around a courtyard. Between the castle and the palace were excavated the remains of a tower, which with its magnificent view must have served as a watch-tower. A further discovery was the remains of a hydraulic complex, similar to that adjoining the palace, consisting of a water-wheel, well and cistern, located some 300 metres south-east of the palace. Finally, it was observed that there was a series of low, broad walls behind the wádi, which held back the soil when the river was in spate, perhaps to maintain a small garden or orchard area. The excavators describe the hydraulic works adjoining the palace as follows:

The hydraulic works consisted basically of a water-wheel worked by animal power, which brought the water up in buckets to a high tank. From this tank, the water could go either to a trough situated to the E. of the construction, or also, through separate pipes to a small pool or basin with its own fountain, which is to be found at the N.E. corner of the great hall. Alternatively, the water could go to the hot water tank over the boiler, or even directly to the hot baths and pools of the 'caldarii', for cleaning purposes or to regulate the heat in the interior of the rooms where the baths were. It is possible that a valve controlled the flow of hot or cold water to the pools.14

**The Decoration: the famous Fresco Paintings**

We have seen that the little rooms flanking the alcove had mosaic floors, which were still in good condition in Musil's day. The other rooms were formerly paved with marble slabs 3 cm. (1⅛ in.) thick, remains of which also existed at the time of his visits. All the rooms once had marble dadoes, and at the time of Musil's second visit the panelling of the eastern wall of the main hall was still intact; it rose to a point 80 cm. (31⅛ in.) above the débris. Above this the walls are plastered and decorated with the now-famous paintings, the importance of which may be realized when one remembers that no such extensive decoration in fresco is known to have survived in any other secular building earlier than the Romanesque period. The colours are directly applied to a mortar facing about 3 cm. (1⅛ in.) in thickness and, according to the Austrian chemists Pollak and Wenzel, are to be regarded as fresco and not as tempera, for no trace of size was found.

The range of colours was obtained as follows:
Bright blue – natural ultramarine.
Deep brown – a red, apparently produced from oxide of iron, overlaid, with a thin coat of ultramarine.
Light brown – ochreous compositions containing iron.
Dull yellow – the same, mixed with chalk.
Bluish-green – yellow which has received a light coating of ultramarine.

The paintings in the audience hall have suffered far more than those in the small rooms. We are therefore almost entirely dependent on the paintings of Mielich for our knowledge of them, which is all the more to be regretted, for those paintings of his which can be checked, viz., those of the three rooms of the bath, are seen to be travesties of the originals. This is due to the fact that his paintings are not copies completed on the spot, but reconstructions worked up a month later in his studio, from his tracings, notes, copies of the colours, and from two or three which were detached from the walls and taken away. I will now describe the principal paintings.

The Alcove

The walls from above the place occupied by the marble dado to about half their height were painted to imitate hanging drapery. At the back of the alcove was a throned monarch with a halo, under a baldachin resting on two spirally decorated columns, on the arched front edge of which was painted a Kufic inscription in white on a blue background, invoking a blessing on some person whose name no longer remains. To the right of the throne was a man waving a flabellum. There can be no doubt that this alcove, directly opposite the entrance, was intended for the throne recess.

To the left of the throne there is also a figure waving a flabellum, in this case a female. The enthronement scene is framed by a band of partridges. On either side of the alcove are three large and three small figures within a set of arches, of whom two are said by the Archaeological Mission to represent a Bacchante and Fortune. Each group is introduced by a pomegranate tree. The ceiling of the alcove is covered with vegetal scrolls emerging from a vase located above the monarch’s head.
The Audience Hall

Between the alcove and the south-west corner, according to Musil, was the figure of a woman, above which to the right was the word NIKH – Victory. This figure must surely have a direct connexion with the famous picture of the defeated enemies of Islam alongside (69), at the south end of the west wall. This consisted of six richly dressed figures, three being placed in the foreground with their hands open in sign of homage or submission, and three placed behind them. Above the first four were fragments of superscriptions in Arabic and Greek; it is on the interpretation of these superscriptions that the dating of the building rests, so we shall return to this picture again. To the right of this was a bathing scene, and to the right again a group of men practising gymnastic exercises. In an upper tier are scenes of onagri being herded into a netted area; ropes, men with fire-brands and tents are also in evidence. On the western vault are the badly damaged remains of a scene which probably depicted a grape harvest, while on the northern wall of the western part of the audience hall are the remains of some paintings of fishes. The east wall of the audience hall, like the west, bears two tiers of paintings; the upper one is not clear, but the lower one shows another hunting scene, with dogs attacking onagri. The north wall adjoining bears a scene of figures butchering onagri within a netted enclosure, and the south wall a figure slaughtering onagri. Above, to the right of the window under the vault, is a woman with remains of the word ΠΟΙΗΣ[IC] (Poesy) painted alongside. Facing her on the other side of the window are the remains of two other figures with the words ΙΣΤΟΡΙΑΙ[A] and ΚΥΡΗΣ(Σικέψις) (History and Philosophy) written above them. The eastern vault of the audience hall is decorated with caissons containing pictures of craftsmen, while the central vault is decorated with caissons containing a variety of male and female figures under mitre-shaped arches.

The Transverse Arches

Here the decoration is better preserved. On the southern half of the eastern arch is a seated musician playing a
long-handled stringed instrument. Above him, and reaching to the apex of the arch, is a woman wearing nothing but a tight-fitting skirt, with her arms above her head. The part above her hands had gone even when Musil saw it, but I suggest that she is holding up a portrait medallion, as at Palmyra, where very similar narrow slip compositions occur in a rock-tomb known as Maghrārat al-Jadida. On the southern half of the western arch is a nude dancer making sinuous and undulating movements with her arms and body.

The woman in a narrow slip on the southern half of the eastern arch is paired by another, identical figure on the northern half of the arch and the central medallion at the apex of the arch is held by both figures.

The Side Rooms

The rooms beside the throne alcove (one on each side) have their upper side walls and ceilings covered with vine-scrolls, and a large vase and vine-scrolls on their end walls. Their floors are mosaic of contrasting geometrical designs; the floor of one apse contains a rhomb design with central leaf, that of the other a stylised vase and vine-scroll.

The Apodyterium (D)

This contains the best-preserved paintings in the building. In the tympanum over the door from the main hall is a cupid with wings spread, holding out his hands over two figures lying on the ground. In the centre of the tympanum opposite is a window, to the left (north) of which is a woman sitting with her chin resting on her hand (good) and looking towards a man (faded) on the other side of the window.

The tunnel-vault is divided up by bands, decorated with leaves, into seventeen lozenges, the outer points of which touch the edges, thereby forming twelve triangles. These lozenges and triangles are each filled by one subject, either a man, a woman, an animal, or a bird. On the north side (68) we have:

Row 1. Disappeared.
Row 2. Stork, gazelle, another gazelle.

Row 3. Man in Roman tunic playing a flute, female dancer wearing a long white skirt with a broad red border, above it a sleeveless tunic gathered in at the waist by a white girdle.

Row 4. Heron(?), an animal (perhaps an onager), another animal.

The apex of the vault is occupied by a row of three busts, one of a white-haired man. Wickhoff suggests that they are intended to represent the three ages of man.

On the south side we have:

Row 1. A small animal, a snake coiled up ready to strike, a small animal like a cat watching its prey.
Row 2. A stork, an onager, a deer, a crested bird.
Row 3. Monkey or bear sitting on a footstool and playing a stringed instrument, a monkey standing on its hind legs and clapping its fore-paws, like Arabs at a fantasia, a man in a short tunic.
Row 4. Another stork, gazelle, trotting camel, crane(?).

The Tepidarium (E)

The painting on the south tympanum of the cross-vault is the best preserved. To the left is a half-reclining woman, in the centre a figure holding a little child in its arms. To the right, at the door, another woman enters. All the figures are nude, which suggests the idea of a hot bath.

On the east tympanum there is also a scene of naked figures, evidently one or more women bathing a child, and a similar scene occurs on the west tympanum. The arch of the doorway is framed by a vine-scroll, and the ceiling is covered with branches, leaves and fruit. In the centre of the cross-vault is a rosette.

The Caldarium (F)

The dome resembling the vault of heaven, it was evidently intended to be painted as such, for the chief constellations of the northern hemisphere are depicted there, together with the signs of the Zodiac. In the centre are the Great Bear and the Little Bear, separated by the tail of the Dragon. To the right, a person with arms ex-
tended was recognised by Jaussen and Savignac as Andromeda, with Cassiopeia at her feet.

The Zodiac of Qusayr 'Amra is of the greatest importance, for it is the earliest existing attempt to portray the vault of heaven on a hemispherical, instead of a flat surface, but the artist must have copied a drawing on a table in front of him, and in doing so has transposed everything from right to left.\(^{26}\)

The Date of Qusayr 'Amra

The dating is based on the interpretation of the fragments of bilingual superscriptions still preserved above the group of figures at the south end of the west wall. They consist of four Greek and four Arabic words, forming four doublets above the first four personages from the left. Beginning from the left Nöldeke read Kaisar; then, combining the mutilated Greek and Arabic over the third figure, he obtained Chosroes (for Chosroes, the Greek form of Khosrau). On the head of this figure, moreover, is a crown of the same type as those which appear on the coins of the later Sasanians, such as Khosrau II (AD 590–629). After that he read the Arabic word over the fourth figure as Najashi. This reading has since been rendered certain by Jaussen and Savignac's discovery of the corresponding Greek word Nigos. Nöldeke showed his results to Littmann, who then read the inscription over the second figure as Rōdořikos.\(^{27}\)

The four personages thus designated are of course the Byzantine Emperor, the Visigothic King of Spain, the Sasanian Emperor, and the Negus of Abyssinia, that is to say, sovereigns whom the rising Arab power had overcome, or robbed of part of their territory.

The Byzantine Emperor is clad in his imperial robes with a tiara on his head; the Sasanian Emperor, beardless, with thick curly hair, wears a purple cloak and purple shoes and the Sasanian crown on his head, and the Negus is wearing a light-coloured garment with a dark-coloured stole.

Nöldeke points out that as Rōdořik came to power in 710 and was killed in the battle of the Guadaleta on 19 July 711, it follows that the painting must have been executed after his death in that year, and in any case not later than the fall of the Umayyad dynasty in 750.

Can the date be fixed still more closely? Van Berchem has brilliantly attempted to do so. He points out that the six personages in the group form a composition obeying definite rules, three being in the foreground and three being intercalated between and behind them, as shown in the diagram.

\[
\begin{array}{cccc}
1 & 3 & 5 \\
2 & 4 & 6 \\
\end{array}
\]

Of these the first four are identified by inscriptions as follows:

1. Kaisar (the Byzantine Emperor).
2. Rōdořik (the Visigothic King of Spain).
3. Chosroes (the Emperor of Persia).
4. Negus (the King of Abyssinia).

From this he deduces (1) that the personages in the foreground are sovereigns of great empires, whilst those in the background represent the rulers of simple kingdoms, and (2) that in each row the arrangement of the personages from left to right corresponds to their geographical situation from west to east. If these conclusions are correct number 5 must be intended for a great sovereign to the east of Persia, and number 6 for a ruler of the second order residing to the east of Abyssinia.

Now it was at the beginning of the eighth century that Qutayba recommenced against the Turkish races of Central Asia the campaign which had been abandoned during the civil war between 'Ali and Mu‘awiya, and two notable victories were gained, one in 707 between Merv and Bukhārā, the other in 712 under the walls of Samarqand. He points out that the Emperor of China at that time was regarded as the suzerain of all Central Asia, and it was he whom all the rulers of Turkish race called to their aid against the Arabs. Number 5 may therefore be intended for the Emperor of China, in which case number 6 could represent one of the Turkish kings involved in the campaigns of Qutayba, or the Hindu King Dāhir, killed in Sind in 712. Van Berchem continues:

If one reflects on these curious synchronisms; if one bears in mind that all these victories, which carried the fortune of the Umayyads
to its highest point, followed each other, one after the other, during the reign of Walid I; that the latter was a great builder and resided in the Belqa (Transjordan), it becomes very tempting to attribute `Amra to him, in which case this picture would be a monument to his victories. The Kaisar would be one of the feeble Byzantine Emperors defeated by al-Walid's general Maslama in Asia Minor, the painting of Chosroes would represent not Yazid-gird himself, but one of his descendants who attempted at the end of the seventh century to restore the Sasanian dynasty, a matter on which Chinese documents have thrown some light.\(^{28}\)

As for the Negus, we lack precise information. If van Berchem's view is accepted and the picture symbolizes the victories of Walid I, then there can be no doubt that he is the originator of the building, which in that case must be placed between 711 (battle of the Guadate), or 712 (victory at Samarqand), and 715, the year of his death.

The Raison d'être of Qusayr 'Amra

Hatred of the narrow enclosures of cities and of a settled life characterized the Arab conquerors on every front, hence the adoption of Jabiya, the old camp-city of the Ghassanid Phylarchs, about 24 km. (15 miles) south-east of Kuneitra, as the centre of the Arab Government after the conquest of Syria.

Half-Bedawin Life of the later Umayyad Khalifs

As for the Umayyad Khalifs, their instincts were likewise nomadic; although Mu'awiyah, the founder of the dynasty, made Damascus his capital and resided there, his successors only visited it when state ceremonial required their presence. At other times, 'by a kind of atavism of the Bedawin hira', as van Berchem has expressed it,\(^{29}\) they preferred the hādiya, or spring pasturage, when the desert is covered with green after the winter rains.

The oasis of Dūmat al-Jandal and the splendid city of Damascus merely reminded them, in the words of the poet Akhtal, of the pallor and rigours of the fevers caught by them in the gardens of the Ghūta.\(^{30}\) Jāhib (d. 869) expresses the same feeling when he says: 'Beware of the rif [cultivated land]; it is death and a quick death to approach it.' Likewise the Bedawi poet Ibn Mayāda when he said to Walid II, "The proximity of springs does not suit us; mosquitoes and fevers devour us."\(^{31}\)

And so the Umayyad Khalifs, the members of their families, and the principal men of state, each possessed their camping ground. These encampments, at first no doubt of tents, but gradually increasing in luxury, developed into standing camps, and later on buildings of a permanent nature came to be erected. In some cases they even occupied Roman-Byzantine frontier forts, such as Azraq, forming part of the great block-house line which ran from the Gulf of 'Aqaba to Damascus, and from Damascus to Palmyra. Thus from hādiya developed hira, an agglomeration of buildings half mobile, half permanent.

Mu'awiyah's successor, Yazid (680–83), was the son of a Bedawi woman; he loved wine and dancing and died at Hauwārīn. Marwān I lived among the Bedawin, Walid I moved about a great deal, but his various places of residence always seem to have been on the edge of the desert, e.g. Khunāsīra al-Ahās (55 km. (34 miles) south-east of Aleppo), Qaryatain and 'Usays (= Tell Seis, 105 km. (65 miles) south-east of Damascus), where there are still remains of a qasr about 70 m. (230 ft) square, a camp mosque, and a hammām. 'Umar also chose Khunāsīra as his favourite place of residence. Yazid II (720–24) was the great grandson of a Bedawi woman, and liked to spend his time at Muwaqqar (between Mshālt and Qasr Kharānā), amusing himself with poets, singers, dancers, and musicians.

Hishām (724–43) lived at Qasr al-Hair ash-Sharqi (below, p. 149 ff.), in the desert, 80 km. (50 miles) beyond Palmyra. His dissolute successor, Walid II (743–4), had lived in the desert for twenty years before he became Khalif, and it is expressly stated that even when he was Khalif he never set foot in a town.\(^{32}\)

Tabari speaks of his going to Azraq (19 km. (12 miles) east of Qusayr 'Amra), and of his staying near 'the water of al-Aghdāf', sometimes called al-Ghadaf in the Kitāb al-Aghānī, for which reason Musil\(^{33}\) identified it with the Wādi Ghadaf on which Qasr at-Tūba stands (below, p. 208 ff.). At the time he was murdered he was staying at the Qasr al-Bakhrā', a Roman fort on the edge of the desert, about 24 km. (15 miles) south-
west of Palmyra. After his murder the Khalifate passed to his cousin, Yazid III, who had to promise that he would live in Damascus and ‘lay neither stone on stone nor brick on brick’, so strained had the finances been by the extravagant building activities of his predecessors.

Six years later the Umayyad Khalifate came to an end, and with it the period of Arab ascendancy.

The Inspiration of the Fresco Paintings

The paintings of Qasyr 'Amra clearly belong, not to the hieratic art of Byzantium, but to the late Hellenistic art of Syria, and they bear eloquent witness to its vitality. Not only have we the four personifications of Poesy, History, Philosophy, and Victory (labelled in Greek), but a winged cupid also. The lozenge diaper on the vault of Room D recalls a favourite treatment of mosaic pavements, e.g. at Mādaba, less than 50 miles away, the mosaic pavement discovered at Jerusalem in 1892, another on the Mount of Olives, and a fourth recently excavated at Antioch. I would now call attention to the resemblance between the costume of the dancing-girl on the vault of the apodyterium (68) and the costume of the winged Victories in a tomb at Palmyra. The costume is identical in both cases: a long under-skirt, very full and reaching almost to the feet, an over-garment reaching to the knee only, fastened close to the waist, full above, sleeveless, and gathered together on either side of the neck (a Greek chiton in fact), so that the point of the shoulder is exposed.

That the paintings are derived from the Hellenistic art of Syria has been recognized by practically everyone who has discussed them: Brünnow, Strzygowski, van Berchem, Diehl, Herzfeld, and Dalton. The latter says:

They show us how absolutely the art of the early Mohammedan period depended upon the Hellenistic art of Syria and Mesopotamia. In the second place they show us how tenacious of life and of its old traditions the Hellenistic art of Hither Asia really was... Here, as in Constantinople, the old genre scenes retained their popularity, and at once found favour with luxurious princes of the conquering faith.

Diez says:

The painted decoration of 'Amra shows us how long the Hellenistic tradition remained in activity, and of what charmingly gifted creations it was still capable at the beginning of the eighth century. The 'Amra series of paintings is the last great creation of a secular character that Hellenistic art has left us. The happy sensuality of the antique here flares up once more for the last time.

There is, however, one trace of Persian influence, and that is the inspiration behind the painting depicting the enemies of Islam. This, as Herzfeld has shown, must have been derived from a Persian prototype in which the Kings of the Earth do homage to Chosroes on his throne. Such a composition existed, and is referred to by Yāqūt as follows:

At Qarmis[u] [i.e. Kirmānšāh] is the dukkan where the Kings of the Earth, amongst them Faghfūr - the King of China, Khāqān - the King of the Turks, Dāhir - the King of Sīn, and Kāsār - the King of Rūm, are convoked by Kīrēh Aparwīz.

Thus we can readily admit that the inspiration of this painting is Persian. But of the total surface it occupies only about a twentieth part, moreover it is Persian in inspiration only, not in execution, so the Persian element in the whole decoration is less than a fortieth part.

Nationality of the Artists

Brünnow and Becker have pointed out that the Arabic inscriptions have obviously been executed by one accustomed to write Arabic, whereas the letters of the Greek inscriptions have first been outlined in a darker colour and filled in afterwards. They therefore conclude that the artists knew Arabic better than Greek, but not perfectly, for they have written Kisra as they heard it pronounced and not as it should be written. Becker also points out that the use of the title Kaisar for the Byzantine Emperor is not taken from Byzantine practice and would not have been employed by a Greek. One can even go further, and say that a Greek would not have understood the term, for Procopius, writing in the second half of the sixth century, says: 'Chosroes was indignant that the envoys had not been sent him by Kaisar', and then feels bound to add by way of explanation, 'For thus the Persians call the King (βασιλεὺς) of the Romans.' Brünnow and Becker come to the conclusion that the artists were either Syrians or Aramaeans.
The Question of the Lawfulness of Painting in Islam

The paintings of Qusayr ‘Amra raise, in an imperative fashion, the question of the lawfulness or otherwise of painting in Islam.

Even at the present day the belief is very widely held that all forms of painting are forbidden by explicit passages in the Qurān, but this is a popular error for no such passages exist, as Orientalists have frequently pointed out.

We have seen above (p. 4) that paintings existed in the Ka‘ba as rebuilt in AD 608, and Azraqi says that when Muhammad entered it after he had taken Mekka in 630, he ordered the picture of Mary with Jesus on her lap to be preserved, and that this picture remained until the Ka‘ba was destroyed in 683. We are also told that on the capture of al-Madā‘im, or Ctesiphon, in 637, the great Iwān was used for the Friday prayer in spite of the paintings which decorated it, paintings which still existed in 897.

Yet in spite of the silence of the Qurān, the Hadīth (Traditions) are uniformly hostile to all representations of living forms. When did the change take place? A valuable clue is provided, curiously enough, by the Patrology. Our first witness is John, Patriarch of Damascus and a great opponent of the Iconoclasts, who occupied a prominent place in the Court life of the later Umayyads. His active life was roughly between 700 and 750. He was well acquainted with the doctrines of Islam, and his quotations from the Qurān in Greek are sometimes almost literal translations from the original. But although he was a violent opponent of the Iconoclastic movement and wrote treatises against the Edict of 726, and although he also wrote against Islam, he never accuses the Muslims of being hostile to pictures, although it must have been the first thing he would have seized upon to reproach them with, had they held such opinions. But about the end of the eighth century we find Theodore Abū Qurra, Bishop of Harrān, differing from John, for he includes the Muslims among the people opposed to painting, describing them as: ‘Those who assert that he who paints anything living will be compelled on the Day of Resurrection to breathe into it a soul.’ Although the Muslims are not actually named, the almost literal citation of the Muslim hadīth proves that they are meant and, in addition, that the hadīth in question was already in circulation among the Muslims in the time of Abū Qurra. Thus the movement must have grown up in Islam towards the end of the eighth century.

How did the feeling arise? I believe it was partly due to the inherent temperamental dislike of Semitic races for human representations in sculpture and painting, and partly due to the internal effect of Jews who had been converted to Islam, like (1) the famous Yemenite Jew Ka‘b al-Ahbar, who was converted in 638, and who is frequently cited as an authority for Hadīth, and (2) ‘Abd Allāh ibn ‘Abbās, one of the earliest expositors of the Qurān, also (3) Abū Huraira and (4) Waḥb ibn Munabbih.

Finally, as a predisposing psychological basis, there was the feeling, so common among primitive peoples, that the maker of an image or painting in some way transfers part of the personality of the subject to the image or painting, and in so doing acquires magical powers over the person represented. This feeling was once very widely spread.

My conclusion therefore is that the prohibition against painting did not exist in early Islam, but that it grew up gradually, for the reasons given above, towards the end of the eighth century.

Similar Baths at ‘Abda and Ruhayba

Excluding the audience hall, the bath-houses at Qusayr ‘Amra and Hammām as-Sarakh (below, pp. 165–7) closely follow a local type of which two pre-Muslim examples have been preserved. At Ruhayba we have exactly the same sequence of vaulting systems: a tunnel-vault, a cross-vault, and a dome; in the walls are the same vertical grooves for pipes as at Qusayr ‘Amra and Hammām as-Sarakh, and on the far side of the domed chamber is the same tunnel-vaulted passage. ‘Abda is similar.

These two baths, according to Jauzen and Saviagnac, date from the Christian period, before the Arab conquest which sowed destruction in all the towns of the Negeb, and as the greater part of the tombstones that have been
dug up in the cemeteries of Khalāsa, Ruhayba, and Sebaïta date from the second part of the sixth century, they place these baths in the same period also.

The novelty, the addition of an audience hall, at Qasr Ṭāriq al-'Amra and Hammām as-Sarakh, enabled the Khalif to hold his desert court there.

The Plan

Strzygowski, basing himself on Musil's plan, compares the audience hall to a three-aisled church with apse and flanking rooms.66 This impression, which the plan certainly gives, is erroneous, for one does not get any impression whatever of three aisles when standing in the hall. The effect produced is that of a clear interior, nearly square, without aisles, the triple division being confined to the vaulting above one's head.

The Pointed Arch

Pointed arches are arches in which the two halves are struck from a different centre. The less the separation of these two centres, the less the acuteness of the arch. The occurrence of the pointed arch at Qasr Ṭāriq al-'Amra and Hammām as-Sarakh is proof of the priority of the East, for no European examples are known until the end of the eleventh or the beginning of the twelfth century. But H. C. Butler has called attention to a pre-Islamic Eastern example at Qasr Ibn Wardān (about 80 km. (50 miles) north-east of Homs), built between 561 and 564.67 He maintains that the arch of the apse and the four arches that carried the dome are all struck from two points, 30 cm. (1 ft) on either side of the centre, i.e. they are 60 cm. (2 ft) apart.68 Herzfeld has disputed this, yet a photograph taken by Thévenet, and published by Herzfeld himself,69 clearly shows one of the dome-bearing arches to be pointed. An absolutely frontal photograph which I took in the early 1930s, with the camera carefully levelled, confirms the point. In addition to this, the separation of the two centres, which Butler gives as 60 cm. (2 ft), is almost exactly the same as that found at Qasr Ṭāriq al-'Amra, where the arches are on much the same scale (6:18 against 6:66 m.; 201 against 211 ft). Against this we have the fact, admitted by Herzfeld, that the pointed arch is absolutely unknown in Sasanian architecture.70

Even if we omit Qasr Ibn Wardān, the pointed arches of Qasr Ṭāriq al-'Amra and Hammām as-Sarakh justify us in saying that this feature is of Syrian origin. And this view is confirmed by the fact that the very evolution of the

<table>
<thead>
<tr>
<th>Table of Arch Forms</th>
<th>Date</th>
<th>Separation of centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qasr Ibn Wardān</td>
<td>561-4</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Damascus</td>
<td>705-15</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Qasr Ṭāriq al-'Amra</td>
<td>712-15</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Bosrā</td>
<td>720-1</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Hammām as-Sarakh</td>
<td>725-30(?)</td>
<td>4th of span</td>
</tr>
<tr>
<td>Qasr al-Hair ash-Sharqi</td>
<td>728-9</td>
<td>Very slightly pointed</td>
</tr>
<tr>
<td>Maṣjar</td>
<td>729-43</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Qasr at-Tūba</td>
<td>744</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Raqqa</td>
<td>744</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Ukhāidir</td>
<td>772</td>
<td>Four-centred arch</td>
</tr>
<tr>
<td>Raṣla</td>
<td>last quarter 8th cent.</td>
<td>Slightly pointed</td>
</tr>
<tr>
<td>Fustāt</td>
<td>789</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Sabrā</td>
<td>827</td>
<td>Slightly pointed</td>
</tr>
<tr>
<td>Maṣjar</td>
<td>836</td>
<td>Four-centred arch</td>
</tr>
<tr>
<td>Qairawān (also Qairawān)</td>
<td>861-2</td>
<td>1/8th of span</td>
</tr>
<tr>
<td>Cairo</td>
<td>862</td>
<td>Pointed, with slight return</td>
</tr>
<tr>
<td>Church, arches under dome</td>
<td>2521 H. (866)</td>
<td>Pointed horse-shoe arch</td>
</tr>
<tr>
<td>Great Mosque, arches lining transept and under dome</td>
<td>261 H. (875)</td>
<td>Pointed horse-shoe arch</td>
</tr>
<tr>
<td>Great Mosque, portion of sanctuary</td>
<td>687-9</td>
<td>Irregular, about 1/8th of span and stilted</td>
</tr>
</tbody>
</table>
pointed arch – i.e. the gradual separation of the two centres – can be observed there. At Hammām as-Sarakh, for example, the separation of the centres increases to one-seventh or one-sixth of the span, and at Mshattā to one-fifth, a ratio which becomes fairly constant henceforth, e.g. the Cistern at Ramla (below, pp. 284–5). See Table p. 116.

Thus the first nine examples of this feature all occur in Syria.

The Low Springing of the Transverse Arches

This is a thoroughly local feature, good examples of which may be seen in a church at Tafhā, the fort of Qusayr al-Hallābāt, in the east church at Umm al-Jimāl, in the Bishop’s palace at Bosrū, in a church and house at Lubbēn in the Lejā, etc.55

The Vaulting System of the Audience Hall

Architecturally the most remarkable feature of Qusayr ‘Amra is its vaulting system, in which, the roof being carried on fixed points well apart, the wall between them becomes merely a curtain-wall, which may be pierced at will and lateral lighting obtained. With a simple tunnel-vault running from one end of a hall to the other, adequate lighting becomes difficult, owing to the necessity of meeting the continuous thrust of the vault. I shall therefore attempt to trace this somewhat unusual solution to its earliest type, a type in which this potentiality for lateral lighting is not realized, and in which the arches, placed seldom more than 2 m. (6½ ft) apart, are roofed with stone slabs and never vaulted. This primitive type is found at the beginning of the Christian era in Nabataean tombs still existing in the Jabal Haurān, south-east of Damascus.

This region does not produce any timber, so material necessity became the mother of invention and led to the discovery of new constructive methods. Thus the arch became the principal element of construction, and a series of parallel arches supporting ceiling slabs served to cover most of the halls. It may be asked, why did they not make the arch continuous and thus form a tunnel-vault? I think the answer must be that as they were not acquainted with the Mesopotamian method of building a vault without centering, a considerable amount of timber would have been required for the centering, a very serious matter. But by building a series of arches the same piece of centering could be used over and over again directly one arch had set.

This system must have been known in Mesopotamia at a fairly early date, for it is found in the palace at Hatra built by the Parthians, whose dynasty came to an end in AD 226.

It was left to the keen architectural insight of the Persians to realize its potentials, and to carry it to its full development. They were responsible for two innovations: (1) they were the first to use tunnel-vaults to connect the transverse arches, thus making it possible to place them farther apart; and (2) they pierced windows in each of the curtain-walls between these arches and thus obtained lateral lighting. The earliest existing building of this type is known as Tāq-Iwān at Khark, near Dīzīfū in Khuzistān.56 The surviving part consists of a gallery about 50 m. long by 9 m. broad (165 by 30 ft), the centre of which was occupied by a dome. Each half was spanned by transverse arches, brought up level and joined by tunnel-vaults, and in the side walls between each transverse arch was a window. Herzfeld has recently suggested that it may be of about AD 490.57

Conclusion

The vaulting system of the audience hall at Qusayr ‘Amra (and of Hammām as-Sarakh and the Mosque at Qusayr al-Hallābāt which we are going to describe) is of a perfectly normal local type with one modification – the slabs of basalt usually placed across the transverse arches are replaced by tunnel-vaults. This innovation was probably inspired by Qasr al-Kharānā, only 16 km. (10 miles) away (but see p. 105). The low springing of the transverse arches is also Syrian and so are the famous fresco paintings. As regards the hammām, it also follows a local type already developed in the sixth century, the very sequence of the roofing systems – tunnel-vault, cross-vault, and dome – being that adopted at Ruhayba.
The site of Jabal Says (70) lies 105 km. (65 1/4 miles) southeast of Damascus. The mountain from which it takes its name is an extinct volcano, consisting of a crater in the form of an ellipsoidal depression 2.5 km. (1 1/2 miles) long, with a volcanic cone below it at its western end. It is surrounded by bleak hamād, or steppe, which is totally barren of vegetation in the summer months. In the early part of the year, however, there is a small spring at one end of the crater, the winter rains form a great pool in the depression (khābra) below the crater, and vegetation grows around its edge. It is the presence of this water which allows occupation of the site.

The buildings form two groups, both situated in the immediate vicinity of the khābra, the one on the lower slopes of the cone, the other on the side of the great crater. Among the buildings in the first group are the palace (A), mosque (B), bath (C), two large houses (E and H), and a granary (G); two other large houses (D and F) are to be found in the second group of buildings. In addition, in the base of the lake formed in winter on the big volcano are two large cisterns about 35 m. (114 1/2 ft) square, one with a pentagonal stone cistern, average length of side 7.64 m. (25 ft), beside it.

The site was first made known by de Vogüé in 1865, but it was not until 1939 that a detailed study of it was made by J. Sauvaget,58 excavations were undertaken in 1962 and 1963 by K. Brisch with the support of the Deutsche Forschungsgemeinschaft.59

The Qasr

The qasr (71) consists of a rectangular enclosure averaging 67.11 m. (220 ft) a side externally, with four corner towers averaging 8.40 m. (27 1/2 ft) in diameter and a tower in the centre of each side, average diameter 6.50 m. (21 1/2 ft). Three of the corner towers are enclosed in a sort of chemise of stone 95 cm. (3 ft) thick, which has been added against the finished face of each tower. We have seen something very similar in the corner towers of the Dār al-Imārā of Kūfa. The walls are a little over 2 m. (6 ft) thick, and the first 2.50 m. (9 ft) are of dressed basalt blocks with a filling of lumps of basalt and mortar.

Above this they were built of mud bricks measuring 40 × 40 × 10 cm. (15 1/2 × 15 1/2 × 4 in.). There are practically no foundations, for the walls are built directly on the rock. The exterior of the qasr was originally coated in stucco.

The entrance tower, which is 9.17 m. (30 ft) in width and projects about 4.60 m. (15 ft), is built entirely of basalt, courses of well-cut blocks frequently alternating with courses of undressed stones. A slightly pointed arch leads into a tunnel-vaulted blocks at the back of which is a doorway opening into a great entrance hall, 5.95 m. (19 1/2 ft) wide and 6.90 m. (3 ft) long. The upper storey has the form of a horse-shoe in plan and originally contained four if not five windows. It probably had a brick vault. At the inner end of the great entrance hall is an opening which gives access to an inner court, about 31 m. (101 1/2 ft) square surrounded by porticoes, 3.80 m. (12 1/2 ft) in depth and with seven arches, as at Minya, on each side resting on piers. On each side of the courtyard, at the back of the portico, were seven doors, except on the north side where there were six together with the opening to the entrance hall. The doors belonged to the zone of habitation, about 11.80 m. (38 1/2 ft) in depth, which consisted of self-contained bayts, or groups of rooms. On the north side there was a five-room bayt belonging to the entrance of the qasr, and two six-roomed bayts, to right and left. On the east side there was a five-roomed bayt in the centre, flanked to the north by two deep rooms, and to the south by a pair of rooms and one deep room. On the west side there are two five-roomed bayts, and one deep room. On the south side there is a five-room bayt in the centre, and two six-roomed bayts to right and left. The central room of this five-roomed bayt was probably the audience hall, containing the throne recess. It should be noted that each of the lateral rooms of the bayts, except the end pair on the north side, is in communication with the other room in its pair as well as with the central room, which is not the case at Qasr at-Tūba, and occurs in only two of the four bayts at Mshattā. The two long rooms that were situated one at either end of the southern portico were probably occupied by staircases to the upper floor.

The porticoes probably consisted of two storeys, the
70. Jabal Says: general plan of the ruins (from Sauvaget, *Syria*, XX)
71. Jabal Saws: plan of the qasr
lower of semicircular arches resting on piers, the upper of arches resting on marble columns, some monolithic, others composite. The arches were formed of two concentric rings of brick. Between the columns of the upper storey were transeptae, or balustrades, of brick and stucco, just over 1 m. (3½ ft) in height. The façade was crowned with crenellations, probably with six steps.

The unit of measurement employed must have been the Nilometric cubit of 54.04 cm. (11½ ft), which we shall see was also employed at Mafjar (p. 186) and also in the Mosque of Ahmad ibn Tülün in 263-5 H. (876-79) (p. 398).

Al-Bakri says that Walid I had a residence at 'Usays. Did he build it early or late in his reign? Its monastic simplicity, compared with the luxury of Minya, might lead one to place it earlier, but I believe that this ascetic aspect is to be explained by the structure's distant and isolated position. Arabic graffiti scratched on the rocks in the neighbourhood have dates ranging from 93 H. (712) to 119 H. (737), and it would thus seem that the Umayyad occupation of Jabal Says began towards the end of the reign of Walid and continued towards, if not actually until, the fall of the dynasty. And if the mosque nearby, which has a concave mihrab, is contemporary with the gassr, then we must assign them both to the period after the introduction of this feature at Madina in 88 or 90 H. (707 or 709) and before the death of Walid I in 100 H. (715).

The Mosque

At a distance of about 70 m. (230 ft) to the west of the gassr is a small nearly square mosque (72) measuring 9·34 by 9·48 m. (30½ by 31 ft) internally, with walls of basalt from 80 to 90 cm. (2½ to 3 ft) thick. It has two doors, one in the northern and one in the eastern side. The interior is divided into two nearly equal parts by an arcade of two slightly stilted semicircular arches, 2·93 m. (9½ ft) and 2·98 m. (9½ ft) in span, which rest on a central pier measuring 60 by 78 cm. (2 by 2½ ft) and two wall piers, each 1·28 m. (4 ft) deep. The arches rise approximately 1·65 m. (5½ ft), which, added to the height of the piers and allowing, say, 30 cm. (1 ft) for the depth of the vousoirs, gives 9 m. (29½ ft) as the height of the roof. The
upper part of the walls was probably mud brick, and the roof was probably wood. The mihrāb niche measures 1.07 m. (3 ft) in width and 1.36 m. (4 ft) in depth.

The Bath
About 150 m. (492 ft) east of the qasr are the remains of a hammām and audience hall (73), a building measuring about 16 by 17 m. (52 by 55 ft). The preserved lower walls are of basalt, and the rest was doubtless of burnt brick. The building consists of a large tunnel-vaulted hall 4.37 m. (14 ft) wide and about 10 m. (32 ft) long with a semicircular exedra, entered by a slightly nar-

rower arch. At the opposite end are two small tunnel-vaulted rooms about 3.5 m. (11 ft) deep. The hall I take to be the audience hall, corresponding to room A at Quasayr Amra, but the two small rooms which there flank the throne room recess are here transferred to the far end of the hall. The vaulted hall was entered by a door in the north side. A door in the south side leads into a series of rooms, one oblong and tunnel-vaulted as at Quasayr Amra, the next square, which on the analogy of Quasayr Amra and Hammām as-Sarah was probably cross-vaulted, and a third room, square with recesses, which was probably domed.

ANJAR

Although several earlier scholars identified the site, our knowledge of Anjar is due to the extensive excavations of Emir M. Chehab in the 1950s (74).

The Enclosure
‘Anjar consists of a walled enclosure measuring 370 m. (404.6 yd) from north to south and 310 m. (339 yd) from east to west, flanked by solid half-round towers and with a hollow three-quarter-round tower at each corner. There is a gateway 3.08 m. (10 ft) wide, flanked by nearly half-round towers, in the centre of each side. There are forty towers in all. Each side is provided with pairs of open staircases a metre wide, which run up the inner face of the wall behind the gateway and behind the towers next to the corner towers, making twelve in all. The walls are 2 m. (6.4 ft) thick of dressed stone blocks, in courses 50 to 60 cm. (1.6 to 2 ft) high externally, but of considerably smaller blocks internally. Between the two is a core of rough blocks and chips embedded in mortar. Crenellations found all round the enclosure show that the wall must once have reached its full height.

The interior was divided into four parts by colonnaded streets which ran from each gateway to the one opposite, and crossed in the centre, where there was a tetrapylon of four groups of four columns. About 4.5 m. (14 ft) behind the rows of columns were shops, about 5 m. (16 ft) deep and 3.5 m. (11 ft) wide, with doors corresponding more or less to the intercolumniations. There were thirty-two shops on the west side of the north to south street, southern half, with space for passage-ways between the 10th and 11th and between the 19th and 20th, counting from the south. At these two points the columns are replaced by T-shaped piers, so the roofing must have intersected here. The road between the columns was about 7.5 m. (24.5 ft) wide, and the distance from shop face to shop face about 19 m. (62 ft). On the east side of the same street three shops are replaced by a triple-arched façade forming a monumental approach to the palace behind it. Further north is a building with a triple-entrance, apparently related to the mosque behind it.

The Palace
The palace measures 71 m. by 59.5 m. (232 by 195 ft). Its outer walls are 1.20 m. (4 ft) thick, and it has two primary entrances, the one already mentioned on the west and another exactly opposite on the eastern side. Both lead into a room 11 m. (36 ft) deep and 6.5 m. (21.5 ft) wide, from which the central courtyard, 32.5 m. (106 ft) square, can be reached. As at Mshattā the interior was evidently divided into one wide and two narrow strips running from north to south. The courtyard was surrounded by a cloister with six columns on each side and L-shaped corner piers. Behind it on the south
side was a basilical hall, the façade of which had fallen forward during an earthquake and lay on the ground face downwards just as it had fallen. Now raised and built anew, it creates an extraordinary impression, for the masonry is composed of courses of stone which alternate with three courses of brick. No stucco covering seems ever to have been intended. In the centre of the façade is a doorway flanked to left and right by four arched windows, of which the pair next the entrance are blind. The arches are linked together by a continuous splay-faced moulding. On the upper façade is a tall triple-arched window, flanked to the right (and once no doubt to the left) by a small arched window like those below. Here again the arches are linked by a continuous splay-faced moulding. The basilical hall itself has four arches a side in two tiers, resting on columns with reused Roman capitals, surmounted by impost blocks in the shape of a truncated pyramid exactly as in the Great Mosque at Damascus before the great fire of 1863. At the south end is an enormous apse 4.83 m. (15½ ft) wide. To both the right and left are three rooms.

It would appear that the basilical hall, together with its flanking rooms and apse, was exactly duplicated on the north side of the courtyard, except for a doorway to the east of the apse, which opened into a street only 3 m. (9½ ft) wide, exactly opposite the door into the mosque immediately to the west of the mosque's mihrāb. This door must presumably be regarded as the door of the maqsūra.

The Mosque

The mosque is about 47 m. (154 ft) wide and 30 m. (98½ ft) deep. It reveals a somewhat unusual plan in some respects, reminding one of Bosrā. Its sanctuary is two aisles deep, and likewise the lateral riwāqs, but its northern riwāq is one aisle deep only. The mihrāb, which is somewhat out of alignment with the axis, is 1.93 m. (6½ ft) wide. The stone base of the maqsūra survives, with a doorway giving access to the rest of the mosque in its north wall.

The Lesser Palace

To the north of the mosque on the other side of the colonnaded street is a palace nearly as large as the one already described. It is entered through what normally would have been a shop, but which presumably became the entrance porch of the palace. An oblong room leads into a square porticoed courtyard, flanked to both the west and the east by a pair of five-roomed bayts. On the north side of the courtyard is what appears to be another five-roomed bayt, of which the western third has disappeared. The entrance to the central room was flanked by twin colonnettes surmounted by a conche-shaped niche, similar to those which decorated the courtyard façade of the entrance to the greater palace. To the east of the palace is what appears to be an enclosed bazaar with eleven shops on each side.

The Tetrapylon

The tetrapylon consists of four groups of four columns each, resting on four square plinths 1.74 m. (5½ ft) high and roughly 7 m. (23 ft) apart. One of the re-erected columns at the north-west corner measures 4.95 m. (16½ ft) not counting its capital and base.

The Hammâm

To the left on entering by the north gate was an hammâm, consisting of a square hall, its roof resting on two arcades of three arches each, and the usual sequence of three rooms. The third, the caldarium, is square and was probably domed, and there is a semicircular recess to right and left, as in Qusayr ‘Amrā and Hammām as-Sarakh.

The Date

Theophanes and a Syriac manuscript of 846 both record that al-Walīd founded a town called Garis or In Gere. In addition, an inscription in the quarry near the village of Kāmed in the Beq'a, from which the dressed stones used at ‘Anjar definitely come, reads: ‘In the year 96 of the Hijra [714–15] in the time therefore of the reign of Walīd son of ‘Abd al-Malik Emīr of the Saracens, this quarry has been opened by [men from] Jezīrat Kurdu [Jezīrat ibn ‘Umar]. We can therefore date ‘Anjar to 96 H. (714–15), the last year of Walīd’s reign.
NOTES

3. Almost all the blocks of this cornice were found in the débris.
7. B. Moritz, *Ausflüge in der Arabia Petraea*, MFOA, iii, p. 422; see also N. Abbott in *Arts Islamica*, xi-xii, pp. 190-5.
8. *JRAS* (1886), p. 22 and Figure.
10. I have verified this with a pair of compasses, on a wide-angle photograph taken on the axis of the arch.
13. M. Almagro, L. Caballero, J. Zoaza, A. Almagro, Quasr 'Amra, residencia y bataz omeya en el desierto de Jordania (Madrid, 1975). Much of this work was concerned with the wall paintings on this site (see below). In the course of three campaigns, a team of restorers subjected the colours and the surface of the walls to restoration after chemical analysis, and were thus able to find the best procedure for cleaning and consolidating the paintings, seventy-five percent of which were practically hidden. These campaigns were followed by a further two in 1974, during which the documentation of the monument was begun. . . Likewise, the building has been strengthened by introducing a hidden loop of reinforced concrete in the thickness of the wall at the west end of the great hall, which was threatening to collapse‘ (p. 117).
14. Almagro et al., p. 121.
16. See the remarks of Müller, the editor, in *Kusejr 'Amra*, pp. iv-vii, and of Wickhoff, *ibid.*, p. 203; also van Berchem, *Journal des savants* (1909), p. 308. As noted above, the Spanish Archaeological Mission between 1971 and 1974 uncovered large areas of paintings hitherto unknown. Descriptions of the scenes concerned have been added to Crewell’s summary: [J.W.A.]
17. Almagro et al., Pl. ix.
18. Tracing in Jauussen and Sagniac, *op. cit.*, Pl. ivv. I was unable to distinguish this word.
19. This has since suffered so much that it is almost impossible to distinguish anything.
22. Strzygowski, *Orient oder Rom*, pp. 11-12 and Taf. 1; Chabot, *Choix d’inscriptions de Palmyre*, pp. 96-105 and Pls xiv, xv, and xvii.
24. See Jaussen and Sagniac, *op. cit.*, Pl. XLV-XLVII.
26. See the brilliant study by the late Fritz Saxl and Dr Arthur Iber, contributed in 1932 to my *Early Muslim Architecture*, i, pp. 289-303.
35. *Revue Biblique* (1892), fig. on p. 118.
37. *Arts Islamica*, ix, ‘Notes’, Fig. 2.
38. *Byzantine Art*, p. 279.
47. First found in Bukhârî (c. 870): ‘On the Day of Judgment the punishment of hell will be meted out to the painter, and he will be called upon to breathe life into the forms he has fashioned; but he cannot breathe life into anything’; Juynboll’s ed., i, p. 41, and iv, p. 106.
48. For these two buildings see Musil, *Kusejr ‘Amra*, p. 67 and fgs. 49-56 and 66-8.
49. *Les Châteaux arabes*, p. 112.


57. In *Ars Islamica*, x, p. 52.


QASR AL-HAIR AL-GHARBI, 105-9 H. (724-7)

Qasr al-Hair al-Gharbi is situated some thirty-seven miles west of Palmyra. The various elements relating to the site are as follows:

I. In the mountains some ten miles to the south is the Harbaqa dam, built in Roman times.

II. In the plain at Qasr al-Hair are four principal structures:

1. A rectangular enclosure 1050 m. (1148 yd.) long and 442 m. (4831 yd.) wide surrounding the irrigatable land.

2. A barrage with lateral walls for the collection and distribution of water.

3. A khān.

4. A palace with bath-house nearby.

III. Between Harbaqa and Qasr al-Hair:

1. A largely subterranean canal bringing water from the dam to the site.

(2) A 'staging-post'.

The principal structures, excluding the 'staging-post', were cleared and excavated by D. Schlumberger between 1936 and 1938.1

The Enclosure Walls

The enclosure was originally surrounded by a mud brick wall on a stone base. The wall was strengthened at intervals by semicircular towers, which were placed on the interior and exterior faces alternately. The main entrance was at the eastern corner of the enclosure, and consisted externally of an ante-chamber and internally of a vestibule, with what must have been the door-keeper's room attached internally on the east. The design of both walls and entrance is similar to those of Qasr al-Hair ash-Sharqi.

Note.

In Chapter 6, the section on Qasr al-Hair al-Gharbi is an abbreviated version of that in Early Muslim Architecture 1969, I, 2, pp. 506-18, with additions relating to the general situation and nature of the site, the enclosure walls, the barrage, and the bath. The section on Rusāfa, which is new, is based on recent archaeological work by Professor Otto-Dorn, and that on Qasr al-Hair ash-Sharqi, on the excavations of Professor Grabar. In the latter section, the only parts of Creswell's text which have been retained are the sub-sections entitled Joggled Vessels and The Michicoulis, the description of the towers of the Lesser Enclosure and his quotations from primary sources on the meaning of the word al-Hair. Three other sections have been added to the chapter: one on Qasray al-Hallabat, into which Creswell's section on Hammām as-Sarakh has been integrated; one on the palatial complex on the citadel at 'Ammān; and one on Qastal. Creswell cautiously attributed the qasr at Qastal and the cruciform building on the 'Ammān citadel to the Ghassânid period (Early Muslim Architecture 1969, I, 2, p. 637), but recent research has demonstrated an Umayyad origin for both of them, and has suggested that they most probably date from the reign of Hishām.
The Barrage

This consists of a semicircular stone wall across the ancient wādi bed extended upstream by lateral walls. The semicircular wall is 2·75 m. (9 ft) thick, and is strengthened by 2 m. (6½ ft) diameter semicircular towers every 7·80 m. (25½ ft) on the outer face. On the inner face are three such towers: one in the centre which seems originally to have been surmounted by some sort of pavilion, and two others where the dam joined the lateral walls. The latter two were originally decorated with stucco reliefs, including hunting scenes. The lateral walls were less thick – 1·20 m. (4 ft) – and had smaller, more widely spaced towers. The dam was built with thirteen outlets, but ultimately only three had been used, and these fed water to the enclosure.

The Khān

The khān (78), originally of mud brick on a stone base, forms a great rectangle measuring 55·75 m. (182½ ft) (east), 54·10 m. (177½ ft) (north), 55·90 m. (183½ ft) (west), and 55·10 m. (180½ ft) (south). Within is a central court measuring about 22·50 by 23 m. (73½ by 75½ ft), surrounded by a portico about 2·5 m. (8½ ft) deep, with four L-shaped corner piers and the stone bases of the other supports, which may have been wood. Behind this portico on the north, west and south sides are three narrow rooms each nearly 4·8 m. (15½ ft) long and about 4·80 m. (15½ ft) wide, which overlap alternately at the corners. On the side of the entrance are six rooms of varying dimensions and a vestibule. Immediately to the right on entering the yard is a block of masonry which served the staircase to the roof. Two wings advance eastwards 18 m. (58½ ft), one from each end of the façade. That on the left was a mosque, as is proved by the remains of a mihrāb; the other had a portico on three columns, probably of wood, and a drinking trough at the back. The date of the khān is given by an inscription on the lintel, perhaps the most extraordinary inscription in Islam. It was sometimes the Roman practice not to carve an inscription on stone, but to cast the letters separately in bronze with pegs at the back and to fix them thereby to a stone block. Our inscription must
have been executed in this fashion, but the metal letters have disappeared, leaving holes intended to take the pegs, and shallow grooves for the letters. The inscription runs: 'The execution of this work has been ordered by the slave of God, Hisūm, Amir al-Mu'minin . . . in Rajab 193 [Nov. 727]'. It is an extraordinary example, unique of its kind, of the survival of antique methods in early Islam.

The Palace

The palace (79, 80) is a rectangle which, excluding the towers, measures 71·45 m. (234 ft) (east), 70·45 m. (231 ft) (north), 73·03 m. (239 ft) (west), and 71·05 m. (233 ft) (south), with an entrance flanked by two halfround towers in the centre of the east face. There are three round corner towers, the place of the fourth being taken by the tower of the monastery which the builders decided to incorporate into the enclosure. There are also three intermediate towers. The outer wall of the enclosure, which is about 2 m. (6½ ft) thick, is of dressed stone with a rubble core for the first 2 m. (6½ ft); above this is a zone of burnt brick, and above this mud brick.

The entrance gateway (81) is 3 m. (9½ ft) wide and is formed by two jamb 4 m. (13 ft) high and a monolithic lintel, all richly decorated and presumably taken from some building at Palmyra. The roof of the entrance passage, which is about 11 m. (36 ft) long, was supported by two transverse arches resting on pilasters, their thrust being taken by buttresses on the other side of the walls in the adjacent rooms. Between the pilasters on each side are three stone ledges, the central one being provided with stone pillows, exactly as at Khirbat al-Mafjar (below, pp. 181, 182). The entrance passage leads into a courtyard measuring about 45 m. (147½ ft) square which is reduced to 37 m. (121½ ft) by a portico about 4 m. (13 ft) deep all round. Of this portico nothing remained except the four corner piers and the column bases, all in situ except one. The pavement of the portico is separated from that of the court by a step, as at Mafjar; a gutter runs all round and in the centre was formerly a small basin.

Behind the portico is a series of rooms 11 m. (36 ft) deep on every side. Of the fifty-nine rooms into which the interior is divided, five are entirely independent and open directly into the portico. The rest of the chambers consist of six halls, similar in plan and proportions, to each of which a number of smaller rooms are attached. Each of these halls together with the rooms depending on it forms a self-contained set of rooms without any connection with the other sets, and each of these six groups is provided with a latrine, which emphasises their self-sufficiency. The main hall of each group, or bayt, is divided into two bays by a transverse arch resting on pilasters. In each bay of the three southern halls are two doorways, opposite to each other, which give access to the rooms of the group. All are placed in exact alignment, so that it is possible to see from one end of the group to the other, in some cases through six consecutive rooms.

Two of the independent rooms (S and S') contained staircases which led to the upper floor. The plan of the upper floor seems to have been virtually the same as that of the lower floor, and parts of the stucco balustrade fixed between the columns of the upper portico have been recovered.

How the rooms next the outer wall were lit is uncertain. The rooms next the court were probably lit by windows under the portico. The central hall would be lit by a grille in the lunette above the entrance, as well as by a diffused light from the lunettes above the doors of the side rooms next the court.

The Decoration

The stucco decoration of the monumental entrance has been brilliantly reconstructed by Schlumberger as follows. The decorative plan begins 4 m. (13 ft) from the ground with a frieze of wind-blown acanthus. Above this on each tower were three great oblong panels, about 3·25 m. (10½ ft) high, set vertically; each of the three panels had a different design, with those on the right tower corresponding in design to those of the left, but in reverse order. Separated from these panels by a band of little medallions and a splay-face moulding is a series of seven panels alternately square and oblong surmounted by a narrow frieze of palmettes. Above this is a row of colonnettes supporting an alternation of gables.
79. Qasr al-Hair al-Gharbi: the palace, plan
and shell-hoods, between which a number of female busts were inserted. Above this was a band formed by a meander filled by palmettes and rosettes alternately. Each tower was crowned by five stepped and undercut crenellations, with an arrow-slit in the centre of each.

Fragments were also found of the bas-relief of a sovereign, approximately life-size, seated, with feet close together and knees wide apart just like the figure of a Sasanian king, although he carries no sword (82). It is highly probable that this royal figure occupied the tympanum of the arch over the entrance.

Other decorated areas of the palace were the portico, which had three stucco panels inserted as a parapet in each intercolumniation of the gallery on the first floor, and the doorways of the rooms, in which the brick arches were decorated with beautiful stucco ornament, and a stucco grille occupied the tympanum. This, it should be noted, was the first introduction of stucco ornament into Muslim architecture. The walls of the ground floor rooms were painted either in wide horizontal bands of colour, or in a coarse imitation of marble panelling, or in great, brightly coloured rosettes with geometrical or plant ornament, with the exception of one representing a hippogrieff.

The Frescoes

Rooms S and S' were both found to contain a floor fresco in a remarkable state of preservation, together with four supports of unequal height, either columns or piers. These evidently carried a wooden staircase to the staterooms on the east side of the upper floor, and the paintings could have been admired by looking over the banisters on the way up. The first fresco is divided horizontally into three unequal parts. In the topmost section two musicians are shown standing under two horse-shoe arches resting on badly drawn columns and crude impost blocks. The second picture represents a young bearded man on horseback hunting gazelles. He is riding a black horse with a tail dyed with henna and tied in a fantastic knot; the horse's hoofs are also stained with henna. The rider, who is seated on a white saddle-cloth, has black curly hair tied with a floating ribbon, and floating ribbons, Sasanian style, are attached to his
81. Qasr al-Hair al-Gharbi: the palace entrance as reconstructed
belt. His brown shoes and green pantaloons appear beneath his long dress, and, most remarkable of all, he is using stirrups, of which this must be one of the earliest known representations. He has just shot a gazelle with a typical Turkish bow of double curvature. The upper part of the third picture has suffered badly but one can still see a hunting dog chasing a hare. In the lower part a man with a large key attached to a ribbon leads a horned animal with divided hooves—probably a slave leading a captured animal towards the Hair, or game preserve.

The second fresco is surrounded by a border of an undulating vine-scroll with bunches of grapes. In the centre is a great medallion, 1.80 m. (6 ft) in diameter, occupied by the bust of a woman with a background of foliage. Round her neck is a collar of pearls and below that a reddish snake. Her hands are holding up a basket of fruit. This allegorical figure may be compared to Ge in the mosaics of Antioch. Below are two marine monsters, rather like Lapiths, each with a javelin in his right hand. Of the lower part nothing has survived except the faint outline of several foxes, a heron, and other animals.

The Bath (83)

The bath is situated about thirty metres to the north of the palace. Its walls vary in thickness but consist of two fairly regular cut-stone facings with a fill between. The bath is divided into two principal parts—an unheated part (I–IV) and a heated part (V–VII), with two service rooms (VIII–IX). The baths are entered at the northeast corner, from which a shallow staircase descends to the furnace (VIII), and a vaulted porch leads into a large rectangular hall with a basin in the south-west corner and benches around the rest of the walls. A doorway by the basin leads into room III, which has a niche in the south wall and a brick bench in front of it. From room III one could proceed to IV, a rectangular room with a niche in the south wall and a doorway to the outside of the building in its east wall (the latter was later blocked up). Or one could proceed to room V, the first of the heated rooms. This is rectangular, with a large bench taking up its western part, and the two rooms following are essentially of the same type. Room VI, however, has
two semicircular basins set diagonally into its west wall, while VII has a niche in its east wall and a square recess on the west, also containing a basin. Rooms V, VI and VII were evidently barrel-vaulted and are constructed on hypocausts consisting of pillars of eight to ten brick discs. The rooms were also heated laterally, the hot air rising up a narrow space left between the stone walls and a thin, brick partition wall on the inside. Water for the baths was brought by a conduit which ran under the east wall of the complex and discharged into the cistern (X). The whole of the unheated interior was plastered, often to imitate marble, and remains of real marble were found in the hot rooms. A few fragments of stucco lattice-work were also found.

Identification and Date

The texts relating to the identification of the site, in chronological order, are as follows:

Theophanes (d. 818) says: ‘And he [Hishām] began to found palaces in open country and town, and to create sown fields and gardens and to make water channels’.

Baladhuri (868) says: ‘As for Rusāfah-Hishām, it was built by Hishām ibn ‘Abd al-Malik, who previous to its foundation lived at az-Zaytūnā’.

Tabari says: ‘Hishām used to live at Rusāfah. . . . Ahmad ibn Zuhayr has related to me from ‘Ali ibn Muhammad, saying: The Khalifs and their sons used to flee from the plague. They would therefore go to live in the desert away from the people. When Hishām wanted to live at Rusāfah someone said to him: Do not go, for the Khalifs do not catch the plague, no Khalif was ever seen with the plague. But Hishām replied: Do you wish to make an experiment with me? So he went to live at Rusāfah which is [in the desert, and built two qasr there. Rusāfah was a Rūmī town which had been built by the Rūm’.

Tabari also says: ‘Muhammad ibn ‘Umar relates from someone who told him that the Khalifate came to Hishām whilst he was in Zaytūnā in a little house of his there. Muhammad ibn ‘Umar said: I have seen it and it was small. The postal courier brought him the sceptre (‘asā) and the seal and addressed him as Khalif. Then Hishām rode from Rusāfah to Damascus.’

The author of the Kitāb al-‘Uyun (eleventh-twelfth century) says: ‘Hishām went to live at Rusāfah. It was [in the] desert. There had been a Rūmī city there, built formerly by the Rūm, where they had made cisterns and qanāt coming from a long way off in the desert. It had subsequently fallen into ruin: Hishām restored it and built two castles there.’

Yāqūt (1225) says: ‘Zaytūnā. . . . this is a place in the Syrian desert where the Khalif Hishām lived before he built Rusāfah.’

Thus we have the statements of Tabari and the Kitāb al-‘Uyun that Hishām lived at Rusāfah and built two qasr there, which identifies Qasr al-Hair ash-Sharıqī with Rusāfah; and Baladhuri’s statement (repeated by Yāqūt) that before Hishām built Rusafat-Hishām he lived at az-Zaytūnā, which identifies the latter with Qasr al-Hair al-Gharbī.

Architectural Origins

The general design

How do we explain the fortified appearance of Umayyad palaces, when the Umayyad times were far away, in Transoxiana and beyond the Indus? First of all, the armies of conquest passed a long series of Roman frontier forts, the castra of the Roman times, which ran from the Gulf of ‘Aqaba to Damascus and from Damascus to Palmyra. Furthermore some of these frontier forts were lived in by Umayyad princes; for example, al-Walid II sometimes lived in the Roman fort of Azraq. The result of this was twofold. It meant that the Umayyads had the necessary knowledge when they wanted to build fortresses on the Byzantine frontier, and it affected the design of the palaces of the Umayyad Khalifs. Al-Walid’s palaces at Minya and Jabal Says, Hishām’s Qasr al-Hair al-Gharbī and Qasr al-Hair ash-Sharıqī, the palace at Khirbat al-Mafjar, and al-Walid II’s palaces of Mshattā and Qasr at-Tūba all look externally like forts, for they are stone enclosures with round flanking towers. Why was this fortified appearance necessary? My conclusion is that having been in the habit of occu-
Qasr al-Hair al-Gharbi, the plan (from Schlumberger, *Syria*, xx)
pying forts belonging to the Roman *limes*, they came to look upon a rectangular enclosure flanked by towers as a necessary part of a princely residence, a *sine qua non*, the 'correct thing', so to speak.

The *bayts* (§4, 85)
Where can we find a central open court with two storeys of rooms next the walls and a colonnaded portico, also in two storeys, in front of them, such as we have at Minya, 'Usays, Qasr al-Hair al-Gharbi, Qasr al-Hair ash-Sharqi, and Mafjar? We have precisely this type at Bosra, in the palace of the Roman Governor, a monument which has been completely ignored in all discussions on the origin of the Umayyad palace and its *bayts*. Moreover, here there is even a *bayt*, i.e. a central hall flanked by a pair of rooms on either side.9 But these side rooms, rather than being separated by a wall without a door as at Mshattā and Qasr at-Tūba, are merely divided by an open arch, as on the south side of al-Walid's palace at Minya, the earliest Umayyad palace to have come down to us.

The earliest Syrian *bayts* under Islam are indeed those in al-Walid's palace at Minya. At Kharānā we have a similar type of five-room *bayt*, but a number of variants occur, due to the shapes of the areas available. Thus, on the ground floor there is an extra corner room for the two side *bayts*, and the one at the rear has two extra corner rooms; on the upper floor the south side appears to be occupied by three *bayts* but due to the lack of space the central *bayt* in fact has to share its two wings with the *bayts* next to it. At Jabal Says a large room (or court) has been added on one side of four of the *bayts*, in connection with the hollow corner tower which may have served as a latrine, as at Mshattā. Thus, as at Kharānā, we get a six-room *bayt*. But this is not really an innovation, for the *bayt* in the palace of the Roman Governor at Bosra is likewise extended on one side. At 'Anjar we have a five-room *bayt* again, but an emphatic division of the whole building by the use of passage-ways. At Qasr al-Hair al-Gharbi we find a variant of the five-room group in which the lateral rooms lying along the façade are extended by a further series of oblong rooms, set parallel to the outer walls.

Now for the sake of comparison let us consider the
early Persian bayts (85). At Firuzabad (c. AD 226) we have two bayts on either side of the great court. Each consists of an iwân with a pair of flanking chambers, which can be entered either from it or from the court. At Sarvistan (early fifth century) we have the same arrangement except that the flanking rooms are (nearly) square and entered from the iwân only. At Qasr-i Shirin, in the palace of Khusrau Parvez (AD 590–628) a distinct advance is shown. The iwân and its flanking chambers have become much deeper, and in front of them is a portico of three arches. A passage at the side leads into a court at the back. At Ukhaidir (second half of the eighth century) the arrangement is almost identical, that is to say the Abbâsids followed the Sasanian tradition.

RUSÂFA

The remains of Umayyad Rusafa were investigated by Professor Otto-Dorn in two seasons, during 1932 and 1934. The ruins are located south of Rusafa-Sergiopolis, in an area some 3 km. (2 miles) in extent.11 The qasr (86) is a building approximately 77 by 72 m. (252½ by 236 ft) square, oriented north-south. At the corners are massive round towers, 3-80 m. (12½ ft) in diameter, standing on square socles 0-80 m. (2½ ft) high and jutting out 2-60 m. (8½ ft). The outer wall is 1-50 m. (5 ft) thick. On the north, east and west sides the walls have three round towers 3-10 m. (10 ft) in diameter; on the south face is the entrance, flanked by two oblong, square-based towers. The entrance way is unusually wide – 13-40 m. (44½ ft) – and its original form cannot be ascertained. In the outer angle of the eastern entrance tower is a horse trough. There is a small passage-way through the wall near the south-west tower, and to its north is a brick drain between gypsum blocks which turns northwards and can be followed for about 3 m. (9½ ft). This may represent part of a bath complex. A second, smaller passage-way is situated near the north-east tower, and a third north of the south-east tower. The walls are nowhere more than 2 m. (6½ ft) high. The outer walls are of unburned bricks 38 by 38 cm. (15 by 15 in.) square and 10 to 12 cm. (4 to 4½ in.) thick, and were originally covered with gypsum mortar. Baked brick (possibly for use in alternation with unbaked brick), a small amount of stone, and plaster, were all used in the building, but much of the baked brick to the north and south of the courtyard is of a later date. The occurrence of several thicknesses of mortar on the walls suggests that the building was in use for a considerable time.

Inside is a courtyard measuring 48 by 30 m. (157½ by 98½ ft). It was probably surrounded by arcades. On the north side of the courtyard is a large central room with symmetrical side rooms. To the east of this group is a set of five rooms, the large central one opening onto a subsidiary courtyard. Each of the large rooms mentioned has a square alcove set into its south-west corner. To the north-east of the five-room group is a set of three small rooms with a passage-way through the walls to the open air. These may have been kitchens or serving rooms. There was originally a passage-way between the main courtyard and the subsidiary one, and one long rectangular room and five small ones are grouped around the south and east sides of the latter. This layout was almost certainly repeated twice, on the western as on the eastern side of the courtyard.

Finds of stucco and wall painting were very rich. The finest paintings were those of the main room on the north side, which included blind horse-shoe arches and imitation marble, and the niche in this room had a naturalistic tree painted in it. The room also contained rich stuccowork, as did the gateway and the north-east corner of the courtyard. The latter areas, also, had decoration of blind arches.

While the door system in the north-east courtyard and room 17, and the existence of re-used stucco in room 6, both point to later occupation and modification of the site, various general features (including the stucco fragments, the general plan, and the fact that all the 14 coins found were Umayyad) point to an Umayyad origin for the building. Moreover specific features offer a close connection with Umayyad palace styles, in particular those attributed to Hishâm. Thus an irregular
86. Rusafa: the palace, plan (from Otto-Dorn, *Ars Orientalis*, 2)
87. Qasr al-Hair ash-Sharqi: the two enclosures from the south

88. Qasr al-Hair ash-Sharqi: entrance to the Lesser Enclosure
square layout occurs, for example, at Qasr al-Hair al-Gharbi, an entrance slightly to one side of the main axis is found at Mafjar, a mixture of construction materials at Qasr at-Tūba and Mshattā, the use of blind arcading at Qasr al-Hair al-Gharbi and ash-Sharqi, and so on. Finally, it should be noted that comparison of the decoration with that of the building on the Citadel of Ammān suggests that the latter may also be a foundation of Hishām (see p. 169 ff.).

If, then, this is one of the palaces of Hishām mentioned in early texts, where is the second? In the ruined area south of Rusāfah-Serjipolis, about 1 km. (½ mile) from Palace I, is a group of ruins measuring some 300 by 120 m. (984 by 393½ ft), which includes a larger, almost square building about 80 by 90 m. (262 by 295 ft) in size, a rectangular building c. 35 by 110 m. (115 by 360 ft), and four small tumuli. On both the main sites the remains of corner towers can be made out. In the northern end of the square building stands a hillock of rubble, while in the middle of the south front is a round tower on a square socle, which must be one side of the great entrance. Stucco fragments, including blind arcades like those in Palace I and revealing the same technique, and pieces resembling stucco from Qasr al-Hair al-Gharbi, indicate that these ruins are those of Rusāfah-Hishām, and that one of these buildings is the palace in which, according to the sources, Hishām gave audience under a green dome.

QASR AL-HAIR ASH-SHARQĪ

Qasr al-Hair ash-Sharqi lies in the desert nearly 97 km. (60 miles) north-east of Palmyra and about 64 km. (40 miles) south of Rusāfah.

The ruins consist primarily of two fortified enclosures, roughly square, both flanked by half-round towers; one averages nearly 66 m. (216½ ft) and the other about 160 m. (525 ft) a side internally (87). There is also a bath-house and an outer enclosure, the latter surrounding an area of some 7 square kilometres (2½ square miles).

The site was partially excavated by an expedition sponsored by the Kelsey Museum at the University of Michigan under the leadership of Professor Oleg Grabar, in seven campaigns between 1964 and 1972.12

The Lesser Enclosure (89, 90)

The Lesser Enclosure measures 68 m. (223 ft) on the west, 67 m. (219½ ft) on the south, 71·5 m. (234½ ft) on the east and 74 m. (242½ ft) on the north. It is largely built of stone brought from quarries on the southern slopes of the Jabal Bishri. The enclosure is founded on bedrock, and because of the irregularity of the latter the foundations vary from 30 cm. to 1·55 m. (12 in. to 5 ft) or more in depth. They consist of a layer of mortar or small stones in mortar, a thick layer of stone rubble in mortar and a thin layer of mortar, on which the first course of stones for the walls are then placed. The enclosure walls consist of thirty-three stone courses and reach a height of nearly 11 m. (36 ft), each course being approximately 32 to 33 cm. (12¾ in.) high. The walls are just over 2 m. (6½ ft) in width, and consist of faced stones which taper inwards and mesh with the small amount of rubble and mortar in the core of the wall. Tool markings on the faces of the stones indicate that the facing was finished after the wall had been built.

The entrance is particularly well designed (88). A traditional moulding frames a 2·98 by 3·79 m. (9½ by 12½ ft) entrance doorway (the sides of which have now been restored by the Department of Antiquities), covered with a flat arch. Above it is a semicircular relieving arch, the tympanum of which is filled in with plain masonry; the spandrels are occupied by little niches with fluted heads.

The towers at their summits exhibit a most original and charming decorative scheme, carried out in brick and stucco. It begins below with a cyma recta moulding; then there are two courses of brickwork, then a row of small bricks about 10 cm. (4 in.) square set lozenge-wise, and then another course of brickwork. Immediately above this is the last course of stonework, and on this rests the attractive blind arcading, consisting of a series of rectangular panels divided by pairs of little columns,
with shafts composed of a series of chevrons. The face of the arch above is decorated with acanthus foliage, but the design in the panels is badly damaged. This decoration is not carved but moulded, and four moulds appear to have been used. The whole is surmounted by a course of bricks placed so as to produce a dog-tooth motif, then by several courses of vertical brickwork, above which, set back from the face of the wall, is the brick dome which crowns the tower.

The arcaded frieze runs across between the towers, and in the centre, above the entrance, is a mâchécolis of two openings resting on three moulded brackets.

The remaining towers are treated as follows: the first band of brickwork, of five courses, which runs along the curtain-walls, is carried round each tower, then come three courses of masonry, then a band of small square bricks set lozenge-wise, then three more courses of stone, and then a final band of four or five courses of brickwork, surmounted by a brick dome (89). Each tower, when preserved above the rampart-walk, has a small domed chamber, except that flanking the entrance on the north, which appears to have contained a spiral staircase, but all the steps have disappeared and nothing but a hollow shaft is to be seen. Apart from this tower all are solid below parapet level.

The Interior

The entrance hall, 6-80 by 5-00 m. (22½ by 16½ ft), opens into the portico through a 3-50 m. (11½ ft) passage. In the hall’s south wall is a mihrāb-like niche, 0-87 m. (2½ ft) wide and 0-45 m. (1½ ft) deep. While its orientation is correct for a mihrāb, its purpose is by no means proven.

In the centre of the enclosure is a large open courtyard measuring 28 m. (91½ ft) on the west, 36 m. (118 ft) on the north, 29 m. (95½ ft) on the east, and 34 m. (111½ ft) on the south. It was surrounded by a portico paved with stone slabs in rows 46 to 47 cm. (1½ ft) wide. Individual slabs varied between 16 and 92 cm. (6½ and 36 in.) in length. The slabs were laid parallel to each side of the court and met at the corners along staggered diagonal junctions. Off centre was a large tank lined with bricks in two sizes – some 24×24×5 cm. (9½×
90. Qasr al-Hair ash-Sharqi: plan of the Lesser Enclosure (from Grabar, et al., *City in the Desert*)
9½ x 2 in.) and others 33 x 33 x 5 cm. (13 x 13 x 2 in.). This tank was fed by a conduit running under the paving slabs, and the water was kept clean by a small siltin basin at the entrance to the pool.

The portico consisted of a colonnade set on a row of narrow stones forming a sort of curb between courtyard and portico. The portico corners were supported by L-shaped piers, and between them were columns – seven on the west and east sides and nine on the north and south. The distance between columns varied from 2-80 to 3-60 m. (9½ to 11½ ft). A wide variety of bases and columns were used, some evidently taken from other sites, some made for the building. The stone capitals found had, with one exception, been covered with stucco and recarved, an operation which was probably carried out during some phase of reconstruction. The discovery of voussoirs indicated that the portico was arched, but the presence of 18 cm. (7 in.) square holes suitable for timbers in the second-floor brick course of a fallen wall shows that the portico must have had a flat timber-supported ceiling. Above this was a second colonnade, covered by a sloping wooden roof, as witnessed by the angled holes still containing cement with the impressions of beams found in the fallen wall.

The portico contained the two stairways, one on the west side and one on the south. The partly preserved western one consisted of 8-30 m. (27½ ft) of solid masonry arranged in courses 33 cm. (13 in.) high, with 34 cm. (13½ in.) wide treads and 16 cm. (6 in.) high risers. It may be, however, that this is a restoration.

Except for the corners and the western side of the building, the arrangement of the ground floor of the Enclosure is simple and consistent. There are twenty long halls set perpendicularly to the outer wall. The length of the halls is around 12.40 metres (40½ ft) on these three sides of the court, and their inner height is consistently 6-50 m. (21⅓ ft). Widths vary significantly. Rooms 4 . . . [8], 9, 12, 16, 22, 25 are all between 6-00 and 6-70 metres (19½–22 ft) wide. All other rooms are between 4-50 (room 22) and 5-90 metres wide (14½–19½ ft), with the majority around 5-00 and 5-20 metres (16½ and 17½ ft). Except for room 20, these narrower rooms are divided in half by an archway. The openings are wide and no evidence suggests that partitions or doorways further separated the two halves.

The alternation between wider and narrower rooms, within variations, was not haphazard, but formed recognizable units, with narrow rooms flanking the wider ones . . . On the basis of comparisons with Qsar al-Hayn West and a number of other early Islamic buildings, it could be concluded that the interior of the Small Enclosure was divided into what are commonly known as bayts, units of habitation consisting of several rooms around one larger hall, usually including latrines and clearly separated from other similar units. There seems little doubt that such bayts did in fact influence the internal arrangement of the Enclosure. Four of them were connected with latrines, and hence can be imagined as living units. But there is one major argument against the interpretation of the Enclosure’s interior as merely a series of bayts. Except for rooms 3, 21, 26, and possibly 8, all the rooms that adjoin the portico have doors opening into it. Thus the presumed closed unit of the bayt was broken up, and movement in and out of all units except those centered on rooms 9 and 20 was made unusually easy. In general, it may be noted that numerous doorways facilitated internal circulation throughout the building; in fact, there are only . . . [five] solid walls running from the outside to the portico, and it was possible to move from room 25 to room 4 – a third of the Enclosure – without ever going into the portico.

The plan of the ground floor of the Small Enclosure suggests, therefore, the availability of three degrees of privacy or security. The western third of the building was easily accessible from several sides and provided much internal communication. On the north and south sides, there were sets of three rooms that opened on to the courtyard and that communicated with one another. A similar arrangement occurs on the east side, where, however, two such units of three rooms are also provided with latrines (rooms 12a and 17a). Finally, two units in the north-east and south-east corners respectively are true bayts, with a single entrance, with a latrine, and with one or more rooms on either side of a central one.¹³

For structural reasons the layout on the first floor corresponded to that on the ground floor. The only major difference was that on the first floor the long narrow halls were divided into two rooms by a partition wall with a doorway in it resting on the arch in the centre of the wall below. The lack of a door from the portico into the first floor room 24 also suggests that there may have been more emphasis on bayt structure on the first floor than on the ground floor. An odd structural situation exists in the north-east and south-east corners, where the ground floor latrines are only half the height of the ground floor. Above them are pairs of connecting vaulted rooms which have windows into the upper part of the neighbouring ground floor rooms and can only be approached through a low passage-way in the outer wall reached through a trap-door and by a short stairway from the first floor rooms 10 and 19. The function of these rooms is unclear. Above them are further latrines.
serving the first floor rooms.

As far as one can tell, all light for the ground floor rooms came from the courtyard. The same was probably true on the first floor.

Construction

The inner face of the enclosure wall contains two notable peculiarities. One occurs at the base of the eighth and twenty-ninth courses and consists of two lines of long squared wooden beams set end to end as a stretcher course, one line flush with and the other one behind the wall face. The second peculiarity consists of a simple moulding running along the face of the wall, its height on the wall varying according to the height of the vault springing levels, which in their turn vary according to the width of the room concerned. The existence of this moulding thus demonstrates concurrent activity on all parts of the building.

Bonded into the enclosure wall are a large number of partition walls which divide the interior into two storeys of vaulted chambers. These walls average 1·04 m. (3½ ft) in width, except the entrance walls, which are 1·55 m. (5 ft) wide at the first-floor level. They consist of seven to ten courses of stones with three parallel wooden tie-beams between the seventh and eighth courses. The stones are squarish and do not mesh with one another as in the enclosure wall; after every three to four stones a header is carried across the whole wall. A projecting course of moulded stone is surmounted by two courses of regular stones supporting the springing of the brick vault. At a height equivalent to several further courses the stone wall is renewed upon the intervening brick masonry between vaults and continued up to form a second-floor partition.

The vaults themselves are built of red baked bricks 4·5 X 24 X 24 cm. (2 X 9½ X 9½ in.), which were used as the basic modular unit for the building as a whole.

Four brick widths, plus mortar joints, equals a standard interior wall thickness, eight widths equals the outer wall thickness, one and one-half widths the standard vault thickness, and one width the spacing between the wood beams of the second-floor portico roof. Two brick thicknesses equals the usual timber thickness vertically and five thicknesses the vertical thickness of one stone course throughout.14

The choice of differing room widths on the ground floor and of semicircular vaults necessitated different vault heights if a first floor on a single level was to be achieved. With two exceptions all of the vaults are essentially the skew type, built without centring, and the order of work for the construction of the various vaults and portions thereof can be worked out from surviving remains.

To facilitate the manual placement of bricks forming the skew rings (within a standing man’s vertical reach), flat courses were first set 1 ½ bricks wide radially from vault center to form a curved surface rising to a height of approximately 140 cm. (4½ ft) above the spring level. This brick may have been laid either from the scaffolding used for the walls or from the wall top itself. The additional height gained could then have been used as partial support for scaffolding spanning the room, placing a man within reach of the full curvature of the remaining portion of the vault, built in turn in skew ring fashion. These rings were laid in the usual way, one at a time using the initial support of the back wall, and each ring laid brick by brick upwards from opposite sides to the final keying brick, for the full length of the side walls. All rings (and therefore all of these vaults) are 1 ½ brick widths in thickness, with the whole brick always to the vault’s underface.

Just as for the wide vaults, an initial segment of the narrow vaults (vaulted flat brick coursing) was raised as support for a working platform from which the skew rings were laid. The necessary height varied from eight to ten courses of brick, apparently depending on individual room and vault width. Prior to the erection of any narrow skew vaulting... a heavy, free-standing brick rib spanning the room and supported on piers engaged with the side walls was erected at the mid-point of each room. The supporting piers are stone bonded to the side walls and 80 cm. (2½ ft) in projection by 108 cm. (3½ ft) in width.15

These mid-ribs acted as supports for stone partitions above, which divide the equivalent first floor rooms in half. The narrow spandrel between two vaults was filled with bricks laid flat up to a height where bricks could be set radially to both vault centres, forming a partial and non-structural sheath. The spandrel between the sheaths was then filled with flat courses of brick to a height equivalent to one of the regular stone course levels, and these bricks formed the base of the foundations for the first-floor wall above.

Exceptions to this form and method of vault construction are found in rooms 10a, 12a, 17a and 19a, which are smaller and simpler so as to accommodate two storeys within the ground floor vertical height. Another oddity is the entrance, where a brick masonry filling was
substituted for one to two courses in the masonry of the outer wall at the level of the springing of the vault and in the spandrels of the entrance archway against which they abutted.

**The Function of the Lesser Enclosure**

Prior to excavation it was logical to surmise that the Lesser Enclosure was a palace, but now that its characteristics have been revealed this identification seems unlikely.

Those [Umayyad] buildings that can legitimately be called palaces share in general a number of characteristics. Their residential units are generally *bayts*, which have single doors or are arranged around a secondary court. They have an architectural differentiation of rooms presumably corresponding to a variety of functions. They have a sizeable entrance complex, usually provided with benches and an easily closed narrow doorway. Stairways to the second floor, when present, are formally planned with the building. And, finally, the buildings are provided with much architectural decoration in a variety of techniques. *Qasr al-Hayr*’s Small Enclosure does not share these features....

We suggest that it was a caravanserai.... Series of long and high halls easily reached through a wide gate would have been used for goods, while the second floor or the north-eastern and south-eastern units would have been for people. The cistern in the center would have served as a source of water for people and possibly for animals. The entrance with its *mibrab* would have been a mosque at times of prayer. It may be noted that the architecturally far more primitive but well dated (727) *khur* at *Qasr al-Hayr* West consists of very much the same elements: a porticoed court, halls parallel to the walls or, on the east side, perpendicular to them, a wide entrance without benches, a small oratory in front of the entrance, a stairway by the portico.16

**The Greater Enclosure (91)**

The Greater Enclosure is built of the same stone as the Lesser Enclosure. Measuring from the centre of each corner tower its dimensions are 168'40 m. (552'4 ft) on the north, 166'00 m. (544'4 ft) on the east, 167'20 m. (548'8 ft) on the south, and 167'40 m. (549'4 ft) on the west. In width the walls vary from 2'05 to 2'15 m. (6'1 to 7 ft) and the height from the top of the foundations to the base of the parapet varies from 8'98 to 9'80 m. (c. 29'½ ft). The foundations vary in depth according to the depth below the surface of the bedrock, and are of large fractured flints set in mortar. The extant parts of the original wall rise eighteen courses, averaging 50 cm. (1'4 ft) in height. In principle the stones are laid header and stretcher alternately, but in practice there is considerable irregularity, and the stone widths are equally irregular. The stones taper inwards and are set in mortar mixed with stone fragments. The parapet running along the outer face of the wall between the towers varies from 1'21 to 1'27 m. (4' to 4'1 ft) in height and 39'5 to 42'0 cm. (1'1 to 1'4 ft) in width and is strengthened by a series of buttresses placed 1'77 to 2'05 m. (5'6 to 6'1 ft) apart. The walls are in fact in a very bad state, whole lengths having fallen down.

There is a tower at each corner and six intermediate towers on each face. The curtain-walls and towers are not decorated with bands of brickwork, but the tops of the latter are built entirely of brick from a point course below the level of the ramparts. At the top of each tower is a small room with three arrow-slits. Rousseau’s sketch made in 1868 shows that all these towers at that time were crowned by a dome.17

The four main entrances, situated one in the centre of each face, are almost identical; each consists of a rectangular doorway not quite 3 m. (10 ft) wide, with a joggled lintel surmounted by a stilted and slightly pointed relieving arch, the tympanum being filled up with masonry, the face of which is set back about 4 cm. (1'4 in.) from the face of the arch. Above each entrance is a mâchicoulis of two openings resting on three brackets with three tiers of mouldings. The mâchicoulis over the north entrance is wider and rests on five elaborate brackets, the central one being decorated with a sunflower beneath the remains of what is apparently a seated or crouching animal. The two corbels on either side may also have been decorated. The sunk tympanums of the west, south and east gates are pitted with holes regularly spaced 25 cm. (10 in.) apart, some with the remains of wooden pegs. These were probably used to support a panel of marble, for fragments of marble with the same curve as the tympanum edges were found elsewhere on the site. Although the north gate was evidently designed as the main entrance to the Enclosure, detailed archaeological investigation showed that both it and the west gate were sealed with masonry.
Qasr al-Hair ash-Sharqi: reconstructed plan of the Greater Enclosure (from Grabar, et al., op. cit.)
soon after their construction. The reasons for these closures are uncertain, though security, privacy and climate may all have been involved. In addition to the four main axial entrances there are two smaller portals in the east wall, constructed in the same way as the main gates but with lintels made up of a single block of stone.

In the centre of the Enclosure is an open courtyard measuring 83 m. (272\(\frac{1}{2}\) ft) square. A street or passageway leads from each of the axial entrances to an archedway opening onto the central courtyard. Each of these streets is 39 m. (128 ft) long, and on either side, about 6\(\frac{1}{2}\) m. (21\(\frac{1}{2}\) ft) from each gate, was found the base of a pair of buttresses protruding slightly less than 1 m. (3\(\frac{1}{2}\) ft) into the street. The excavators suggest that these buttresses supported an arch which carried one end of a street roof leading from this point to the gate of the central court. Only the southern street provides access to any structures; the three others lead only to the court. The street walls, apart from the first course, were almost certainly built of mud brick.

**The Mosque**

In the south-east corner of the Greater Enclosure is the mosque (91). Excavation indicates the following characteristics. The mosque consists of a three-aisled sanctuary and a courtyard, and its total dimensions, including its north and west walls, are 38 m. (124\(\frac{1}{2}\) ft) east to west and 48\(\frac{1}{2}\) m. (159 ft) north to south.

The courtyard is rectangular, not square as previously thought, and measures 27 m. (88\(\frac{1}{2}\) ft) east–west and 24\(\frac{1}{2}\) m. (80\(\frac{1}{2}\) ft) north–south internally. A colonnade on the north, west and east sides defines a riwaq 5 m. (16\(\frac{1}{2}\) ft) in width. At the corners were L-shaped piers, with three columns between them on the west and east sides, and five on the north. The columns rest on stone plinths of varying heights, and probably supported brick arches and a flat roof. The centre of the courtyard is paved with limestone and contains the remains of a deep, domed cistern.

The sanctuary measures 37 m. (121\(\frac{1}{2}\) ft) east–west and 22 m. (72\(\frac{1}{2}\) ft) north–south internally. Its central nave is 7\(\frac{1}{2}\) m. (24 ft) wide and its piers carry arches perpendicular to the qibla wall. The rest of the sanctuary consists of four arcades of arches parallel to the qibla wall; these are joined to the central nave by T-shaped piers, and to the riwaq by L-shaped piers. The two piers at the façade of the nave are cruciform. The supports for the sanctuary arcades, apart from those of the nave, and six of those of the façade, were columns on square bases. The sanctuary façade consisted of a central arch 4.80 m. (15\(\frac{3}{4}\) ft) in span flanked by three on the right and three on the left averaging 3.25 m. (10\(\frac{1}{2}\) ft). Despite the fact that the mosque piers are not bonded into the Enclosure walls, the excavators' investigations suggest that the mosque belongs to the earliest phase of building activity at Qasr al-Hair.

The arches and spandrels of the mosque sanctuary rise to the height of the walk along the top of the Enclosure wall. The excavators presume that the three aisles to either side of the nave were provided with low gabled roofs of wood, probably covered with the type of ceramic tiles which littered the site. The axial nave, however, was much higher. The remaining portion of its brick clerestory wall rises 41 courses or 2.29 m. (7\(\frac{1}{2}\) ft) above pier M, reaching a total height of 10.21 m. (33\(\frac{1}{2}\) ft) from the floor of the mosque.

Small as the remaining fragment is, it reveals several interesting aspects of the clerestory's original form. It is constructed of large, well-fired bricks with average measurements of 28 by 37 by 4 cm. (11 \(\times\) 14 \(\times\) 1\(\frac{1}{2}\) in), laid primarily as headers, the courses separated by thick layers of mortar. Between the stone and the first visible course of brick is a thick layer of mortar concealing one recessed brick course with wooden dowels protruding at apparently irregular intervals, which once interlocked with a square wooden beam in the recessed area. Such timbers and dowels, to increase the strength and resilience of the brick wall, are repeated above at irregular intervals at the 13th, 22nd, 29th and 40th courses of brick. At the south end of this brick wall section is a clear original face on eleven of the top thirteen courses. A corresponding face on the brick wall above pier U would have created here a narrow window at least 40 cm. (15\(\frac{1}{2}\) in) wide. In the lower portion of the latter brick wall, on brick courses seven through nine, is the face for the jamb of a still wider window, including a gap above conforming to the collapsed window arch of brick. These two windows, presumably over each nave arch, a wider lower one and a narrow upper one, served both to reduce the load borne by the arches and to permit light to enter the central aisle of the mosque sanctuary.18

The exact height of the clerestory is uncertain, but it clearly rose above the top of the Enclosure walls. Pairs of
projecting corbels in the uppermost course of stone in the nave spandrels probably served as bases for trusses or tie-beams.

The five existing arches of the transept are stilted and very slightly pointed, and the central arch of the façade is very slightly pointed but not stilted. The left-hand arch of the façade is more pointed and has a distinct return. If, as is probable but not certain, this latter arch is original, then it is the earliest example so far known of a pointed horse-shoe arch.

The mihrāb appears to have been planned simultaneously with the original construction of the Enclosure wall into which it was set. It is 70 cm. (2 ft) deep, and 1·70 m. wide (5½ ft), had a curved back and a semidomical hood, and was flanked by two columns, each just under 2 m. (6½ ft) high. The frontal arch of the mihrāb seems to have been set half within the Enclosure wall and half projecting from it, thus providing a frame for the mihrāb. The surfaces of the niche and half-dome were drilled in the same way as the gateway tymanum, and the excavators suggest that small numbers of tesserae found on the site may originally have decorated this area of the mihrāb.

There were three entrances into the mosque. One, in the north-west corner, served the central courtyard of the Enclosure. A second, in the east wall, gave access from outside the Enclosure. A third, near the centre of the west wall, gave access from the passage-way adjoining that side.

The Dwelling Units and Yards

A glance at the ground plan of the Greater Enclosure might suggest that it is divided equally into two building units per side with a double yard at each corner. However, it is soon apparent that the south-eastern area departs from this plan. For in the south-east corner is the mosque, with a unique group of structures to its north, and two buildings to its west which, although they look superficially like those elsewhere in the enclosure, have important differentiating characteristics. This leaves five units – two on the west, two on the north and one on the east – which have all the appearance of being residential buildings. The most fully excavated is that to the north of the western gateway of the Enclosure. Here a door from the great court gave entry to a paved and therefore probably roofed passage-way. From there a doorway opens to the north into the central courtyard of the building, surrounded by four riwāq, the L-shaped corner piers made of brick on stone bases, with columns between. Doorways from the courtyard lead to most of the rooms around, and in the north-west corner to a smaller open court with a pair of latrines to its north, one in a room-like passage-way leading to the yard beyond. The yard is approximately half the size of the building, measuring c. 38 by 19 m. (124 by 62 ft). The wall on its north separates it from the adjacent yard, and the wall on the east from the adjacent building itself. The other four residential units are arranged in virtually the same way, and all were probably constructed of mud brick walls on a stone base.

The Official Units

The two building units on the south side of the Enclosure reveal important differences from the other five units described. Taking that to the east first, the building is entered from the great court by a door near the centre of its north side which opens directly onto its own courtyard. A paved area 16·00 by 14·00 m. (52 by 46 ft) is surrounded by four riwāq supported by L-shaped corner piers and three columns per side, originally supporting brick arches. On both the west and east sides of the courtyard was a line of three rooms which were separated by short riwāq extensions from the group of rooms along the south side. The central and largest of these rooms measures 6·50 by 12·00 m. (21 by 39½ ft), and is set in alignment with the entrance to the building. Standing remains of walls give a restored height of 2·90 m. (9½ ft) for the stone portions of the walls with at least another 1·50 m. (5 ft) of brick above, giving a minimum height of 4·46 m. (14½ ft). From the western riwāq extension a door leads into the street running between the great court and the south gate, while from the eastern one a door opens into the long passage adjoining the west wall of the mosque. This latter passage is provided with a door at the great court end, and a further door into the mosque. A small room to the south of the eastern riwāq
extension acts as a sort of 'atrium', having also a door into the passage. Stucco fragments found in this building suggest that it was decorated during the period AD 760–780.

Noting the distinct plan of this building, its proximity to the mosque, the absence elsewhere of administrative buildings and the probability that they must have existed, together with the lack of latrine-and-backyard unit, Grabar suggests that this building is likely to have been the administrative centre of Qasr al-Hair, the ḏār al-imāra. Such a likelihood is emphasised by its relationship with the building to its west. These are the only two buildings with doorways onto a main street, and the fact that the western one has no entrance onto the great court suggests that the two are closely related. It seems likely that the western one is in fact the residential building for the administrative complex (though it too was constructed without latrines), the doorways on the street providing a relatively private means of communication between the two.

The Presses and Bath

Between the eastern street and the mosque is a unique group of structures. Access is provided by a door through the Enclosure wall to the south of the east gate. This leads into an open paved area with a large tank in the south-east corner. Measuring 9:20 by 7:00 m. (30½ by 23 ft) and 5:40 m. (17½ ft) deep, this tank would have had a maximum capacity of some 340,000 litres. It had originally had a flat roof over it, laid on heavy timbers. To the west of the open area, two long enclosed rooms measuring 5:00 by 19:00 m. (16½ by 62½ ft) contained the remains of olive presses and vats. Two long rooms, one to the north and one to the south of the open area, are of unknown function, and at some time soon after the original construction of the area the latter was changed into a bath. This necessitated sealing the area off from the olive presses and opening twin doors into the great court. The exact plan of the original bath is unclear due to later destructions and rebuildings of the area.

The Central Courtyard

The central court measured 83 m. (272 ft) square and was surrounded by four ṛiwaqs. At each corner was an L-shaped brick pier on a stone base, and a pair of piers flanked the axial streets. Each side was otherwise made up of eighteen columns. The nature of the roofs of these ṛiwaqs remains unknown. In the centre was a huge cistern measuring about 24 by 9:25 m. (78½ by 30½ ft), and 7:50 m. (24½ ft) deep from its base to the apex of its original brick vault. The latter was nearly a metre thick (3½ ft). With a depth of just 4 m. (13½ ft) of water the capacity of the cistern exceeds a quarter of a million gallons. This cistern was the central feature of a very complex system of water canals running under the Greater Enclosure, which were planned prior to the construction of the Enclosure to ensure a sufficient permanent supply of water.

The Date and Function of the Greater Enclosure

Rousseau found an inscription slab on pier H of the mosque, and had it transported to Aleppo, where he made a careful sketch of it. It reads: 'Bismillāh . . .

This city [madīna] has been built by ‘Abd Allāh Hisbān, Prince of Believers. This is one of the monuments which the inhabitants of Homs have erected by the hands of Sulaymān the son of ‘Ubayd in the year (1)10 [= AD 728–9].’

Now the Greater Enclosure certainly does not suggest itself as a madīna in the generally accepted meaning of the word – a city or town.

Six families or clans of equal size and importance are settled together in similar residences. One or all the families have an official function and they have easy access to a mosque, which they share with people living outside. Finally, a press for olive oil is associated with them, although not physically accessible from the interior. This is not urban life, nor is it the life of a palace. We suggest that it should appropriately be called the life of a madīnah, in a different and hitherto unnoticed sense of the word that was characteristic of early Islamic times.

In an early būtiḥ recently discussed by M. J. Kister, Mu‘awiyah is accused of having built too many madī‘in (plural of madīnah) and qūṣūr (plural of qūṣ) in Mekkah itself. While we have seen that qūṣ can be understood as synonymous with ḏār, and thus poses no problem, the presence of many madīnahs in Mekkah seems mean-
ingless, and Kister's translation as 'townships' does not solve the problem. But, if we turn to the Leila al-‘Arab (sub madinah and sasam), we find that an early meaning of the word madinah is 'fortified unit (bijn) built in the best developed (ustamman) part of the land.' In other words the word madinah does not necessarily mean an urban center in the traditional sense of the word, but can refer to a built-up unit with a limited settlement and a restricted number of specific functions, such as defense, administration, pleasure, agriculture, or anything else, although fortifications or pseudo-fortifications may have been initially essential. It is in this manner that we should interpret the term used in the plural as for the name of Cesiphon (al-Mazd'in) and it is possible that the excavations of this site in Iraq failed to find its urban complex because it did not have any. Similarly the northern Arabian city of Mazd'in Sahib was so called because it did consist of a large number of separate entities. And, while we can only suggest that the term was particularly characteristic of the terminology of settlements in the Arabian peninsula before Islam, it can be proposed that a large number of early Islamic 'cities' were in fact madinahs in this restricted sense. Such in particular may have been the case with Madinah Ibn Habayrah in Iraq, with the first Abbasid settlements like Hashmiyyah, and with the Madinah al-Mansur, which became Baghdad. Possibly the unusually large numbers of madinahs built on the frontiers of the Muslim world, in Cilicia, Armenia, Central Asia, and possibly Tunisia, were simple small fortified settlements with a mosque and a few houses, or daras, and only a few of these madinahs were later transformed into urban centers.

The confusion so typical of late medieval texts between an early pre-Islamic Rusafa and a Rusafa Hisham, both being understood as cities could thus be explained by interpreting the latter as a restricted madinah built next to an older city. And, while it is possibly too adventurous to think of the successive additions to the first Baghdad as Madinah in their restricted sense only, the memory of the term survived in Spain with the Madinah al-Zabra built near Cordova, which was an extensive private settlement with a mosque, rather than an urban center. One may even wonder whether such madinahs may not have existed inside otherwise known urban entities, as is suggested by the baditah discussed by Kister with which we began our considerations, and whether the large buildings that have recently been uncovered in Jerusalem, unfortunately known mostly through foundations, do not illustrate this type of architectural entity.

In short, we propose to interpret the original large enclosure at Qasr al-Hayr as indeed the madinah mentioned in the inscription of AD 728–9, but to understand the word madinah in the restricted sense of a small, private, and aristocratic settlement with a minimal number of functions. 20

The Extra-Muros Bath (92)

A separate bath-house is located some 60 m. (196½ ft) to the north-north-west of the north-western corner of the Lesser Enclosure. It was excavated during the 1970 and 1971 seasons.

The first and largest room in the bath-house is room A, on the north side of the building. It measures approximately 20 by 15 m. (65½ by 49½ ft), and is entered by a 1.55 m. (5 ft) wide doorway in the north wall. Two rows of column bases divide the room into a wide central area and two side aisles. The north and side walls probably had a bench around them, of which two rows of mortared bricks are all that remain today. At the south end of the room were built two pools 4.50–4.70 by 2.50 m. (11½–15½ by 8½ ft) and 0.60–0.70 m. (2.3–2.7½ in.) deep, apparently fed by jets of water set in the brick wall about 2 m. (6½ ft) above the pool's floor. Originally, they were probably faced with marble. The nature of the walls of room A is uncertain, as is its elevation, but the most likely possibility for the latter is a basilical hall with a high central aisle and two side aisles. In view of the quantities of fragments of window glass found on the site a clerestory may well have been included.

A door near the south end of the western wall of room A leads into a set of latrines, while a door in the south wall leads into an L-shaped area comprising rooms B and C and a second set of latrines. Room B is 10.5 by 3.5 m. (34½ by 11½ ft) and served as a sort of foyer. It originally had a marble floor and marble-faced benches, and the walls above the benches were painted with geometric and vegetal designs divided into panels by representations of columns on high bases. Thanks to these paintings it was possible to work out the probable height of the walls. Since the panels begin at a height of 90 cm. (3 ft) above the floor and the diameter of their circular motifs is approximately 1.40 m. (4½ ft), a straight wall must have gone up to over 2.50 m. (8 ft). The room was covered with a barrel-vault of brick, of which many fallen fragments were found; assuming the vault to have been semicircular, the total height of the room must have been at least 4.25 m. (14 ft). Room C is 11½ by 7.0 m. (37½ by 23 ft) and had a second entrance on the south side. The nature of its roof is uncertain.

There are three hot rooms: rooms D, E and F. The first two are practically identical in form, with a main area about 4.0 by 4.8 m. (13 by 15½ ft) and a semicircular apse. Both had floors of marble set in mortar over hypo-
causts, and benches around their walls. The third room was approximately 4 m. (13 ft) square and originally had an apse on the north and south. The south apse contained a marble-lined tub with a bench. The exact method used for vaulting these rooms is again uncertain. The furnace was to the east of these three rooms, and above it was a rectangular water tank set at a level above the floor of the hot rooms.

To the east of the hot rooms and south end of room A were the service areas. The most easterly area measured 18-30 by 4-80 m. (60 by 15½ ft) and may have served as a fuel store. The area to the north of the furnace contains an almost square structure 7-90 by 9-10 m. (26 by 29½ ft), with walls 1-20 m. (4 ft) thick, supported by five rectangular and two circular buttresses. The centre was brick-paved over a thick fill of stones and cement, and there was apparently no doorway. It seems most likely that this was a water storage reservoir designed to give gravity flow under pressure to the baths, though how it was filled is not clear.

That this bath is contemporary with the Greater and Lesser Enclosures is indicated by the similar features of construction it possesses, and also by the fact that it required the kind of planning and availability of water that are characteristic of the primary development of the site.

Grabar points out that interpretations of early Islamic baths are usually based on descriptive systems formulated for Roman baths. Thus we think of an undressing and socialising room (apodyterium), a cold-bathing room (frigidarium), a warm-bathing room (tepidarium), and hot-bathing and sudation room (caldarium, sudatorium or laconicum). He suggests, however, that the bath at Qasr al-Hair ash-Sharqi fits more neatly into medieval Islamic terminology which defines the rooms as follows: an undressing area close to latrines and usually clearly separated from the rest of the bath (maslah or maslah); an unheated area close to the warmer parts and used for undressing in winter (hayt aswدل or waslani barr§); a warm room often used for depilation (waslani jawwain); a hot room nearest the furnace usually provided with small bathtubs for bathers to dip into one at a time after sudation (jawwain or hararr). On this basis room A is the maslah, both B and C are waslani barr§, both D and E are waslani jawwain, and F is the hararr.21

The Minaret

Between the two Enclosures is a perfectly plain square tower, averaging 2-94 m. (9½ ft) a side and about 10 m. (33 ft) in height (89); the upper part is missing. The entrance to the spiral staircase is in the south side. Although in the past this was considered to be a minaret dating from the time of the construction of the two Enclosures, Grabar has pointed out two archaeological reasons why this cannot be. First, it is built entirely of reused stone of diverse kinds, a characteristic unknown in early buildings at Qasr al-Hair. Second, its foundations and first course totally block the main conduit... which is known to have been used well into our second period - that is, as late as the thirteenth century.22 He concludes that it may be related to the remains of a small mosque found to its south and that both buildings must date from the period of semi-nomadization following abandonment or from the sixteenth to eighteenth century, when Qasr al-Hair was a stopping-place for caravans.

The Outer Enclosure and Surrounding Areas

The wall of the Outer Enclosure was originally over 15 km. (9½ miles) in length and enclosed an area of over 7 square kilometres (2½ square miles). It measures approximately 6-6 km. (4 miles) on its north–south axis and 2-2 km. (1½ miles) on its east–west axis at its widest point. Its extremely irregular shape was evidently determined by the need to catch and control the water of the wadi al-saq to the north-west.

In its original form the wall was set on a stone foundation, had four courses of cut stone each 30 cm. (11½ in.) high and then 20 or 21 courses of mud brick, the average mud brick being 42 × 42 × 9 cm. (16½ × 16½ × 3½ in.). One or two courses of smaller cut stones may have been used as a capping for the wall. The average width of the wall was 1.14 m. (3½ ft) and its height was about 3.50 m. (11½ ft). At regular intervals of 32 m. (105 ft), semicircular buttresses were built on alternate faces of the wall and at the outer corners of angles in the wall.
There seem to have been five gates in the wall, one north of the Greater Enclosure, three on the western Outer Enclosure wall, and one towards the south-east corner. Gates A and B were evidently alike, though the latter is much destroyed. Gate A, on the outside of the wall, has two projecting circular quarter towers with radii of 1.9 m. (64 ft), each with a single engaged column attached to the front. Inside the entrance are two benches set in semicircular niches, behind which is the sill and then a doorway which widens towards the inside of the enclosure. The outside surfaces of the towers are decorated with a heavy moulding characteristic of gates in a small group of sixth-century churches in the mountains of northern Syria, such as Baqirham Babiska, Khirbat Tezin and Qalb Luzeh, suggesting the origin of some at least of the workers or traditions involved in the creation of Qasr al-Hair. A ramp or stair on the inner side of the wall behind the gate gave access to the top of the gateway. Gate C has not been excavated. Gate D was excavated over forty years ago by Seyrig. It was a simple entrance framed by two half-round towers. Seyrig also excavated Gate E, which comprises a symmetrical arrangement of two rooms with projecting buttresses both outside and inside. The very different designs of these latter two gates from A and B is probably due to the fact that they were not required to be so formal, being much further from the Greater and Lesser Enclosures, or possibly to the employment of workmen grounded in a different tradition.

The Outer Enclosure wall is provided with two sets of sluices. At the southern corner are a group of sixty-six, forming two segments of the wall: one 162 m. (531½ ft) long, the other one 63 m. (206½ ft) long, meeting at an angle of 80°. This 225 m. (738½ ft) section of wall was divided into sixteen almost equal sections by heavy buttresses on both sides of the wall; most sections had four openings 1.10 m. (3½ ft) wide and 2.05 m. (6½ ft) high. A guard room at the corner was vaulted with a brick cross-vault, the only known instance of such a vault at Qasr al-Hair. At the northern end of the Outer Enclosure is a 280 m. (918½ ft) long wall containing sixty-one sluices. Each sluice consisted of large rectangular blocks of rubble faced with cut stone and every third pier was provided with a semicircular inner buttress. The openings
were 1-20 m. (4 ft) wide and 2-20 m. (7 ft) high and were covered with brick vaults. Evidently these northern sluices, like the southern ones, were designed to control the water of the wādī al-ṣūq, but the narrowness of the openings and the thickness of the wall suggest that they may also have served as a dam to hold water in the wādī mouth for use as and when appropriate.

Other notable features of the Outer Enclosure are the 4.5 km. (2.4 miles) canal taking water from the north-east end of the Enclosure along its eastern edge and then into its south-western quarter, and a group of deflecting walls set at an angle to the western wall on its inner side. This latter system appears to be unusual in Syria and may reflect Arabian techniques.

What was the purpose of the Outer Enclosure? While it is possible that it was partially used for agriculture, the lack of any system of irrigation within the Enclosure would have made any extensive system of cultivation difficult. It is perhaps possible to see it as a game preserve, on the basis of its modern name. Ya ‘qūbi, describing the foundation of Sāmarrā by the Khalif al-Mu’tasim in 846, says: ‘And wherever these streets of al-Hair touched land granted to other people, he would order the wall [of al-Hair] to be built farther back. Behind the wall were wild animals, gazelles, wild asses, deer, hares and ostriches, kept in by an enclosing wall in a fine broad open tract.’

Miskawaihi, under the year 315 H. (925–6), says, ‘This year there was a rising of the disbanded cavalry, who went out to the Oratory, plundered the Palace called ath-Thurayya [the Palace of the Pleiades at Baghdād] and slaughtered the game in the Hair.’

Given, however, that there is no palace on the site, and that the site continued to function long after the fall of the Umayyads, such an enormous game preserve seems unlikely, and Grabar suggests that its function might rather have been the grazing and raising of horses, donkeys and camels for commercial and military purposes. In support of this explanation he points out that the mountains north of Palmyra are known to have been used for this purpose in pre-Islamic times; that texts from the later Middle Ages describe how, in time of peace, attendants who lived in tents would bring animals belonging to the Mamluks into reserved pasture lands, tie them to a given place, and move them as they ate the grass around them; and that this region was a suitable area in which to raise and keep animals for the yearly war expeditions to Anatolia, which lasted most of the ninth century.

ARCHITECTURAL ORIGINS OF QASR AL-HAIR ASH-SHARQĪ

The Components of the Greater Enclosure

The components of the Large Enclosure are remarkable in their lack of originality. The mosque, with its axial nave flanked by perpendicular aisles, is characteristic of the so-called Damascus type. . . . [It] had a large bell-shaped cistern of a type that is relatively frequent in Christian Syria. The presses are original only in a few details. The basic equipment—heavy presses for separating fruit from pits, secondary presses for extracting oil . . ., a decanting basin, and a cistern for the water that was used both in decanting and for the operation of the levers—forms a sequence common in northern Syria . . .

The living units, the third component of the Large Enclosure, are also unoriginal. Even though there are few excavated examples similar to them in all details, their type of a unit with a single entrance, whether axial or not, a porticoed courtyard and an arrangement of single or multiple rooms around the courtyard is so common all over Syria as a house type that there is no need to search farther afield for Qasr al-Hayr’s models.

Joggled Voutes

These, although rare before the rise of Islam, are found scattered over a very wide area extending from Spain to the Euphrates. They are employed in a Roman bridge over the Salado, near Villa del Rio, close to 53 km. (33 miles) on the road from Cadiz to Madrid, and also in another Roman bridge, over the Pedroches, 3 km. (14 miles) from Cordova, of which the joggled springer blocks of the arches still remain. They also occur in the Roman theatre at Orange, shortly after 44 BC, at Spalato in the Porta Aurea and the Porta Ferrea of Diocletian’s
palace, c. 503-5, and at Ravenna, in the lower storey of Theodoric's mausoleum, c. 519. This feature is found in the pre-Muslim architecture of Syria, e.g. at Bethlehem, in the central doorway of the façade of the narthex which dates from Justinian, and in the Basilica of Sergios at Rusafa, c. 600. It was from Rusafa, probably, that the juggled vousoirs of Qasr al-Hair were derived, as it is less than 64 km. (40 miles) away.

The Mâchicoulis

The earliest examples of stone mâchicoulis occur in the pre-Muslim architecture of northern Syria, and at least ten examples may be cited. Of these, however, only three can possibly have been for the purpose usually assigned to mâchicoulis, viz. to enable the besieged to drop molten lead, boiling oil, or projectiles on a storming party attacking a doorway below. All the others are latrines, and cannot have served any other purpose, for they are not placed over an entrance. The earliest example intended for defensive purposes is found at Dar Qitâ, in what appears to have been an isolated watch-tower, dated 551. It is about 5-5 m. (18 ft) square, with an entrance on the west side, and three storeys of it are still preserved. In the third storey, and directly over the entrance, are two brackets carrying a slab with a hole in it, and round the edges are the remains of thin walls which once surrounded it. Butler is convinced that it was undoubtedly intended for the delivery of missiles upon an enemy attempting to force an entrance. These remarks could of course apply to the little tower of the guard at Khirbat Häss, published by de Vogüé.

Now the architecture of northern Mesopotamia at this time formed one with that of northern Syria, hence it is not surprising to find that this device was apparently employed at Amida (Diyârbakr) in ÆD 504, for Joshua Stylites (ÆD 515) says: 'It was difficult [for the Byzantine army] to fight with them [the Persians] because, being on the crest of the wall, and having built themselves little houses all along the rampart in which they hid themselves, they could fight without being seen by those who were outside', a good non-technical description of a mâchicoulis.

The Arabic word for this feature is shown by the following passage in Abû Darr, who says that when the Mongols came to Aleppo, the people in the Zahiriya Madrasa defended it by making a saqqâta above the entrance and throwing stones on them. This madrasa has a recessed entrance porch with the usual stalactite vault; there is a large, roughly made hole in this vault, by means of which people above could drop heavy stones on anyone attempting to force the door. It thus served the same purpose as the holes in the floor of a mâchicoulis, for which the word saqqâta (falling) is obviously the Arabic equivalent.

The Greater Enclosure itself

What are the origins of an Enclosure of this form? Grabar comments:

We have, it seems to us, two possibilities. One is to consider that Qasr al-Hayr is an example of a transformation of a classical camp-type into what has been called a 'quasi-urban' form, a transformation for which instances exist in the sixth century. The sources for the form would have been the Roman fortified cities reasonably well known in Transjordan and available nearby at Rusafa. This process of miniaturisation and readaptation of the camp-city would explain not only the awkwardness of certain features, such as the location of the mosque, but also the fact that two gates were soon blocked, for the form was not entirely suitable for its new purposes.

Alternately, we can propose that the Large Enclosure is a magnification of the no less traditional fort or palace with a porticoed courtyard and buildings along the walls, an extension of the palace type into a semi-urban order which may have first appeared in Jerusalem and found its consecration in Baghdad. This explanation could be justified by noting that the palace with a fortified exterior is so typical of early Islamic architecture, that many examples of its prototype are found all over Syria, and that small living units or dwellings will continue to be found in monuments of the later eighth century with fortified exteriors like Ukhaidir and Raqqah. We tend to favor the first hypothesis, because the neighboring and earlier Rusafa seems to us to have been the most logical model for so many of Qasr al-Hayr's features; moreover, it was certainly its nearest significant human settlement and the temporary capital of the Umayyad caliphs for almost twenty years (724 to 744).

The Syrian-Iraqi Synthesis

Qasr al-Hair ash-Sharqi, in common with a number of other Umayyad sites, shows a striking mixture of influ-
ences from Syria and 'Irāq. Its great stone walls belong to Syria, and not only does the foundation inscription mention the inhabitants of Homs but its stone workers can be fairly certainly identified as Christians from the west or north of the country from archaeological evidence. This is apparent from the cross in the quarries to the north of the site, from the abandoned quarries transformed into a hypogeum at the small site of Nuzaymeh some ten kilometers to the northwest, from the stone with a cross on the south wall of the Large Enclosure, and especially from the very characteristic ornament of Gate A in the Outer Enclosure. Similarly, the tiles found at Qasr al-Hayr are quite typical of western Syria and the Palmyrene.

On the other hand, however, large quantities of bricks are employed throughout the site. The most impressive aspect of their use is the vaulting of the rooms in the caravanserai, which is in Sassanian style, but their influence is also felt elsewhere – in the use of wooden courses in the masonry and in the fact that every complicated problem of construction was solved in brick. This use of brick constitutes an anomaly, for Syria before Islam was a country of stone architecture, with two notable exceptions: Qasr Ibn Wardān and the great castrum of Andarín, in both of which courses of brick alternate with stone. The bricks used in these cases are thin Byzantine bricks 30 × 34 × 3.5 cm. (12 × 13 ½ × 1 ½ in.) and 34 × 37 × 4 cm. (13 ½ × 14 ½ × 1 ½ in.), whereas large quantities (though not all) of the bricks used in the primary constructions at Qasr al-Hair are smaller and thicker, measuring 23 × 23 × 5 cm. (9 × 9 × 2 in.). We can therefore detect strong architectural influence from outside Syria, an influence which is also discernible in the stuccowork found in both Enclosures and which is most probably to be traced to lower 'Irāq.

Conclusion

Qasr al-Hair ash-Sharqi consists of a group of residences or a madina, with a mosque, official building and presses, in a fortified enclosure, together with an elaborate water system and an enormous stock rearing and grazing enclosure, and, to add a trading dimension, a fortified caravanserai. As such it was part of a widespread development of and interest in land which occurred, especially in the Jazira, under the Khalifs Sulaymān and Hishām, as attested by the sources. Qasr al-Hair was presumably founded by Hishām, with the madina being completed in 120 (728–9), and its first, creative, phase probably ended c. AD 760–780 (the proposed date for the stucco of the Greater Enclosure). There seems little doubt that all the major architectural elements are Umayyad, even though the site continued to function and to be embellished during the first decade or so of 'Abbāsid rule. As to the original name of the site, Grabar has suggested two possibilities. The first is that it is the classical site Oriza, which became known after the Arab conquests as 'Arīz or 'Arīza, and later as al-'Urd. The second is that it was the Zaytūna of Hishām, a suggestion originally put forward by Sauvaget but later abandoned by him. Zaytūna has also been suggested as the original name of Qasr al-Hair al-Gharbi (see p. 142).

QUSAYR AL-HALLABĀT

Recent survey work and excavations by the Department of Antiquities in Jordan have shown that in the Umayyad period the Roman military castle at Qusayr al-Hallabat underwent massive repair, and that the whole site was redeveloped. Included in the new complex were an extra-mural mosque, situated 15 m. (16 yd.) to the south-east of the castle; a bath – Hammām as-Sarakh – some 2 km. (1 ½ miles) to the east; five cisterns and a huge water reservoir to the west and south-west; and most important perhaps an irregularly shaped enclosure to the west. This measures 270 m. (295 yd.) from north to south, and gradually narrows towards the north. The walls, of which only one course of stones remains, are strengthened by semicircular buttresses on their outer and inner faces, a system just like that found at Qasr al-Hair al-Gharbi and Qasr al-Hair ash-Sharqi. Excavations of a number of sluices and water deflectors confirmed that this is an agricultural enclosure. It is
described by the present inhabitants of al-Hallābāt as Huwayytab (diminutive of Ḥāʾit). Ḥāʾit is a word used in medieval texts to denote cultivated areas or gardens around a town, and the existence of two stone vats in one of the ruined buildings to the west of the water reservoir suggests that the enclosure was devoted to the cultivation of orchards, containing mainly olive trees and vines.

The castle was repaired and renewed by the Umayyad occupants, but its layout remained unchanged. Large quantities of small stucco fragments have been recovered, some of them with designs comparable to those of Khirbat al-Mafjar. Small fragments of painted plaster also came to light. The two rooms in the eastern corner of the castle had mosaic pavements, the finest bearing a design of linked circles and ovals, with naturalistic animals, birds and fish.

HAMMĀM AS-SARAKH

Hammām as-Sarakh was discovered by H. C. Butler of the Princeton Expedition in 1905. It is strikingly like Qusayr ʿAmra in plan and arrangement, but it makes a very much better impression, thanks to its well-finished masonry, which has taken a beautiful amber tint (93, 94). Like Qusayr ʿAmra, it is composed of two principal elements: (1) a rectangular audience hall measuring 8.95 by 7.90 m. (29 1/2 by 26 ft) (against 8.75 by 7.58 m; 28 1/2 by 25 1/5 ft), with an alcove, corresponding to the throne-recess at Qusayr ʿAmra, opening on the south-east side, flanked by two rooms $A$ and $A_1$, each lit by three windows like arrow-slits, and (2) a bath with three rooms, the first tunnel-vaulted, the second cross-vaulted and the third covered by a dome – the same sequence of vaulting systems as at Qusayr ʿAmra, the only difference being that to pass out of $B$ we must turn to the right instead of to the left.

One would have expected to find the entrance to the audience hall in the centre of the side opposite the alcove, but this is not the case; although two-thirds of the wall...
on this side had been preserved when I first saw it in 1926, there was no door to be seen, so it was probably in the centre of the south-western side. This wall, however, has fallen and any trace of a door-sill which may exist is buried under the débris. As in ‘Amra, the audience hall was roofed by three parallel tunnel-vaults resting on two transverse arches springing from very low wall piers. A quarter-round moulding runs all round at a height of about 5·5 m. (18 ft). A small doorway on either side of the alcove opens into one of the flanking rooms, which are roofed with stone tunnel-vaults.

A door in the north corner of the main hall leads into the tunnel-vaulted apodyterium (B), measuring 2·50 by 3·45 m. (8½ by 10 ft), from which another door leads into the cross-vaulted tepidarium (D), measuring 3·40 by 3·20 m. (11 by 10½ ft), on the far side of which, exactly as at Qusayr ‘Amra, is a tunnel-vaulted recess, 1·70 m. (5½ ft) wide and 1·20 m (4 ft) deep. A door in the centre of the north-east wall leads into the caldarium (C), covered by a dome on spherical-triangle pendentives. There is a semicircular recess to right and left, each covered by a semi-dome, beautifully constructed with voussoirs which radiate from a saddle-block placed above the small window at the back.

The dome, which has an outer covering of pinkish waterproof cement, is built with nineteen projecting ribs, composed of long, thin, wedge-shaped pieces of shale, entirely unhewn, and the filling between the ribs is of shale also. It apparently had eight circular windows which have now become large holes.

The Decoration

This is no carved ornament but Butler, on the springing of the vault of the little recess in D, saw the remains of a painted medallion which had contained a life-sized bust. Only the shoulder, part of the neck, an ear with an earring, and part of a head-dress could be seen; these were executed in good colours and were still bright. The background was yellow, the drapery of the shoulder dark red, and the head-dress was painted to represent a filmy white material, the transparency of which was well indicated. But according to Musil there was more than
At a distance of some 1400 m. (15½ yd.) to the east of the castle is a small rectangular mosque (95) measuring internally 10·70 by 11·80 m. (35½ by 38½ ft). Two wall piers with the springing of arches above them suffice to indicate that the interior was divided into three aisles by two arcades, each consisting of three arches. The walls are 82 cm. (32½ in.) thick, built of limestone in courses 40 cm. (15½ in.) high, laid dry. The mihrab was 1·78 m. (5½ ft) wide and 1·50 m. (5 ft) deep and was once flanked on each side by a colonette standing in a square recess. Above the mihrab was a bull’s-eye window. A quarter-round moulding runs all round the interior at a level of 2·10 m. (7 ft) above the springing of the arches, and the remains above this moulding at the summit of the south wall show that the mosque must have been roofed by three parallel tunnel-vaults, exactly as in the Qusayr 'Amra and Hammām as-Sarakh. At the end of each bay was a round-arched window, with a bull’s-eye window above, close to the vault. There were three axial entrances. The exterior was surrounded on the east, north, and west by a portico 3·30 m. (10½ ft) deep, excluding the piers. It consisted of arches on columns but had L-shaped piers both at the north-western and north-eastern corners and, on the west and east sides, in line with the north wall of the mosque. The central arch on the north side was probably wider than the rest, emphasising the principal axial entrance. The portico was covered by a sloping roof of timber, and ten of the holes which received the beams can be seen near the top of the west façade.

Unfortunately every trace of painting has since disappeared.
The Date

The refurbishing of the castle at al-Hallāb, and the construction of the mosque, bath, and orchard enclosure nearby, must have been a project undertaken by an Umayyad prince. The concave mihrāb in the mosque shows that it must have been built after 707–9. The arches of Hammān as-Sarakh are perceptibly more pointed (separation of centres being one-seventh to one-sixth of the span) than those of Qusayr ‘Amra, though not yet so pointed as those of Mshattā (one-fifth), so it is to be placed midway between them, at roughly AD 725–30. The fact that some of the stucco fragments recall those from Khirbat al-Mafjar also suggests that the complex dates from the reign of Hishām.

The Palatial Complex at ‘Ammān

Over the years much archaeological investigation has taken place on the citadel at ‘Ammān. Excavations were carried out by an Italian Mission between 1927 and 1938, and by the British Institute at ‘Ammān between 1975 and 1979; a Spanish Archaeological Mission headed by Dr Almagro has been working on the site since 1974. Prior to the 1970s the only well-known building of possible Umayyad date on the citadel was the cruciform reception hall. This was mentioned by numerous writers, and was discussed in some detail by Strzygowski and Schulz. More recently it was published by Gaube, and has since been studied and described in great detail by Northedge and Almagro. It is now clear that it is part of a much larger Umayyad citadel complex, the Umayyad Palace (96), and the following details are drawn largely from Gaube’s and Northedge’s accounts.

The Palace

The Palace occupies the old Roman double enclosure at the north end of the citadel. Its general plan is as follows. On the south side of the first enclosure wall is an almost square hall measuring 24.4 by 26.1 m. (80 by 85½ ft), the Reception Hall. To the north of it there is a small court (Court 1) of the same dimensions, which leads into a short columned street. In the second enclosure there is a further hall (North Building) facing onto a second small court measuring 10 by 24 m. (33½ by 78½ ft). On the east side of the columned street and Court 1 are three residential units, the rooms of each of which are arranged around three sides of their own small courtyard (Buildings 4, 5 and 6). Adjacent to the North Building are two more residential units (Buildings 2 and 3). The pattern of three residential units on the east side was probably repeated on the west side of the street (Buildings 7, 8 and 9). There is in addition a passage-way leading to further buildings on the west side. There is space to the west of buildings 7, 8 and 9, and to the west of the North Building for further units of which nothing is as yet known.

The Reception Hall

The Reception Hall (96, 97) is built of limestone masonry, of two different sizes. Up to a height of about 3 m. (9½ ft) outside and 2 m. (6½ ft) inside it is built of large cut stones taken from earlier buildings. Above this, however, the stones are longer and thinner and laid in shallow courses. The main façade of the building is its south side, which has a large pilaster at each corner and two flanking the gateway. The upper part of each pilaster has fallen away. The north wall has no such pilasters, but there are three on the west and east sides. A barrel-vaulted room evidently adjoined the south-west corner, and the beginning of a wall can be seen in the north-west corner. The north wall contains three doors and it appears that the corridor leading from the north-east corner of the building led into an adjoining structure.

Inside, the building has a cruciform group of four rooms around an open, courtyard-like space. Access is via two doors, in the north and south respectively, the main entrance being that in the south. Here an entrance
97. 'Amman: the Reception Hall, east façade
niches 4.24 m. (14 ft) wide and 1.5 m. (5 ft) deep with stone benches either side leads to a door 2.49 m. (8 ft) wide and to an inner door niche 1.83 m. (6 ft) deep and 3 m. (9 ft) wide, and thence to the south room of the cross. This is 5.81 m. (19 ft) deep and 6.8 (22 ft) wide, and has two wide and two narrow pilasters on its west and east sides bearing two arches which in their turn support a pointed barrel-vault. From this room barrel-vaulted passages roughly 1.1 m. (3½ ft) wide and 2 m. (6½ ft) deep lead to corner rooms, that in the south-west measuring 5.1 by 6.92 m. (16½ by 23½ ft), and that in the south-east 4.98 by 6.89 m. (16½ by 22½ ft). Both have pointed barrel-vaults.

North of the south entrance room is the unceiled area, 10 m. (32 ft) square. To its north is a room 5.3 m. (17½ ft) deep and 5.98 m. (19½ ft) wide, barrel-vaulted in a similar way to the south room. The northern entrance to the building is 2.43 m. (8 ft) wide. The west and east rooms also have arched entrances but instead of barrel-vaults they are covered by semi-domes which arise elliptically from the rear walls on squinches. In the north-west corner of the central square an opening 28 cm. (1 ft) wide leads to a room under the stairway and a vaulted passage-way between that and the central western room. The staircase is reached by a door in the north façade of the building. At the eastern end of the north façade another doorway leads to a square room, 3.02 by 3.06 m. (16½ by 16½ ft), and to a passage-way round the inside of the corner of the building.

Decoratively the interior of the building, i.e. the four rooms constituting the cross and the central area, is in striking contrast to the exterior. The lower parts of the walls are constructed of blocks c. 1 m. (3½ ft) high and 2 m. (6½ ft) long, in two layers. Above this runs a ledge in five bands, and above the ledge a band of stone of the same height as the ledge. This latter serves as a base for the blind arcade which runs round the walls at a height of c. 2.5 m. (8½ ft). The blind niches are symmetrically divided on the walls of the rooms, with 12 in the south room, 20 in the north room, 25 in the west and east rooms, and 24 around the central area, making a total of 106 niches. These niches are of the same shape and size but have different ornamentation. Above this arcade is a frieze of dog-tooth, and about 1 m. (3½ ft) above this is a ledge in three parts which goes around the walls of the north, west and east rooms, and the east and west walls of the south room. Each corner of the central room is decorated with two tall, blind, variously ornamented arches, standing on the dog-toothed. Above each of these pairs originally stood a further three blind arches, making twenty in all. Finally, at the top, was a rosette frieze which went right round above the crowns of the arches. This frieze was the upper limit of the walls.

Whether the building was roofed, and if so how, remains unclear. Almagro reconstructs it with a stone dome, but there is no structural evidence for this, and a dome whose transition only began above the surviving cornice level would have been disproportionately high. A wooden domical roof might also have been used, but Northedge suggests that the building was open, on the basis of the following evidence: (1) The proportionate shape of the building when reconstructed this way; (2) the survival of a cornice which would be unusual on an interior façade; (3) certain beam holes in the upper façades which are secondary features and may represent the seating of a later wooden roof; (4) the tiers of niches framing the arches, which are typical only of an external, not an internal façade, as for example the façade of the Tāq-i Kisrā.

Architectural Origins

The Reception Hall is a paradox. Its ashlar masonry and lime mortar are in the local tradition and the setting out of the plan is similar to that of a cross-in-square basilica. Yet the effect is quite different from such a basilica, recalling in many ways an Iranian four-ivan plan. However, all the four-ivan buildings which pre-date 'Ammān, with the exception of the audience hall at Bishāpūr, consist of a court with four ivans integrated into a larger complex, and the smallest of them is considerably larger than 'Ammān. 'Ammān by contrast is constricted within its external rectangle. The nearest parallel is with the building at Bishāpūr, but even here there are difficulties. Ghirshman, who excavated the building, reconstructed it with a dome, thus suggesting that it was a large chahār tāqī, rather than a four-ivan type structure. Moreover, Bishāpūr is a third-century building, and no buildings
are known which would provide the necessary link in
time with ‘Ammān. In the light of this, Northedge sug-
gests that the Reception Hall at ‘Ammān may be the
work of an architect familiar with the cross-in-square
basilica trying to represent a four-ivan plan, an architect
who, by using Persian ornaments – non-functional
squincies with Sasanian elliptical arches, internal faç-
dades heavily decorated in the Sasanian manner, an
ornamental string line, and the use of square buttresses
at the mouth of each iwan after the manner of the Taq-i
Kisrā – wanted to create a specifically Persian visual
impression.

The Buildings of the First Enclosure

The Reception Hall leads into a square courtyard
(Court 1) measuring 26·1 by 24·2 m. (85½ by 79½ ft), i.e.
virtually identical in size with the Reception Hall itself.
From this courtyard a columned street leads to a gate in
the north wall of the first enclosure, which in turn leads
into the second. The street is 9·8 m. (32 ft) wide and had
thirteen columns on each side. Sockets to support an
arcade surviving in the north wall of the enclosure show
that the columns were 3·4 m. (11 ft) high including
base and capital; the underside of the arches would have
been 1·7 m. (5½ ft) higher. The arcade was probably
covered by a wooden roof.

The eastern side of the first enclosure consisted of
three buildings, 26, 25 and 25 m. (85½, 82 and 82 ft) in
width. They are constructed of mortared rubble walling
varying between 96 and 106 cm. (3 and 3½ ft) in width.
Building 6 measures 26 by 29·6 m. (85½ by 97 ft), and
has three rooms on the west, five on the south and four
on the east ranged around a central courtyard. The
rooms are 5·34 to 6·0 m. (17½ to 19½ ft) in depth and vary
between 3·9 and 5·9 m. (12½ and 19½ ft) in width. The
two widest rooms were evidently open-fronted ivans.
Building 5 measures 25 by 33·4 m. (82 by 109½ ft) and is
almost identical in plan to Building 6. The general
arrangements of Building 4, which measures 25 by 35 m.
(82 by 114½ ft), are like those of the other two. The area
to the west of the columned street has yet to be excavated,
but what little evidence is visible suggests the existence
of two further residential buildings of the same type,
giving approximate symmetry between the buildings of
the west and east side of Court 1 and the street.

The Buildings of the Second Enclosure

The visible remains in the second enclosure suggest
three separate buildings – Buildings 2, 3 and the North
Building. The remains of Buildings 2 and 3 consist of a
row of rooms 5·7 m. (18½ ft) deep and varying between
3·3 and 3·8 m. (10½ and 12½ ft) wide, facing east, with a
dividing corridor that has been turned into an L-shaped
passage by the later addition of the North Building. The
surviving range of rooms probably faced onto a pair of
courtyards with additional ranges of rooms on the north,
south east and east, but the remains have been eroded
away by collapse down the hill.

The North Building as it stands today survives with
walls that vary in height between 1·4 and 7·6 m. (4½ and
25 ft), but all forms of roofing have fallen. The walls are
mortared rubble with remains of lime plaster, except for
the façade wall and the two main chambers, which have
a facing of ashlar blocks. The building faces onto a small
court 24 by 10 m. (78½ by 32½ ft). Its main chambers
consist of a vaulted hall with a cruciform room behind it.
The front hall measures 9·6 by 6·8 m. (31½ by 22½ ft),
and the west wall survives to the springing of a barrel-
vault. If the vault was round, its inside height would
have been 9·8 m. (32 ft), if a two-centred, pointed vault
like those of the reception hall, 10 m. (32½ ft). The hall
is an open-fronted iwan, its open end strengthened by
shallow rectangular buttresses. The iwan was apparently
divided from the cruciform chamber by a wall, and there
is a slight distortion in alignment between the two units.
The interior of the cruciform chamber is a square of
7·3 m. (24 ft) with four recesses 4·75 by 1·6 m. (15½ by
5½ ft), presumably arched in their original form. Each of
these recesses contained a doorway. The west wall of this
chamber and that of the iwan have complete arched door-
ways 4·6 m. (15 ft) high. The corner buttresses of the
chamber are very thick, that in the south-west contain-
ing a vaulted latrine. Although the room must have been
domed there is no evidence of the zone of transition.

On each side of the iwan there is a side room which
connects with the hall and the court in front. They
measure 4.8 by 9.8 m. (15 ft by 32 ft) and 6.4 by 9.4 m. (21 by 30 ft). On the east side two more rooms flank the dome chamber, and the same may have been true on the west side. On the north side the buildings appear to have extended as far as the platform wall and there may have been a small court behind the dome chamber itself. Fragments found in the building suggest that there was carved decoration of niches with plain colonettes and a vertical slot on the back wall of the Ivan and on the façade.

**Architectural Origins of the North Building**

The plan follows a well-known eastern type of building: an Ivan with a dome chamber, which was widely used in Sasanian and early Islamic times in 'Iraq and Iran. It is not, however, of the type where the vault is supported on piers, such as those of Kish, Tepe Hissar, Dāmghān, Kūša and Tulūl al-Ukhaidir, but is more reminiscent of the Ivans at Ukhaidir and the Bāb al-'Āmma at Sāmarrā. The decoration also gives an eastern impression, for niches with plain colonettes and a vertical slot appear at Ukhaidir. Nevertheless the construction techniques of ashlar masonry and ashlar vault are local, as is the type of latrine.

**The Date**

Although the various parts of the complex - the Reception Hall, the buildings of the first enclosure and the buildings of the second enclosure - are not bonded together, it is clear that they belong to one period. The Reception Hall and the buildings of the first enclosure are related through the dimensions of Court 1; stylistically all parts of the complex can be grouped together, compared with other building phases identified on the citadel; similarities between the Reception Hall and North Building suggest close proximity in date despite the fact that the North Building is clearly the latest part of the second enclosure. Sherds of 'Umayyad red-painted ware from the mortar of Building 4 and from the roof of the Reception Hall point to an 'Umayyad date for the complex. So too does the architectural style in which the broad, slightly-pointed tunnel-vaults are comparable to those found at Mshattā and Qasr at-Tūba, and at Ukhaidir. Now Tabarī says that Sulaymān ibn Hishām was imprisoned in 'Ammān by al-Walid II. After al-Walid's death he was released, and 'took all the treasures that were in 'Ammān and headed towards Damascus'. This reference suggests some sort of palatial residence as well as a prison at 'Ammān in the last years of 'Umayyad rule. Moreover, there is a close correspondence between the niches used at 'Ammān and those found at Qasr al-Hair ash-Sharqī, which can be dated to about 110 H. (728-9). We may therefore ascribe the palatial complex at 'Ammān to the reign of Hishām.

**QASTAL**

Qastal is situated some 25 km. (15 miles) due south of 'Ammān. It was first planned and described in detail by von Domaszewski, although it had been mentioned by a number of earlier travellers. More recently it has been discussed by H. Stern and by H. Gaube, from whom the details here are for the most part taken.

**The Qasr**

The main building at the site (98) is a qasr approximately 59 m. (193 ft) square, excluding the towers. The walls are made of blocks of cut stone sometimes with a rubble core, and are about 1.65 m. (5 ft) thick. The building originally had four three-quarter-round corner towers, and three semi-round towers on each of the north, south, and west sides, with four on the east side. Two of the latter are part of the portal. The entrance doorway is 2 m. (6 ft) wide and leads into a gateroom some 16 m. (52 ft) deep, its stumps of vaulting indicating that it was originally covered by two cross-vaults. A narrower doorway
leads into a courtyard approximately 28 m. (91 ft) square. Numerous fragments of pillars of two different diameters indicate that the courtyard originally had a portico on two storeys. Around the courtyard are grouped six baytis, two on the east and west sides, one on the north and south. Each bayti is based on a five-room unit, a large main room with two smaller rooms on either side. The corners of the building were all originally filled by three small rooms approached by long corridors, though the group in the north-east corner has suffered from twelfth- or thirteenth-century restoration. The plan is not exactly symmetrical, since the portal lies south of the main axis of the building.

Further indication of a second storey is found by the gate-room, where there are also remains of steps. Gaube suggests that access to most of the upper storey rooms would have been via the upper portico, and concludes that the main rooms on the plan were in fact two storeys in height, without any intermediate ceiling, and thus similar to those in the north-east square of ‘Anjar.

A number of fragments of decorated stonework lie on the site, though their original location is for the most part uncertain. They include four types of decorated capital, three types of lintel and architrave, some flat slabs of ornament, one niche and many small fragments. Gaube suggests that the niche is from the façade, where it formed part of a group located above the portal or on one of the flanking towers.

The gásr at Qastal has been attributed to the Ghassáníd period, on the basis of Hamza al-Isfahání’s assertion that Qastal was built by Jabala ibn al-Harith.47 The name ‘Qastal’ is common enough in this region in early Islamic times to make such a specific identification difficult, and there is in any case overwhelming evidence that Qastal is an Islamic site: the presence of a mosque contemporary with the gásr.

The Mosque

A few metres from the west end of the north part of the palace is a building which was identified by Brünnow and von Domaszewski as a Praetorium, but which is in reality a mosque. Its walls are 67 cm. (2 1/4 ft) thick and it is built of masonry blocks of the same size and shape as those of the gásr, laid in the same way.

The mosque (99) is approximately rectangular, measuring c. 21 by 18 m. (68 by 59 ft) and at the north-west corner there is a round tower, almost 6 m. (19 ft) in diameter, bonded into the wall. Internally the mosque consists of a courtyard measuring c. 17 by 10 m. (55 by 32 ft), and a sanctuary c. 16 by 5 m. (52 by 16 ft). Two doors, one on the east and one on the west side, lead into the courtyard, and a door in the north wall leads from the courtyard into two rooms which are later additions to the structure. A door in the south wall leads into the sanctuary, which is barrel-vaulted. It is evident that the original wall between the sanctuary and the courtyard has been supplemented by an additional wall on either side, that on the sanctuary side having a corresponding wall built against the original southern wall of the mosque. The barrel-vaulting dates from the period of these additional walls. The thinness of the original walls suggests that the sanctuary was originally roofed in wood. The present mihrab is 1·38 m. (4 1/4 ft) wide and 1·36 m. (4 1/4 ft) deep, but in fact its rear is the original mihrab niche of the mosque cut into the original qibla wall, which also had a doorway in its south-west corner.

The façade of the sanctuary was originally articulated by three blind arches.

The circular tower in the north-west corner is the remains of the minaret. It stands to a height of almost 6 m. (19 ft) and at a height of 4·8 m. (15 1/4 ft) it is decorated with stone blocks. The faces of these blocks are sculpted to resemble grooved half-pillars, and have box-shaped bases and acanthus capitals. A spiral staircase takes up the interior of the minaret.

The Date

The fact that the mosque and the gásr are built of the same sort of masonry laid in the same way leaves little room for attributing the gásr at Qastal to a pre-Umayyad era. On the other hand, close dating of it within the Umayyad period is not at all easy. In plan it has features which relate it to other Umayyad palaces of rather varying dates. Thus it is made up of baytis like those at Kharāna and Jabal Sāis, and the layout of the rooms is perhaps closest to that in the palace at ‘Anjar. On the
98. Qastal: the qasr, plan (from Brunnow and von Domaszewski, *Die Provincia Arabia*)
other hand, the system of access to the side rooms has much in common with that at Qasr al-Hair al-Gharbi, with which it shares the form of its portal of two semi-circular towers. Similar corridors in the corners of the courtyard also occur at Khirbat al-Mafjar. Since the plans of Umayyad palaces do not show a step-by-step development it is impossible to date Qastal on these grounds. On the other hand the surviving decoration seems to have more in common with that of the period after Walid I than with that of his reign. That the qasr was in existence by AD 744 is evident from a reference in Tabari, who says that Walid II (743-4) stopped in the area of Zīza (the modern Jīza) near Qastal. Gaube concludes that on stylistic grounds the most likely date for the qasr and mosque is between 720 and 744.
NOTES

3. Futiḥ, p. 179; Hitti’s transl., p. 280.
8. Creswell was convinced that the two Hairs, east and west, dated respectively 110 and 109 H., were to be identified with Rusāfat-Hishām and az-Zayıtūna. His argument reprinted above is not conclusive; and recent excavation at the eastern site and at Rusāfa (see pp. 146-7, 149) have made his identification even less probable. [J.W.A.]
10. L. Bier, Sarvistan (1986), has put forward convincing arguments for a ninth-century date for Sarvistan. [J.W.A.]
14. Grabar et al., op. cit., p. 22.
16. Grabar et al., op. cit., p. 32.
17. J.-B. L. J. Rousseau, Voyage de Bagdad à Alep (1808, Paris 1890).
18. Grabar et al., op. cit., p. 50.
19. This sketch, although in Rousseau’s diary, was not published by Poinssot, but may be found reproduced with a commentary by Clermont-Ganneau in his Recueil d’archéologie orientale, iii, pp. 285-90 and pl. viii.
20. Grabar et al., op. cit., pp. 80-1.
22. Grabar et al., op. cit., p. 108.
23. Būdān, p. 263.
24. Margoliouth’s text, i, p. 159; transl., i, p. 179.
27. Similar structures of brick resting on a pair of stone corbels occur on the walls of Rome in the part due to Maxentius in AD 354. They were known in early medieval Latin as necessaria, and had a sanitary and not a defensive function; see I. A. Richmond, The City Wall of Imperial Rome, pp. 84-6.
29. Syrie Centrale, p. 95 and pl. 58.
30. Chronicle, Martin’s text, p. 62; transl., p. ixii; Wright’s text, p. 60; transl., pp. 59-60.
32. Grabar et al., op. cit., p. 151.
33. Grabar et al., op. cit., p. 152.
34. Grabar et al., op. cit., pp. 154-5.
37. Arabia Deserta, p. 351.
40. A. Almagro Gorbea, El Palacio Omeya de Amman, I: La arquitectura (Madrid, 1983).
42. ‘Amman, Harāne und Qastal’, pp. 52-63.
43. ii, p. 1825.
44. Brunnow and von Domaszewski, ii, pp. 95-103.
45. ‘Notes sur l’architecte des châteaux omeyyades’, Ars Islamica, xI-xI (1946), pp. 72-97.
CHAPTER 7

The Works of al-Walīd II

KHIRBAT AL-MAFJAR

The site of Khirbat al-Mafjar, near Jericho, was first visited by Warren and Condor in 1873, and was excavated by the Palestine Department of Antiquities, in a series of twelve seasons from 1934–5 to 1948.1

General Description

The remains consist of five principal buildings, as follows (100):

(1) A two-storeyed Qasr, roughly 65 m. (213 ft) square internally.

(2) Next to the north side of the qasr and continuing the alignment of its east side is a mosque with a concave mihrāb but with only one rīvāq of two aisles. A staircase descends to it from the upper floor of the qasr.

(3) Continuing the line of the western side of the qasr is a wall about 40 m. (130 ft) long, which ends in a three-quarter round tower, and then turns east to form (with the west side of the mosque) a courtyard measuring about 40 by 45 m. (130 by 148 ft). Its north side is formed by the hammām.

(4) The Hammām was reached by a covered arcade which crossed this courtyard from a door in the north wall of the palace; it was a most elaborate affair measuring about 30 m. (98½ ft) square, with a monumental entrance on the east side opening into a courtyard formed by prolonging the east wall of the mosque. On the south side of this courtyard are three doors leading into the mosque.

(5) The Forecourt. In front of all these buildings extended a great forecourt, measuring nearly 40 m. (130 ft) from east to west and 135 m. (443 ft) from north to south. Its southern wall took off from the south-eastern corner tower of the palace, and its centre was a projecting porch, originally rectangular, but subsequently modified on reaching the third course by giving it quarter-round corners. The forecourt had been paved with flagstones. The entrance passage was provided with mastabas (stone benches) on either side, like the gateway of the garden at Qasr al-Hair ash-Sharqī (above, p. 161).

The west side of this forecourt was formed for about the first half by the monumental entrance of the palace,

Note.

In Chapter 7, the section on Khirbat al-Mafjar is based on Early Muslim Architecture 1969, I, 2, pp. 545–77. However, on the basis of Hamilton’s recent publications, a new section has been added at the end, entitled The Owner, which summarizes Hamilton’s reasons for attributing the buildings to al-Walīd II. The sections on Mshattā and Qasr al-Tūba remain as in the 1958 edition, except that Creswell’s ‘Objections’ to various obsolete theories on the date of the buildings, and the sub-section entitled The Bays, have been omitted. The section on Qasr Bāyr is based on Early Muslim Architecture 1969, I, 2, pp. 642–3.
with its two-storeyed portico. Then came the remains of five massive towers or buttresses, which must have carried some heavy superstructure of which nothing remains, and, finally, a portico of four arches, the back wall of which is a prolongation of the east wall of the palace and mosque. A door leading into the forecourt of the hammām comes opposite the second inter-columniation.

(6) The Fountain. Near the exact centre of this court was a square pool with an octagonal pavilion of very massive construction. The centre of the pool was aligned exactly on the north wall of the palace, and within a metre of the centre line of the court.

This forecourt with its central pavilion, as Hamilton points out, was the one feature which gave a semblance of architectural unity to the whole complex, the palace, mosque, and baths being themselves strung together at haphazard without any attempt at integration in a uniform scheme.²

(7) The Hair. Eastward of the main enclosure is a long meandering wall now flush with the ground. It is reinforced by half-round buttresses, placed first on one side and then on the other alternately, exactly as at Qasr al-Hair ash-Sharqi. This justifies us in calling it the hair — game enclosure or park — with an area of about 150 acres.

The water for the palace and baths was brought from 'Ain ad-Duyūk and 'Ain an-Nuway'imah by an aqueduct which at two points is carried by bridges across the wādī. Some 700 m. (765 yd) from the palace the water was gathered in a reservoir or birka, between which and the palace the fall of some 24.5 m. (80 ft) in the land was used to turn three or more water-mills. From here the water was led to a square open cistern near the west wall of the baths and then to the baths themselves.

From particular unfinished walls, carvings, and plaster screens it is evident that building at Mafjar was never completed, and was in fact abandoned suddenly and simultaneously all over the site.

The Palace

The palace is built throughout of a light porous sandstone from Khirbat as-Samrā', a large quarry 5 km. (3 miles) to the north. Its outer walls face the four cardinal points; their measurements are: east, 61.26 m. (201 ft) internally and 63.86 m. (209½ ft) externally; south, 64.68 m. (212 ft) internally and 67.28 m. (220½ ft) externally; west, 64.68 m. (212 ft) internally and 67.28 m. (220½ ft) externally; north, 64.61 m. (212 ft) internally and 67.21 m. (220½ ft) externally. The cubit of 44.75 cm. (17¾ in.) employed for the water-gauge of Muwaqqar must have been used in marking out the palace. There were three-quarter-round towers at the four corners, and a semicircular one in the middle of the north and west sides. All of these towers were solid up to the point preserved. In the centre of the east side was the entrance tower, 14 m. (46 ft) wide with a projection of 6.10 m. (20 ft), flanked on either side by the two-storeyed portico.

The façade

The façade (101) was not symmetrical, for there were five arches to the left of the gateway and only four to the right. The lower arcade was supported by masonry piers, each consisting of four closely set cylindrical shafts with moulded bases and acanthus capitals standing on a moulded cubical base. The arches of the upper and lower galleries and the columns on which they rested lay on the ground face downwards, just as they had fallen during an earthquake. Two other arcades at right angles abutted on the northern and southernmost piers. The southern arcade formed a portico which turned and continued along the eastern side of the forecourt; the northern one appears to have formed some link with the pool of the fountain.

All the arches at Mafjar must have been very slightly pointed, with two centres separated by distances varying from one-twelfth to perhaps one-fifth of a span. The commonest ratio in arches which it was possible to measure was between one-eighth and one-sixth. From the fallen masonry and arches it was possible to estimate the height of the porticoes as follows:
Datum to floor level of first storey 8·20 m. (27 ft)
First-storey columns, with capitals and bases 3·10 m. (10 ft)
Arches 2·50 m. (8½ ft)
Superimposed masonry 1·05 m. (3½ ft)

14·85 m. (48½ ft)

Across the base of each arch of the upper storey was a pair of pierced ornamental panels, exactly as in Qasr al-Hair al-Gharbi. These remarkably beautiful balustrade panels must have been made in a workshop and brought to Mafjar finished and ready for installation, whereas the posts that held them in position were not pre-fabricated but made on the spot.

The great archway in the centre of the façade was about 4·70 m. (15½ ft) wide, and the slightly stilted arch sprang at a height of about 4·50 m. (14½ ft) from the floor. It formed one end of an open porch of the same depth as the portico. Its outer face consisted of a series of voussoirs treated as radiating niches between decorated colonnettes, some fluted. These colonnettes turned inwards under the arch and continued horizontally along the surface of the vault. This vault was penetrated by the vaults of the side recesses, a cross-vault being thereby formed over the passage-way. At a level of 1·84 m. (6 ft) above the sill was a cyma recta moulding 27 cm. (10½ in.) high with floral motifs on looped stalks, which ran across the north, east and south faces of the tower and passed in under the arch to traverse the north and south walls of the porch, until it terminated on either side against a jamb of the gate itself. On either side of the porch is a bench, each with three arm- or head-rests, one a quarter circle in section at each end, and a semicircular one in the middle. Resting on the cyma recta moulding above these benches were eight niches with flanking colonnettes, of which there were three on each wall and one on each jamb of the archway. The tops of the niches were 4·02 m. (13½ ft) above the sill. There was probably a second string course 27 cm. (10½ in.) in height above the niches.

The front of the tower was decorated with a horizontal band of ornament, of ribbon design with interlacing quatrefoils, its lower edge 1·20 m. (4 ft) above the spring-
ing of the entrance arch. Two vertical bands of ornament, of ribbon design with interlacing circles, probably framed the window of a room on the upper floor above the porch and entrance hall. Along the top of the tower there seems to have been an acanthus cornice surmounted by a set of fourteen whole and two half crenellations, each 99 cm. (31 ft) high. There were also probably four projecting hexagonal medallions, 1.08 m. (31 ft) in diameter, at the summit of the façade.

The entrance hall

At the back of the porch was a double-leaved door of which the left jamb has been preserved to a height of 3.10 m. (10 ft). The jambs are carved with a panel decoration; ten panels exist of the left jamb and the lintel apparently had twelve. The latter, which had fallen, was made in three pieces, two long ones and an hexagonal piece in the centre. The weakness of this eccentric arrangement was probably reduced by having a relieving arch above it. Beyond this doorway was a long vaulted hall, open at the far end and leading into the cloister round the central courtyard.

On either side are three massive wall piers and stone benches, each with arm-RESTS like those in the porch. The stucco behind them was found to be carved, showing that the arm-RESTS were an afterthought. The piers are built to look like clusters of columns. The roof consisted of a brick tunnel-vault, penetrated by the vaults of the side recesses. This hall was decorated throughout with stucco ornament. The space between the wall piers was divided by an acanthus cornice, which presumably ran across the recesses immediately below the springing of the vault. Each recess was divided by a broad vertical strip; each panel was then divided horizontally, making sixteen nearly square panels. Each group of four panels was probably filled by two different compositions arranged so that the top left was identical to the bottom right and vice versa. Three of the panel patterns can be reconstructed. On the south wall one panel consists of a diagonal pattern of swastikas alternating with rosettes, framed by a chain design between borders of beads. Another panel on the same wall has the same border, but the main part consists of cruciform compartments, each containing a fleur-de-lis. A north wall panel has swastikas rotating to left and right forming T-shaped compartments; these are filled with three whirling palmettes joined by short stems. The border pattern on the north wall seems to have consisted of a guilloche between borders of beads.

A certain amount of stucco belonging to the lunettes was also found, viz. a panel with human busts peering out of interlaced, beaded circles, a plaster statue, and parts of some niches. The statue must have rested on the acanthus cornice, though Hamilton is convinced that such niches and statues were inserted afterwards.

The decoration of the vault evidently consisted of a series of vines peopled with figures of men and animals.

The palace proper

Within the four walls of the palace were, first, rows of single rooms running along the east and south sides. All of these rooms, which opened onto the cloisters, were isolated from one another. On the west side the rooms were arranged in pairs, one behind the other, except the group of five rooms in the centre, the lateral rooms of which communicate with the central room and with the other in its pair; the central room opens into the cloister and likewise the outer lateral rooms. The central room appears to have had a barrel-vault of brick, supported, but not penetrated, by three masonry arches springing from three pairs of piers; these piers were not bonded into the walls. The south-east pier was later extended to form a wall. The bricks were of two sizes, 33 × 33 × 4 cm. (13 × 13 × 1.5 in.) and 25 × 25 × 4 cm. (9.5 × 9.5 × 1.5 in.). The floor of the hall was paved with concrete (madda). In the two outer rooms, which measure only about 5 by 3.5 m. (16 by 11 ft), no bricks were found; thus they probably had a wooden roof. The two rooms roughly 11 m. (36 ft) square in the north-west and south-west corners have two square piers and corresponding wall piers in each, from which we may conclude that they were vaulted in the same way as the long room on the north side.

The room in the centre of the south side, provided with a niche with flanking colonnettes, was certainly a mosque resembling that of Mshatā. Square holes to
take clamps had been cut in the masonry at the bottom edge of the fourth course in each wall, presumably to take a marble panelling, and the tower behind, nearly 5 m. (16 ft) square, which occupies the place of the usual half-round tower, was doubtless the base of a square minaret.

The north side was occupied by a very large room, 28.59 m. (93 ft) wide and 10.90 m. (35 ft) deep, with a row of six square piers down the centre. The corresponding wall piers to north and south show that there must have been six arcades of two arches each; these must have carried seven tunnel-vaults of sun-dried bricks which were found lying disintegrated on the floor.

The arrangement of the ground floor rooms left a passage in each of the four corners of the building, which continued the east and west walks of the portico as far as the outer walls. Of these the one in the south-east corner provided access to two rooms; another in the north-west corner led, by a flight of shallow steps, to a door in the outer wall which served the loggia leading to the baths. The two in the north-east and south-west corners contain double flights of steps which mounted on arches to the first floor. These staircases can almost be described as monumental, whereas in medieval Muslim palaces the staircases are generally steep and tucked away in corners.

The courtyard was paved throughout with bituminous limestone. The pavement of the four cloisters was raised 15 cm. (6 in.) above the central part, which measured 27.73 m. (91 ft) wide and 28.95 m. (95 ft) deep. There were four columns on each side, and at each corner an L-shaped pier with two pilasters. A gutter runs along the east side of the court. The combined height of the columns, bases and capitals of the cloisters was 4 m. (13 ft), and the arcades and the masonry above them must therefore have been 4.20 m. (13.5 ft) in height, to make 8.20 m. (27 ft) in all, the height of the floor level of the first storey. The cloister columns were not evenly spaced; if we assume that the columns above were so spaced, they cannot have been positioned vertically above those below. Charred remains of beams make it certain that the portico had timber ceilings, and a quantity of unused roof tiles stacked in one of the large rooms shows that the upper storey of the portico had a tiled roof.

The balustrades
The upper floor galleries had panel-and-post balustrades of stucco between the columns. There were three panels between each pair of columns, instead of two only as in the forecourt. They were composed of rectangular slabs of plaster, 10-11 cm. (c. 4 in.) thick, carven on both sides and firmly held in position by posts, two placed against the columns and two in between. The designs all consisted of a rectangular central part within a border. It appears that every panel made for the central court had a different design on either side, and also that each design was repeated once, but once only. Thirty different designs have been identified. From the unfinished panel and others, it is clear that they had been made by pouring liquid plaster into forms of the required size and shape and laid, whilst still damp, on a piece of woven material spread on the ground. There the designs were drawn and carved. The drawing equipment included a ruler, a scoring tool, a blunt point, a pair of dividers, and a taut string. Excavations of the background and modelling required a narrow triangular chisel, knife or broad chisel, and a drill. Since the actual ornament was hand-carved even duplicates were drawn and carved separately. I have pointed out elsewhere (pp. 69-72 and 398-9, 402) that the marble window grilles of the Great Mosque at Damascus and the three original windows and the arch soffits of the Mosque of Ibn Tulun were set out either on a network of equilateral triangles or on a network of squares. I proposed to classify these two types as 60° designs and 45° designs. This hypothesis is confirmed by the discovery of an unfinished balustrade slab at Khirbat al-Mafjar, in a workshop which had been established in a room on the west side of the court. The border was carved and finished whilst work on the central part only advanced as far as the marking out of the network of equilateral triangles. Of the panels belonging to the court, ten belong to the 60° group and nineteen to the 45° group. Hamilton's analysis of the panels is as follows:

In the panels of the central court there were two sorts of field designs: repeating patterns that covered the whole field, and self-contained circular designs, which touched the top and bottom borders but left a space at each end to be filled by independent
motifs. On one panel two circular medallions were contained in the field side by side.

The repeating patterns were all geometrical. . . . We can distinguish six types of geometrical framework:

(i) Round, square or lobed compartments linked at their points of contact by loops.

(ii) A lattice-work of straps tracing swastikas at alternate intersections and so forming six-sided compartments.

(iii) An all-over fretwork of swastikas (square or skewed) alternating with floral compartments.

(iv) The field partitioned by diagonal bands of three or four interwoven straps.

(v) Over-all patterns based on interlacing or overlapping circles.

(vi) A close fretwork of meandering straps leaving T-shaped or cross-shaped voids.

(vii) Circular designs depending on interlacings . . . but rounded off in a closed and logically complete system.9

The sirdāb

In the centre of the west cloister, and in front of the central room of the five-room group, is a staircase which descends in three short flights, first towards the north, then towards the east, and then north again, to a small open court not quite 5 m. (16 ft) below the cloister. It is paved with mosaics and its west side is formed by the façade of a cool, underground room – the sirdāb. This room had a tall narrow doorway spanned by a lintel with lunette above, and small arched windows high up to the right and left. Inside, the room is rectangular, with two arched recesses to right and left, a fine mosaic floor and a tunnel-vault of brick above. At 7.5 m. (24 ft) from the entrance is a partition rendered with waterproof cement and provided with two steps. Behind is a tank or bath, supplied with cold water from a hole above; this section is paved with concrete. Owing to the porous nature of the masonry the whole of the west wall and parts of the north and south walls are faced with bricks and plastered.

The upper floor

That the two staircases did not merely lead up to the roof but to an upper storey is proved by a number of white marble columns, 26 cm. (10 in.) in diameter and 2.30 m. (7½ ft) long, which were found lying in the court in front of the larger columns. Bases and capitals belonging to these columns were found in the east and west cloisters; the bases had grooves on two of their opposite sides to take the closure-slabs.

A number of stones found in the ruins of the palace gateway and entrance hall had been pieced together to make a gable-end for what must have been a ridge-roof for the first-floor apartments over the gate. The gable itself only measures 6-40 m. (21 ft) at its base; Hamilton suggests that there was here a basilical hall with a central nave about 6 m. (19½ ft) wide covered by a gable roof, and side aisles of 4 m. (13 ft) each with flat or nearly flat roofs. And he suggests that we may have had here what is not found on the ground floor: an audience hall of basilical form, like that at Mshattā.

The windows

Fragments of window grilles were found in the eastern rooms of the palace, from which it was possible to recover the designs of eight windows. Four may be classed as 60° designs and the rest as 45° designs. A stone window which probably belonged to the east wall of the central room of the upper floor on the west side, and looked onto the court across the roof of the cloister, has been reconstructed from ninety-two stones found in the stair well of the sirdāb. Originally consisting of 106, its weight is estimated at not less than 3½ tons. It is in the form of a circle filled with a six-pointed star in interlacing strapwork, and its diameter is about 2·04 m. (6½ ft).

The Mosque

At a distance of 7 m. (23 ft) from the north-east corner of the palace are the remains of a mosque, which measures 17-10 m. (56 ft) in width internally and 23-60 m. (77½ ft) in depth. Its east side continues the east side of the palace. It could have been entered in two ways, either by a door to the right of the mihrāb, served by the staircase already mentioned, which descended from the first floor of the palace, or by three doors on the north side which faced a courtyard in front of the hammām; these doors opened into a sort of narthex, on the opposite side of which were three more doors opening into the mosque.

The courtyard was not surrounded by arcades on all
four sides, but on the qibla side only, in which respect it resembled the Great Mosque of Cordova in 878, the Great Mosque of Qairawān in 836, and the Great Mosque of Tunis in 864. This south rīwāq was 10.35 m. (34 ft) deep, and probably had a wooden roof. The arch form employed was a slightly pointed one with two centres one-seventh of the span apart. The arches were 6.5 m. (21 ft) high, but no remains of a cornice or parapet were found.

The Forecourt, Pool, and Pavilion

Of the forecourt so little remains, except at the south end, that it seems to have been hardly begun. Nothing remains of its east side except two parallel foundation trenches connected by cross trenches and filled with rubble concrete.

The fountain (102) stood in a masonry pool just over 16 m. (52 ft) square with a cement floor and walls 1 m. (3 ft) thick and 25 cm. (9 in.) high. The pool and inner surface of its four walls were covered with waterproof cement. The fountain was a very massive octagonal building, resting on four L-shaped piers arranged to form a square, and set within an octagon resting on eight piers and just large enough to stand within the pool. On the analogy of the Bath, Hamilton concluded that the piers were 4.86 m. (16 ft) in height, of which 75 cm. (2 ft) belonged to the capitals. There must have been twelve arches with a span of 4.56 m. (15 ft). The voussoirs of the arches of the central square were decorated with an acanthus moulding on the outer face; the voussoirs of the octagon were plain. The arches were slightly pointed with two centres about one-sixth of a span apart.

A cornice 62 cm. (2 ft) high crowned the octagonal part of the pavilion. Above this was a stone parapet consisting of posts and panels, the panels 1.195 m. (4 ft) high plus 31 cm. (1 ft) for the bulbous tops of the posts. Four panels and five posts exactly filled one side of the octagon. The area between the arches of the octagonal and square systems, because of its small size and awkward angles, was probably given a flat wooden roof. Four moulded voussoirs, two impost blocks, and two capitals were found in the pool, apparently belonging to
windows in the upper part of the central square above the terrace. There was an estimated space for three on each side. The covering of the central square was evidently a brick dome, which probably rested on spherical-triangle pendentives.

The cubit employed
We have seen above that the palace was set out with the cubit of 44.75 cm. (17⅞ in.) which had been used for the water-gauge of Yazid II at Muwaqqar. But not so our pool and pavilion, for which the Nilometric cubit of 54.04 cm. (21½ in.) was certainly employed.

The Bath
Just over 40 m. (131 ft) to the north of the palace, and exactly parallel to it, are the remains of the largest and finest hammâm so far discovered in Islam. It is the best preserved part of the whole complex, for it has suffered least from stone-robbers, its ground plan is perfectly preserved and its elevation can be constructed with certainty up to the springing of the principal arches.

The porch
From the remains still standing and from fragments picked out from a mass of fallen material, Hamilton, by a complicated but convincing reasoning, has made a remarkable reconstruction (103).

The façade, which faced east, was 8.45 m. (27½ ft) wide; it was entered by an arched opening 3.91 m. (12½ ft) wide, the arch sprung from two centres about one-seventh of the span apart, above which was a semidomed niche with a statue of the Khalif, nearly life-size, wearing a small sword (104). He is standing on a pedestal, with two squatting lions back to back, but looking outward. This niche was flanked by two smaller niches at a level about a metre lower. At the top edge of the porch were stepped and undercut crenellations of brick, 70 cm. (24 ft) high. Total height of the façade was 10.63 m. (34½ ft). In the jambs of the arch were two facing niches with finely carved hoods. Within the porch (105) was another pair of arched recesses, each 2.55 m. (8½ ft) wide, and at the back was a doorway with moulded jambs and a decorated lintel, surmounted by an arch
treated rather like that leading into the vestibule of the palace. It was 2·50 m. (8 ft) wide and opened into the frigidarium.

From the fragments recovered it is clear that the porch was covered by a brick dome which rested on spherical-triangle pendentives. The most prominent feature in each of these pendentives was a human figure, which projected in high relief from a background of vine and acanthus foliage. Their arms appear to sustain the cornice, 24 cm. (9½ in.) high, of wind-blown acanthus; the top of this formed a narrow shelf on which rested a row of gazelles and fat-tailed sheep in stucco. Above this came the masonry drum in which were fourteen niches, each with a plaster statue. Its height was calculated as 2·12 m. (7 ft), while the height of the top of the drum above the datum was calculated as 8·16 m. (26½ ft). The base of the dome was decorated with an elaborate border, about 63 cm. (2 ft) broad, of flowers sprouting from split vine-leaves, above which the whole surface seems to have been covered by concentric rings of tangent circles, diminishing in size towards the centre. Each circle was filled with a flower composition.

The frigidarium was approximately 30 m. (98½ ft) square, with three semicircular exedrae on each side except the east, where there were two only because of the entrance porch. The exedrae all formed external salients except those on the north side. There was a secondary entrance also at each end of the east side, and another at the west end of the south side; this last was evidently a private entrance for the Khalif, for it gave admission from the long paved loggia, already mentioned, which led from the western cloister of the palace (106).

The exedrae Each of the eleven exedrae (108) was flanked by a pair of engaged columns, the bases of which were a little less than a metre above the floor; several of the acanthus capitals were recovered. All round the walls, in the exedrae and between them, excepting only in the south wall, was a series of small niches 55 cm. (21½ in.) square and just over a metre high, with arched heads. Their sills were four courses above the floor. From a chunk of
105. Khirbat al-Mafjar: bath porch reconstruction (from Hamilton, *op. cit.*)
106. Khirbat al-Mafjar: bath hall, south-west corner (from Hamilton, *op. cit.*)


108. Khirbat al-Mafjar: bath hall, west ambulatory, inferred cross-section and elevation (from Hamilton, *op. cit.*)
collapsed masonry from the semi-dome of the middle apse on the south side it was evident that a cornice moulding encircled the exedrae directly below the semi-dome on top of the apse wall (107), and that this cornice directly surmounted an upper order of niches. A stone with part of the moulding rising vertically beside a niche showed that the decorated moulding surrounding the apse arches descended vertically alongside a niche and then ran horizontally below the upper tier. The moulding which ran round the great semi-dome of the apses was not cut on the front vousoirs but on the outer ring of covering stones.

As for the construction of the great semi-domes, several rings of vousoirs were found lying comparatively undisturbed as they had fallen in one of the apses. From these it was possible to reconstruct a complete semi-dome which was slightly more than a quarter sphere, the centre being 38 cm. (15 in.) behind the chord of the apse. The front arch was slightly pointed.

The exedra (108) in the middle of the west side formed an exception, for its semi-dome was built in courses radiating from a saddle-block at the back (107), exactly as in the caldarium of Hammâm as-Sarakh. Nine measurable vousoirs survived from its frontal arch. Directly behind the keystone on the diameter of the apse was a cross-shaped vousoir with a ring below it cut in the same stone. The ring was oval in section and its attachment to the vousoir was reinforced by an iron band sunk into the body of the stone. As found, the stone ring was broken into several pieces and with it, among the fallen blocks of the semi-dome, were fragments of six other rings of oval form and figure-of-eight section together with a drop-shaped stone pendant. These fragments could be reassembled to form a chain and pendant about a metre and a half long (5 ft), all carved out of a single block of stone, a stone-mason’s tour de force, which would have caught the eye of all who entered by the main door.

The roof
The roof of this great hall was supported by sixteen massive stone piers, each 2.26 m. (7' ½ ft) square and about 4.80 m. (15' ½ ft) in height, with acanthus capitals and moulded bases on plain square plinths. They had three-quarter-round shafts at the corners and square pilasters between, and were set in four rows of four piers each. Their spacing was such that on each main axis the central aisle was from 5.50 to 5.62 m. (18 to 18' ½ ft) wide, the intermediate aisles from 4.40 to 4.60 m. (14' ½ to 15 ft) wide, and the four aisles on the outside from 2.50 to 3.36 m. (8' ½ to 11 ft) wide.

From fallen vousoirs, many of which lay in a recognisable series, it was clear that the sixteen piers had been interconnected by stone-built arches, which carried walls intersecting to form nine square or rectangular compartments. It was further apparent that each of these walls was pierced by a number of windows, some of which could be judged, by details in the plaster rendering of their jambs and by traces of glazing, to have been outside windows, while others had merely served to connect adjoining compartments of the interior.¹

At a level which was probably a few feet below the windows, the walls were traversed by a cornice moulding, and the wall spaces between the windows were decorated on their inside faces with groups of three small recessed niches. Like the rest of the interior these niches were plastered over and painted with imitation marble revetments, flanking colonnettes and crude shell niches. The vast quantities of fallen brickwork showed that most, if not all, of the structure had been vaulted in brick.

The highest feature of the nine central bays, of which the level could be calculated by direct measurements, was the crown of the main arches of the axial aisles which were roughly 9 m. (29½ ft) above the sill of the south-western door. It was possible to fix this level because the semi-cylindrical corner shaft of one of the fallen piers was found so little disturbed that every course could be measured. Its total height from the top of its plinth to the top of its capital was 4.22 m. (13' ½ ft). As the plinth was 5 cm. (2 in.) below the datum, the top of the capital must have been 4.17 m. (13' 1½ ft) above it. The capital of another pier was found with a lump of masonry still attached to the top of it, from which it was clear that the main arches of the hall were stilted, having three courses of stonework plus a timber tie-bar, 1' 44 m. (4½ ft) high in all, intervening between the top of the capital and the springing. This, added to the height of the measured pier, gives 5.61 m. (18' ½ ft) above the datum.
as the level of the springing, or about 6'20 m. (20\1/2 ft) above the floor.

The width of the central east–west aisle was 5'62 m. (18\1/4 ft), but as the arches were set back 18'5 cm. (7\1/4 in.) at the springing in addition to being stilted, their span must have been 5'99 m. (19\1/4 ft). It was fortunately possible to measure ten vousoirs belonging to one particular arch, from which the radius was deduced as 3'39 m. (11 ft). From this it follows that its centres must have been 79 cm. (31 in.) apart, or between one-seventh and one-eighth of the span. Fifteen vousoirs 41 cm. (16 in.) deep, belonging to an arch of one of the intermediate aisle arches, were also measured; its radius worked out as 2'90 m. (9\1/4 ft). Its height to the soffit was 2'88 m. (9\3/4 ft) or to the extrados 3'29 m. (10\5/8 ft), giving a total height of 8'90 m. (29 ft) above the datum, or about 9'5 m. (31 ft) above the ground. It will thus have stood about half a metre (1\1/2 ft) lower than the arches of the axial naves.

The clerestory (109)
The walls above all of these arches rose high enough to provide room for windows, some of which overlooked the roofs of the outer aisles, whereas others merely opened into the neighbouring bays. The masonry between these windows had fallen in such large pieces, some almost intact and measuring 1'32 m. (4\4/4 ft) square, that it was obvious that the walls at this level were 1'32 m. (4\4/4 ft) thick and that the windows were placed 1'32 m. (4\4/4 ft) apart.

In certain places the walls above the arches must have been traversed by a plastered and painted moulding, of which fragments were found widely scattered. In a few cases the stones composing the moulding had been cut to follow a gently rising curve, which Hamilton takes to represent the back of arches which impinged on the line of the moulding, and as these curved pieces were comparatively rare he suggests that not all the arches so interfered with the horizontal continuity. In other words it was the arches of the axial naves which impinged on the line of the moulding, and not the others, which were 50 cm. (1\1/4 ft) lower. By measuring a particular group of stones it was found that the level at which the moulding impinged on the outer curve of the
arch was about 25 cm. (9\(\frac{1}{2}\) in.) below the apex, and that the moulding itself, 25 cm. (9\(\frac{1}{2}\) in.) high, had been laid at 9:18 m. (30 ft) above the datum. Another group of cohering stones showed that there were not less than three courses of masonry, 80 cm. (31\(\frac{1}{2}\) in.) high, above the moulded course and below any window. Hamilton points out that the least possible height of the window-sills must therefore have been $9\cdot18 + 0\cdot26 + 0\cdot80 = 10\cdot24$ m. (33\(\frac{1}{2}\) ft) above the datum (or about 10:86 (35\(\frac{1}{2}\) ft) above the ground), but as there is no indication of a window-sill on its top surface, he assumes one more course in his reconstruction. As the spacing of the windows was constant, it follows that the windows on the short side of the oblong bays must have been narrower than the others. Thanks to numerous cohering blocks of masonry it was possible to see that the window jambs had been 1:49 m. (4\(\frac{1}{2}\) ft) high and that the window openings had been arched. Assuming that they were round-headed, their full height must have been 1:49 (4\(\frac{1}{2}\) ft) + 0\(\frac{1}{2}\)60 (2\(\frac{1}{2}\) ft) = 2:15 m. (7 ft).

From the above-mentioned moulding upwards, the internal walls of the nine central bays were decorated with painted designs now half effaced, but this decoration was varied between each pair of windows, by groups of three little niches recessed in the wall face already mentioned. Certain fragments of adhering plaster grilles showed that only the external windows were glazed. Of the nine bays at this level, four were square averaging 5.52 m. (18 ft), four were rectangles averaging 6:57 by 5:52 m. (21\(\frac{1}{2}\) by 18 ft), and the central compartment was a square of 6:57 m. (21\(\frac{1}{2}\) ft). Hamilton in his restoration proposes cross-vaults over the four corner bays, and tunnel-vaults over the oblong axial bays. Over the central one he believes there to have been a dome on a drum with windows, a conclusion with which one can readily agree without accepting either of the two reconstructions published by him.

The bathing pool
A barrier to enclose a bathing pool had been built between the four piers that stood nearest to the south wall; this barrier, which was 1:25 m. (4 ft) high, turned at right angles at each end to meet the wall. This pool was 19:50 m. (64 ft) long and 3:40 m. (11 ft) wide, to which
must be added the area of the three exedrae. It was accessible on the side facing the hall by three broad flights of steps between the four piers, leaving a parapet at the top 50 cm. (19½ in.) high and 50 cm. (19½ in.) thick. All was revetted with slabs of bituminous Nabi Mūsā stone. Another flight of six steps was built against the short west wall alongside the doorway leading to the palace. The inner surfaces of the pool were lined with a waterproof cement of lime and crushed pottery on a backing of brick.

There was no trace of an inlet for water, which, presumably, was higher up than the surviving masonry. The floor sloped towards the east end, where there was a pipe for emptying the pool. Near the top of the barrier at the same point was an overflow pipe. Four other pipes traversed the barrier. When the pool was full these could have been opened to let water flow onto the mosaic floor of the hall, for washing purposes. The floor itself was drained by four pierced marble slabs let into the surface along the east-west axis of the hall.

The floor mosaics

The great glory of the frigidarium was its polychrome mosaic floor. It formed a continuous surface, divided by the pier bases into thirty-eight different 'carpets' (110, 111). Since seven designs are duplicated it follows that there are thirty-one different designs instead of thirty-eight. These may be classified as follows:

1. Rectilinear diapers or reticulations: panels 6, 8, 10, 12, 14, 16, 18, 22, 24, 26, 28, 29, 30.
2. Interlacings on rectangular grid: panels 1, 2, 3, 4, 5, 9, 15, 25, and the front of apse XI.
3. Concentric interlacings: panels 7, 11, 23, 27, and apse XI.
4. Sprig patterns: panels 13, 20, 21 and apses IV and IX.
5. Rainbow matting patterns: apses VI, VII, VIII, and X and Diwān ante-room.
6. Basketry patterns: panel 17 and apse V.
7. Overlapping circles: panel 19.

Certain remarks are called for. All of these patterns are 45° patterns with a single exception: a 60° pattern
112. Khirbat al-Mafjar: central mosaic of the bath hall
occurring under the dome of the Diwan, Hamilton has already expressed surprise that the semi-domed recess there contains the only realistic pictorial mosaic in the whole complex. It seems probably that the Diwan mosaics were executed by a craftsman with ideas of his own.

Another feature calls for remark. It will be noticed that whenever octagons are used in designs they nearly always have four long sides alternating with four short ones. This feature occurs in the mosaics of the Church of St George at Jerash and is due to the setting-out of the octagons on square paper, as first pointed out by Crowfoot.

Finally, the basketry group consists of two panels only, No. 17 (112) and apse V, which occupy the most important positions in the frigidarium, one under the dome and the other in the apse opposite the entrance. That is to say, they form part of the vista seen on entering by the porch, and so were presumably regarded by the craftsmen as their best work; in any case they certainly deserved to be. As Hamilton puts it: 'None of the pre-Islamic floors on record can be compared in variety of colouring, fineness of articulation, or over-all size with panel 17'.

It consists of a network of concentric circles increasing in diameter as they advance, and intersected by two sets of curved lines rotating in opposite directions. These three sets of lines form isosceles triangles, their bases lying on the concentric circles and their sides on the rotating curved lines. Hamilton estimates that there must have been nearly 8,000 triangles in the main pattern.

The Diwan

The western door on the north side opened into what must have been the most richly decorated part of the whole great complex, the audience hall, or Diwan of the Khalif or Prince who was the owner of the palace (113). Significantly it is exactly opposite the door at the southern end of the same aisle, which gave access to the covered loggia leading to the western cloister of the palace. The hall was a domed room about 4.80 m. (15½ ft) square with a deep semi-domed recess on the north side. On three sides, about 60 cm. (2 ft) above the floor, were deep ledges which could have served as benches, and the
floor of the apsidal part was on the same level.

Both parts of the room as well as the tops of the benches were paved with coloured stone mosaics, and the fronts of the latter were plastered and painted in imitation of a marble dado. Both floors and benches were found in perfect preservation; this is most fortunate, as the mosaic of the apsidal recess is certainly the most beautiful floor mosaic ever discovered in Palestine (115). It represents an orange tree, full of fruit, with leaves in three shades of green; beneath the tree to the left are two antelopes, one of which nibbles at its leaves, and to the right a lion pounces on the back of another antelope, a long-standing motif of Scythian art. It is the only pictorial mosaic in the whole complex and is described by Hamilton as being ‘drawn as a succession of superimposed silhouettes, each plane of colour forming the background to one lighter in tone than itself, thus passing by gradation from the deepest gray or black through shades of gray, blue-green, and green to pale lemon-yellow’.

The walls, on the contrary, had been destroyed down to the level of the benches, except round the apse, where up to five courses (1·5 m. (5 ft) ) survived in places. The remains of the carved stucco revetment, which Hamilton rightly describes as ‘of quite outstanding quality’, adhered to the wall (114).

The whole room was filled with débris consisting of masses of fallen material – carved stucco fragments, broken bricks, and masonry. From a careful sorting out of the material it was clear that the square part had been covered by a brick dome resting, by the intermediary of spherical-triangle pendentives, on a stone drum with eight windows, fitted with pierced stucco grilles, which apparently were not glazed. There was also a lunette over the door. The whole of the apse and its semi-dome were of ashlar.

Two columns, encrusted with stucco ornament in the form of imbrications, carried the frontal arch of the apse. An acanthus cornice ran round the walls of the square part, and probably of the apse also. Its level was estimated at 2·96 m. (9½ ft) above the floor. If we assume that the pendentives were true spherical-triangle pendentives, then their tops must have been 2·35 m. (7½ ft) above the cornice. The height of the drum, computed
from measurements of its fallen ornament, must have been about 1·75 m. (5 ft); the springing of the dome was therefore 7·06 m. (23 ft) above the floor. 'An interesting point revealed by remains of the internal decoration . . . was that the springing level of the dome was the same as that of the window arch; so that the heads of the drum windows penetrated the hemispherical shell of the dome.' Fallen fragments of the dome showed that its outer surface had been plastered over and painted yellow. A little stone edicule found in the débris of the room may originally have formed a miniature lantern at the summit of the dome.

Except for the semicircular lunettes between the pendentives, the entire surface was encrusted with stucco ornament, superior in design and execution to any other in the whole great complex. The decoration was divided into three zones by two acanthus cornices - one, already mentioned, directly below the springing of the pendentives, and a second round the base of the drum. Below the first cornice the walls were divided into nine panels, two to the right, two to the left, one on each side of the door, and three in the apse. Each panel was surrounded by a triple border, consisting firstly of a curious motif in effect rather like an inverted egg and dart, then by a series of acanthus whorls, recalling those on the dome piers of the Dome of the Rock and finally by a series of overlapping heart-shaped motifs. Fragments of the lower acanthus cornice were found joined to the upper border of one of the panels, from which it follows that if a panel could be reconstructed one would know the level of this cornice. It was possible to reconstruct the two most beautiful panels and one other, from which it appeared that their heights worked out as 1·42 m. (43 ft).

The columns of the apse-arch were decorated with beaded imbrications, filled with sprigs of acanthus which recall the decorations of the great Sasanian palace at Dāmghan. The face of the arch itself was decorated with swastikas and trefoils, and an outer bead-and-real border.

Relatively large fragments of the pendentives show that each was decorated with a wreath of minute acanthus leaves enclosing a winged horse in relief. The three triangular spaces remaining between the wreath and the edges of the pendentives were filled with vine-scrolls.
Directly above the pendentives the base of the drum wall was encircled by a row of some eighty or a hundred partridges, above which was an acanthus cornice, on which rested eight round-headed windows, flanked by little colonnettes and filled with stucco grilles. Only one of these grilles was recovered complete. It is a 60° design and is virtually identical to the marble grille on the south side of the western vestibule of the Great Mosque at Damascus (33). Three others were reconstructed from fragments; all were 45° designs, two of them composed entirely of straight lines, whereas the third was based on compass work.

A very elaborate border ran round the arched part of each window, continued horizontally across the space between, and then rose again to run round the next arch. The border consisted of a central band of interlacing ribbons forming circles and enclosing six-lobed motifs set between an inner and outer bead-and-real border and a hollow moulding. The combined effect of these elements is very rich.

The transition between this border and the dome cap proper was effected by eight five-sided panels. All had egg-and-leaf borders, but no single panel was recovered in anything like its entirety.

**The dome cap**

Incredible as it may seem, this fragile ornament (116) has been almost perfectly preserved although it had fallen from the summit of the dome. In the centre is a six-lobed rosette, composed of six very large acanthus leaves with curved-over tips, standing boldly away from their background, with two smaller rosettes in the centre. Six human heads, alternately male and female, rise up in high relief between the acanthus leaves. All were identical in form except that the men had black-painted moustaches and trim beards, whereas the women had globular pendant earrings. All had black hair and eyebrows, and red-tinted lips. The drilled pupils of the eyes and eyelids were black; the women's earrings were yellow. This part was enclosed by a six-lobed bead-and-real border, and then by a free-standing vine-scroll, each loop containing a five-lobed vine-leaf. This in turn was enclosed by another bead-and-real border, beyond which came a remarkable border com-
posed of two undulating stalks forming eighteen loops, each occupied by a fantastic flower on a split-palmette calyx. This is followed by a third bead-and-real border, and a hollow moulding which must have been in contact with the eight five-sided panels.

The cold rooms
A door in the western exedra on the north side opens into room A. This had a door on the far side leading into room B, and one on the right leading into the hot rooms. It had benches round all four walls, but was not heated. The walls and the floor including the benches had once been encased with marble slabs which had been systematically removed. The same thing had occurred in room B, which is smaller than A, and also had benches all round. Above the benches the walls were coated with waterproof cement, and incorporated in the west wall were two tanks, which may have held wine (see below, p. 200).

The hot rooms and furnaces
To reach the caldarium one first had to enter A and then pass into C, a room about 5.5 m. (18 ft) square, with a niche on the east side. The floor here has collapsed, exposing the hypocaust. The brick piers ran in rows from east to west, spaced 42 to 49 cm. (16½ to 19½ in.) apart, and were covered by basalt slabs or large bricks. The hypocaust was heated by a furnace in the stokehole E placed just under the niche. This stokehole was not accessible from the bath proper but only from the exterior, by a door on the north. The hot air from the hypocaust was carried up the walls by short pottery pipes fitted into each other and hidden by marble panelling.

From this room one passed into a second hot room D, a circular chamber with eight horse-shoe shaped niches, one containing the door. In each of the four niches nearest the door from room C is a small round-headed recess, and in one of them on the west side was the springing of a semi-dome in brick about 2 m. (6½ ft) above floor level. Eight small columns stood against the narrow segments of wall between the niches. The diameter between opposite columns was 4.25 m. (14 ft). I believe that there was a central dome resting on eight arches, springing from engaged columns and surrounded by eight semi-domes.

The latrine
The latrine (F) was an L-shaped room entered by the easternmost door of the frigidarium on the north side. Three piers and a wall pier, which together form a square, were doubtless joined by four arches which served as supports for four brick tunnel-vaults, parallel to the walls; the square in all probability was left open to the sky. In the centre was an ornamental fountain, consisting of a scalloped stone basin with a copper jet in the middle. It was plastered and painted yellow.

Under these vaults on three sides were plastered masonry seats, separated by slots 19 cm. (7½ in.) wide, opening into a deep drain which ran all round and passed out eastwards under G. Seats and drain were all coated with strong waterproof cement. The seats had been altered, at some unknown date, so that they were composed of rows of projecting stones corbelled out at intervals of 30 cm. (11½ in.) from the back wall and met by corresponding stones projecting inwards from a continuous screen wall in front. Hamilton remarks that Umayyad aristocratic circles had at some time evidently adopted the Roman habit of sitting on seats instead of the oriental practice of squatting on floor-level footrests. It is not generally known that similar latrines, with water carriage, are still to be seen in the Madrasa of Sultan Hasan at Cairo and the Mosque of Barsbay at Khânqâ (841 H. = 1437).

The Unit of Measurement Employed
Since the Nilometric cubit seems to have been employed in setting out the hammâm, as in the pavilion, it would appear to be a logical deduction that Copts played an important part at Mafjar, as they must have at Mshatta (see below, p. 214).

The Date
The discovery in 1936–7 of a small broken slab of white marble on which a man named 'Ubayd Allâh had written in ink a message of goodwill to the Khalîf Hishâm may
be taken as definite proof that the complex was being built during his reign, i.e. between AD 724 and 743. However this does not prove that the owner was Hishām himself.

The Owner

Noting that Hishām is never recorded as having visited Filastin, and that his character as recorded in the early texts is quite out of keeping with the luxury exhibited by Khirbat al-Mafjar, Hamilton, in two brilliant studies, has conclusively shown that the owner was Walid ibn Yazid.\(^8\) As proof he points to the following facts. First of all, it is evident that the bath had long been in use though the palace was not finished when it was abandoned. Furthermore, the figure of the Khalif on the façade of the great entrance to the hammām is in a style which can be paralleled by the carvings in the palace but not those in the rest of the hammām. Hence it is clear that it was inserted late in the building project. This can only mean that the owner of Khirbat al-Mafjar was heir to the throne and left this niche vacant until he should succeed. The heir to Hishām and his eventual successor was Walid ibn Yazid.

Moreover, particular features of the hammām accord precisely with what we know of Walid’s way of life from the Kitāb al-Aghānī. The layout of the hammām shows that it was not a hall given to royal receptions of the traditional type. On the contrary, its whole emphasis is on aquatic sport and frivolity. The spacious swimming pool, the high-level jet or cascade which was probably fitted in the western apse on the north side by the entrance to the hot rooms, the multiplication of concave surfaces around and above the hall such as would have amplified the acoustic properties of the room and encouraged the use of music and recitation, and the existence of two small tanks in room B which seem accurately to reflect Walid’s habit of plunging into a tank of wine in response to singing and poetry, all concur with the description of Walid’s majlis in the Kitāb al-Aghānī and in particular with its designation as the majlis al-lahu, or ‘play-room’, of the Khalif. Also in character is the stone pendant in the central apse on the west side of the hammām – a 5 foot chain with a cruciform keystone fitting into the apse vault at the top and a qalansuwaḥ or royal tiara at the base, all carved from a single block of cheap local stone, the qalansuwaḥ hanging some 7 m. (23 ft) above the floor. This tour de force, far from being a symbol of ancient kingship, must reflect the irreverent and satirical humour of its creator. Finally, and conclusively, there is the evidence of the mosaic pictograph in the floor of that same apse, whose three symbols, on the analogy of contemporary Christian art in Palestine, may be taken as standing for three words. The whole scene appears to have something to do with generation and birth, and if we take the commonest Arabic root in this context, ṭaʿala, and apply it to each sign we discover as follows: ‘The middle hieroglyph, being the most explicit and like some neolithic “Venus” and obviously feminine, must be the Mother, read as al-māʾiduḥ. On the right by a more oblique but unmistakable metaphor, the poised knife is the symbol of the Father or Begetter: al-māliḍ. Finally, the leaf shoot emerging from its mother completes the allegory as the New-born Son, in Arabic al-walīḍ.’\(^9\)

We may therefore conclude that Khirbat al-Mafjar was built during the reign of Hishām by the heir apparent Walid ibn Yazid, that it continued to be used by him on his accession to the Khalifate in AD 743, and was presumably abandoned the following year when Walid was assassinated. The buildings did not stand for long – the earthquake of AD 746 wrought its own judgement, Walid’s palace and hammām were destroyed, and the site permanently abandoned.
Mshattā, the most famous of all the Umayyad palaces, was discovered by Layard in 1840 and, independently, by Tristram in 1872. It lies about 32 km (20 miles) south of ‘Ammān and about 4.8 km (3 miles) north-east of the station of Zīza on the Hijāz Railway.

It consists of a great walled enclosure of stone, nearly 144 m (473 ft) square internally (117), flanked by half-round towers with an entrance in the centre of the south side. The walls are preserved to a height varying from about 3 to 5.5 m (10 to 18 ft), except where the decorated part of the façade has been removed. All the towers are solid except four, which were provided with latrines (118). The buildings intended to occupy the lateral tracts have never been begun, and even those projected for the central tract have never been finished. Of the latter, however, the group at the north end must have been very nearly finished, and the plan of the group at the south end can be clearly seen, for a great stone grid is visible, formed by the foundation course of beautiful smooth stone blocks, which just projects above the ground.

The enclosure wall is 1.70 m (5½ ft) in thickness, the corner towers measure about 7 m (23 ft) in diameter, and the intermediate towers about 5.25 m (17½ ft), except the two towers flanking the entrance, which are half octagonal and measure 6.30 m (20½ ft) in width. The masonry is of limestone, which has taken a beautiful amber tint, smoothly dressed with very fine joints, and the courses vary from 37 to 43 cm (14½ to 17 in.) in height. The fine joints, however, are deceptive, for the blocks taper slightly inwards and the joints only close properly at the surface.

Immediately behind the gateway is an entrance hall 17.40 m (57 ft) long, leading into a court, 27.40 m (90 ft) broad and 21.70 m (71½ ft) deep; these two elements were flanked by other rooms and courts. I shall call this group the Gateway Block. Beyond the court just mentioned is an enormous central court, just over 57 m (187 ft) square, on the north side of which is a triple-arched entrance (the arches have fallen) leading into a great basilical hall, 21.60 m (71 ft) deep, ending in a
triple apse, or 'triconchos'. This basilical hall is flanked by two symmetrical complexes each composed as follows: on either side of an oblong court, placed perpendicular to the basilical hall, is another court at right angles to it, flanked on either side by a pair of vaulted chambers. I shall call this group the Main Building.

**Successive Symmetrical Subdivision of the Interior**

It is easy to see that the interior is divided into three sections by two walls running from north to south, the middle division being 57 m. (187 ft) wide and the two lateral ones 42 m. (138 ft). The central part was divided into three parts, as shown, the northern and southern of which were again subdivided into three, some of these subdivisions being subdivided once more into three (119). Thus, the system which we have observed at Minya (above, p. 95) is here carried much farther.

**The Gateway Block**

The gateway (now in Berlin) has been preserved to a height of about 3'80 m. (12½ ft). The width of the opening is 3'46 m. (11½ ft), and immediately behind it is the entrance hall, 9'23 m. (30½ ft) wide and 17'40 m. (57 ft) deep. A row of rectangular plinths on either side were probably intended to support columns carrying transverse arches; if so, I suggest that these may have been brought up level to carry transverse vaults, as at Qusayr ‘Amra. Beyond, to the east, is a rectangle 13'40 m. (44 ft) broad and 27'30 m. (89½ ft) deep, with a semicircular niche 1'62 m. (5½ ft) wide, flanked by recesses to take columns. This niche was undoubtedly intended as the mihrāb of the palace mosque. To the west the subdivisions are more numerous. Passing forward from the entrance hall we enter a court 27'40 m. (90 ft) wide and 21'70 m. (71¼ ft) deep. On all four sides are placed plinths 1'25 m. (4 ft) square and 3'30 to 3'40 m. (10½ to 11½ ft) apart; they were presumably intended to take columns which may have carried arches, thus forming a series of arched recesses all round, exactly as in the Court of Honour at Ukhaidir (154, 155).

From this court one passes out into the great central court, just over 57 m. (187 ft) square, on the north side
of which is the Main Building. Two doors, 1·92 m. (6½ ft) wide, one being on the east and one on the west side of this court, opened into the side tracts.

The Main Building

This is the only completely built structure in the enclosure; it forms the central point of the whole and must be considered as the royal part of the palace. The foundations of the burnt-brick walls consist of four courses of limestone blocks, of which three and a half rise 1·50 m. (5 ft) above the floor level. This rectangle, like the Gateway Block, is divided into three main divisions, the two lateral ones being closed towards the south whereas the central one was entered from the great court by a triple-arched entrance (120, 122) resting on two free-standing and two engaged piers. The lateral arches had a span of about 3 m. (9½ ft), the central one of about 6·54 m. (21½ ft). All three arches have been thrown down, presumably by an earthquake, and when Schulz saw them in 1903 they were still lying in contact with each other exactly as they had fallen. Above each of the capitals was a perfectly preserved impost block 31 cm. (12½ in.) high, and between it and the capital was a single course of brickwork 9 cm. (3½ in.) high. Embedded in this was a piece of wood 9 by 9 cm., in cross section, the remains of a tie-beam, of which each arch had a pair.

He found that the arches must have been stilted semicircles, their intrados being formed of four torus mouldings, and there was a torus moulding on each face, which ran round each arch, then horizontally above the impost block, then round the next arch, and so on, finally running up vertically at each side and then horizontally along the top so as to form a rectangular frame. Above the top of the moulded frame was one more course of masonry. There were also six rosettes, like those of the outer façade (below, p. 266 and 123, 124). The background of the rosettes bore traces of red paint. Figure 121 shows his reconstruction.

On the inner face of the two free-standing piers are pilasters, 76 cm. (30 in.) wide and 65 cm. (25½ in.) deep, to which piers with similar stone pilasters correspond at the northern end of the hall. Between each north-south pair is a foundation wall of well-cut blocks. The eastern
was smooth, but on the western Schulz found the grey marble base of the first column from the north, still in position, and a place cut for the second. The spacing showed that there must have been five columns, i.e. six arches. The two northern piers also served as supports for a transverse arch 6'99 m. (23 ft) in span, which opened into the triple-apsed hall. This arch (part is now in Berlin) is decorated with a pair of undulating vine-stalks which repeatedly cross each other, forming loops with little rosettes at their crossings. Each loop is occupied by a vine-leaf or a bunch of grapes.

The Triple-Apsed Hall (122)

We now enter the triple-apsed hall, which is exactly 9·78 m. (32 ft) square. In each of its three side walls is a great apsidal recess 5·25 m. (17½ ft) wide and about 3'90 m. (12½ ft) deep. The corners are cut away, obviously for the reception of engaged columns. There can be no doubt that these niches ended in semi-domes, but how the central part was covered is not so certain. Brünnow13 and Schulz14 believe that a dome was intended, but I cannot help feeling that the walls may have been carried up four square, with windows in each, as in the Bishop’s Palace at Bosra (129) and in the Red Monastery at Sohag, and crowned with a pyramidal roof.

The Side Divisions of the Main Building

The eastern and western parts are exactly alike, except that they are reversed in relation to each other. Here again we observe the same successive subdivision into three which is the keynote of the plan. Each rectangle is divided into three, of which the middle ones are 18·60 to 18·76 m. (60½ to 61½ ft) wide and 10·30 m. (33½ ft) deep, and both communicate with the basilical hall by doors about 3 m. (10 ft) wide. The northern and southern rectangles are again subdivided into three. The flanking sections are each subdivided into two rooms, as shown.

These rooms were roofed with tunnel-vaults, but only two are standing, and even these are not intact. The section of each vault is a pointed arch struck from two centres one-fifth of the span apart, the first example of this ratio. They are constructed as follows: there are two
horizontal courses above the offset, above which begins the vault proper, a brick and a half thick, composed of flat square bricks set with their faces parallel to the end wall, just as in the Lesser Enclosure at Qasr al-Hair, but there is no covering ring of bricks laid flat.

The doorways are each spanned by a stilted pointed arch, constructed of an inner ring of square bricks set with their flat faces outwards, and an outer ring of bricks set edgewise. In the brickwork at each side of each doorway, three courses below the springing, is a gap which extends right through the wall, as though a stone lintel or wooden beam had been pulled out. Schulz, however, at the turn of the century, was able to find traces which convinced him that there was first a solid wooden ceiling, 12.5 cm. (5 in.) thick, the whole depth of each doorway, and on top of it a layer of bricks set vertically. The object was to give a rectangular top to each doorway, and in the wooden ceiling it was easy to make a socket for the door-spindle; the tympanum would serve to admit light when the door was shut.

The decoration of the Main Building was apparently never begun, but it was evidently intended to have had a dado, for Schulz found several great blocks of a magnificent green stone lying in the east side tract. They had already been partly sawn into slabs, 2–3 cm. (⅞ to 1¼ in.) thick, for use as a panelling.

The Side Tracts

No foundation walls are to be seen in the side tracts, nor did Schulz find any by excavation, but the bonding stones left for the attachment of transverse walls, which are to be seen on the inner walls of the enclosure, show that such were meant to be constructed. These bonding stones are arranged in pairs, jutting out from the wall in vertical rows in every alternate course. Their outer breadth varies from 97 to 141 cm. (38 to 55 in.), thus indicating varying thicknesses of wall, and the distance apart of the pairs indicates the width of the rooms to be built against the wall. Now if we take one of the groups of five rooms in the side divisions of the Main Building and turn it round, there are no less than four places where such a group can be placed against the west wall—A₁, A₅, A₆, and A₄ (125). The attachments in the north-
western corner obviously give four little rooms and a court (B₁); two similar groups (β₁ and β₂) will fit the attachments on the wall between A₂ and A₃ and a similar group can be placed in the south-west corner. As for the attachments for walls 250° and 290° m. (8½ and 9½ ft) thick, I follow Schulz’s suggestion that they were intended for staircases, running up perpendicular to the outer wall.¹⁶

The Decoration of the South Façade

The sumptuously decorated façade between towers C and Z consists of a plain socle 4½ cm. (1½ in.) high, a richly decorated base 128° m. (4½ ft) in height, a decorated wall face 295° m. (9½ ft) in height, and an entablature of 90-4 cm. (35½ in.). The latter runs down vertically at the west end, turns again at right angles somewhat above the base, and stops suddenly against the flank of tower C (123). It apparently did the same at the east end also.

The torus moulding of the base is decorated with a network of interlacing vine-stalks which form loops; in each loop a vine-leaf rising upwards is generally paired with a bunch of grapes hanging downwards, just as on one of the tie-beams of the Dome of the Rock (17). The entablature is equally elaborate, vine-ornament playing a prominent part; the cornice springs boldly forward and its crowning member is decorated with a row of great outward curving acanthus leaves.

The wall surface between the socle and the entablature is divided into twenty upright and twenty inverted triangles by a cornice-like moulding, which runs up and down zigzag fashion from the socle to the architrave. The triangles are c. 2°85° m. (9½ ft) in height and 2°50° m. (8½ ft) in width at the base. Exactly in the centre of each is a great rosette; those in the upright triangles are lobed hexagons, those in the inverted triangles are straight-sided octagons. The rosettes divide the triangles into three parts of roughly equal height, viz. a broad lower strip, two small surfaces flanking the rosette, and the little triangle above it (123, 124).

The decoration of the triangles to the west of the entrance is so different from that of those to the east that it seems probable that they were executed by two entirely different schools of craftsmen. The triangles of the
Mshattā: western side tract, proposed reconstructions. A. Brünnow; B. Schulz; C. Creswell
western half are generally filled with vine-stems, in which birds appear plucking at the grapes. In six of them a pair of animals affronted appear in the centre, sometimes on either side of a vase. Some of these are the most successful of the whole series, being unsurpassed for richness and decorative value (124).

Schulz\(^{17}\) points out that the distance (1-58 and 1-54 m.; 5½ and 5½ ft) between the side of each tower and the outer edge of the door-post has evidently been calculated so as to allow room for the whole entablature of the façade to turn up vertically at right angles, before forming a relieving arch or lunette over the lintel, Syrian fashion (e.g. Qal'at Simān), as was almost certainly intended.

The upper half of the façade to the east of the entrance had been removed, even when Tristram saw it in 1872, so that the rosettes of all the inverted triangles are missing. The foliage here is much more minute and closely packed. In the first, second, and fifth triangles of the tower two vine-scrolls start from a vase in the centre, but in the third and fourth they spring directly from the ground. In the centre of the third is what is sometimes called a 'palmette tree', a curious motif which also occurs on the tie-beams of the Dome of the Rock; the tall, straight trunk is formed of two twisted stems and above is a wing-like motif which Strzygowski calls a Flügel-palmette.

As regards the first four triangles of the curtain-wall east of the tower, which, unfortunately, were not taken to Berlin, they have been either thrown down or taken away as building material, e.g. like the rosette of the third triangle, which has been built in over the doorway of a house on the east side of Ziza village. Nearly all the last triangle was taken to Berlin. In the centre is a large medallion and in the corners are two smaller ones, all being superimposed on a background of foliage and fruit with which they have no organic connexion.

Before discussing the date of Mshatta and its architectural origins, I will describe Qasr at-Tūba, because both must be of practically the same date.

**QASR AT-TŪBA**

*Description*

Qasr at-Tūba in the Wādi Ghadaf, about 96 km. (60 miles) south-east of 'Ammān, was discovered by Musil in 1898, a few days before his famous discovery of Qasayr 'Amra. It is an enormous oblong enclosure (126, 127), lying roughly east and west and measuring 140-50 by 72-85 m. (461 by 239 ft), almost a double square. It may in fact be regarded as two symmetrical enclosures, each a little over 70 m. (230 ft) square, placed in contact with each other and communicating with each other by a door in the centre of the sides in contact, access to which is expressly provided for by a corridor that can have no other purpose. The north side is nearly intact and several lengths of curtain-wall exist on the west side; the two other sides are almost entirely destroyed, although their plan can be followed.

The enclosure was flanked by five semicircular towers on the south side, and by two on the east and west sides, in addition to which there was a round tower at each corner. On the north side the arrangement was different on account of the gateways C and F, each flanked by two nearly square rooms (B and B\(^1\) and E and E\(^1\)) which in no way resemble defensive works. In the curtain-wall between is a ruined semicircular tower, larger than the others. Each gateway opened onto a passage leading straight to a large central court, roughly 30 m. (100 ft) square. In the plan the parts shown in black are still standing in varying states of completeness; in those hatched the walls have disappeared down to the ground level, but their trace can be followed with certainty, owing to the white lines made by the disintegrated stone showing up clearly against the dark colour of the basalt chips with which this district is covered.

The gateway C which leads into the western half of the enclosure is preceded by a passage 6-42 m. (21 ft) in width, flanked by the nearly square rooms B and B\(^1\). The door opening into B is spanned by an elaborately decorated lintel (128), the finest piece of ornament at Tūba, above which was a relieving arch. Room B\(^1\) is similar,
126. Qasr at-Tûba: north façade, right half

127. Qasr at-Tûba: plan (after Jaussen and Savignac, *op. cit.*)
but its walls are better preserved.

Mention must be made of tower $D$; although much ruined, enough remains to show that it was divided internally by a thin wall into two quarter circles, each with a little recess. On the analogy of Mshattā I would suggest that they were latrines. The gateway $F$, leading into the eastern half, is similar to $C$ in every respect.

If we now enter by $C$ we find ourselves in a passage which runs between ruined walls to the central court, on the west side of which are two doorways leading into two smaller ones, $M$ and $M'$. The walls here are composed of three courses of well-dressed stone, above which they are of brick, exactly as at Mshattā. A small door, of which the east jamb, partly preserved, is of great richness, leads from $M$ into a court, $N$, 7.92 m. (26 ft) wide, flanked by two rooms on each side, of which the pair to the east have tunnel-vaults of brick. The doors of all four rooms are exactly like those of the Main Building at Mshattā, and the vaults, which have a slightly pointed section, also resemble those of Mshattā in every respect.

The two rooms, $P$ and $P'$, on the other side of the court correspond in every way except that they are not vaulted, although a few bricks have been placed so as to project at the summit of the side walls, ready for the springing of a vault.

The rooms on the other side of the entrance passage, between it and tower $D$, correspond exactly to those just described and their measurements are almost identical, but the work here is far less advanced, for only the first three courses of stone have been built, and the walls never reached the bonding stones left for the purpose in the outer wall.

The arrangement on the south side was the same, except that, as there is no gateway and long entrance passage here, the two hayts have been made wider—so wide, in fact, that none of them can have been vaulted, for the walls are too thin. It is therefore probable that all these rectangles except the pair at either end were merely enclosures (ḥāsh) open to the sky, with walls some 4 m. (13 ft) in height, in which the prince’s Bedawin followers encamped. I must now mention the two niches which form part of two shapeless masses of masonry, all that remains of towers $I$ and $I'$. As they come on the axis of court $R$ and $R'$ respectively, they may well have been
intended for mihrāb. The decoration of the whole building is confined to the door-posts and lintels, e.g. the lintel over the door into B (128), and the jambs of the doors leading from M to N, L into M², and M² into R. The eastern half of the enclosure appears to have been an exact replica of the western.

THE DATE OF MSHATTĀ AND QASR AT-TŪBA

This question may be treated as one problem, for these two buildings resemble each other in so many respects that they must be of practically the same date; whatever conclusions are arrived at as to the date of one must be equally valid for the date of the other.

The points of resemblance are as follows:

(1) Stone employed for the exterior walls and brick for the interior walls, on a finely dressed foundation grid three or four courses high.
(2) Bonding stones in enclosure wall for attachment of the brick walls of the interior.
(3) Size and texture of bricks.
(4) Interior arranged in bayts.
(5) Brick vaults, with offset, and rings of flat, square bricks set Mesopotamian fashion, i.e. edgeways, with their faces parallel to the end wall.
(6) Pointed section of vault.
(7) Bull's-eye windows in vaulted rooms.
(8) Construction of doorways.
(9) Latrines in towers.
(10) Winged motif and tulip-like motif in decoration of each.
(11) Unfinished state of both.

Historical Reasons for an Umayyad Attribution

It is obvious that only a powerful ruler in possession of great resources can have contemplated the creation of a structure like Mshattā. This at once suggests an Umayyad Khalif, whereas, as Nödeke and Littmann have pointed out, it is doubtful whether any Ghassānīd ever had the necessary means. In further favour of an Umayyad date is the known fact that the Belqā was their favourite resort (see above, pp. 113–14), and the Kitāb al-
Ağāhī expresses that Walid II built in this region. Another historical fact of great importance is the known practice of the Umayyads of conscripting labour from all parts of the empire, e.g. for the Great Mosques at Madina, Damascus, and Jerusalem. The Ghassānīds were not in a position to conscript labour from ʿIrāq and Egypt, yet Mshattā shows signs as we shall see (below, p. 214) of craftsmen from both these regions having worked on it.

Finally we have the passage in Severus ibn al-Muqaffā to which Lammens has called attention:

Since, however, his people hated him, he [al-Walid II] began to build a city named after himself in the desert, for he gave his name to it, but the water was fifteen miles distant from it. He collected workmen from all quarters, and built that city by means of forced labour; and on account of the multitude many died every day from the scarcity of water, for though the water was carried thither by twelve hundred camels daily, yet this was not enough for them, the camels being divided into two convoys, six hundred carrying water one day and six hundred the next. Then al-Walid was attacked by a man named Ibrahim, who killed him, and seized the government instead of him. Ibrahim released the enslaved workmen, who departed each one to his own place.18

Lammens says that the geographical part suits Mshattā, and that 15 miles is just about the distance to the Arnon (Mujib). He also points out that this story explains why Yazid III, on his accession, had to promise not to spend money on building.19

Architectural Reasons for an Umayyad Attribution

Let us now tabulate the principal reasons.

(1) Brick, or a mixture of brick and stone, is foreign to the Classical architecture of Syria, and is absolutely unknown before the second half of the sixth century, the first example being the castrum at Andarin, AD 558, followed by Qasr Ibn Wardān (palace, church, and barracks), AD 561–4. But Mshattā cannot be affiliated to these for technical reasons. In Byzantine brickwork the
layers of mortar between the bricks are always equal to the very thin bricks employed, not only at Constantinople, but also in Syria, whereas in early Muslim works the joints are thinner and the bricks thicker. In this respect the brickwork of Mshattā and Qasr at-Tūba is exactly like that of Qasr al-Hair, and the Baghdād Gate at Raqqa (below, pp. 244–47).

(2) There is no example of an arch braced with a tie-beam in the pre-Muslim architecture of Syria.

(3) The arches of the doorways are not constructed like those of Qasr Ibn Wardān.

(4) Vaults of pointed-arched section, such as those of Mshattā, where the separation of the two centres is one fifth of the span, cannot be earlier than the eighth century, as may be seen from the list given above (p. 116).

(5) To the above may now be added the new evidence provided by the ornament on the tie-beams and mosaics of the Dome of the Rock. For example, the decoration of the great torus moulding below the triangles at Mshattā, in which vine-stalks form circular loops, each filled as a rule by one bunch of grapes and one five-pointed vine-leaf, cannot be matched by any pre-Muslim work, but is closely matched by the decoration of one of the tie-beams in the Dome of the Rock (17).

(6) In the early ‘Abbāsid palace of Ukhaider we have four bayts arranged to right and left of the Court of Honour and Audience Hall, which must have been intended for the self-contained households of the four lawful wives of the Muslim prince who built it. Surely the four bayts which flank the Audience Hall at Mshattā and the four bayts in each of the two enclosures at Qasr at-Tūba can only mean that these palaces were built for Muslim princes also.

(7) And at Ukhaider there is an entrance hall, and on the right side of it (the side of honour) is a mosque courtyard with a mihrāb. At Mshattā also, to the right of the entrance, is a courtyard, and in the centre of its south wall is a niche, with flanking recesses to take columns, which can only be a mihrāb.

I therefore maintain that Mshattā and Qasr at-Tūba on historical and architectural grounds are Umayyad palaces built, in all probability, by Walid II in 743–4, and left unfinished at his death.

ARCHITECTURAL ORIGINS OF MSHATTĀ

The Triple-Apsed Hall

Let us endeavour to arrange the earliest examples in some sort of chronological order. Leaving aside Classical examples of open courts with exedrae on three of their sides, for they really have nothing to do with the present problem, I once thought it possible that the earliest examples were to be found in Roman baths. But the more I think about it, the more doubtful it appears to be. For example, I cited the Palace of Diocletian at Spalato, AD 303–5, under reserve, for no trace of the part containing the trefoil shown in Adam’s plan exists today. Even the basement beneath the main floor has disappeared at this point. I believe that Adam may have restored it from insufficient indications, and I am supported in this by the fact that Clérisseau, who accompanied Adam and also made a plan, only shows the central apse. Another example, Thelept, which I cited in 1932, is equally suspect. I visited Thelept in the 1940s and was able to recognize most of the elements shown on Saladin’s plan, including the two oblong rooms on the west side, each with an apse at each end, but not the third apse shown projecting beyond the alignment of the west wall. The west wall had disappeared at the two places in question and there was nothing but bare ground. As Saladin does not speak of making excavations, I conclude that the third apse is pure speculation.22

Next in chronological order are three little ruined structures in the cemetery of Callixtus on the Via Appia Antica near Rome:

(1) SS. Xystus and Cecilia.

(2) St Soteris.

(3) A structure connected with S. Sinforosa, at the ninth milestone on the Via Tiburtina.

These little edifices, until recently, have been re-
Architectural Origins of Mshattā 213

129. Bosrā: the Bishop’s Palace, plan and section (from H. C. Butler, Ancient Architecture in Syria)

garded as of the third century, but it now appears that in the first the two side apses may have been inserted at a later date.23

We are on firmer ground when we come to the Church of St John the Baptist at Jerusalem, which was built by the Empress Eudocia between 450 and 460. Here we have three apses of large size preceded by a narthex, but there is no nave.24 This is certainly the oldest example in Syria.

A number of examples are to be found in North Africa, but it is very doubtful if any go back to before the middle of the fifth century.

But when and where was the trefoil plan first employed for a throne room? Apparently at Bosrā in the Haurān, where a perfect example occurs in the Episcopal Palace (129), which Butler believes to be contemporary with the Cathedral (512–13). I give Butler’s section here because of its close analogy with the triple-apsed hall at Mshattā, and because the central part has a clerestory, with three windows in each face, which was probably covered by a pyramidal roof, as in the White Monastery at Sohāg.25

Examples of the use of a triple apse for a hall of audience do not appear to exist outside Syria until much later, the earliest examples known to me being:

1. Ravenna: Palace of the Exarchate, seventh to eighth century.26
2. Aachen: Aula Regis of Charlemagne.27
4. Constantinople: Triconchos, built in the palace by the Emperor Theophilus in 839. It had three apses – north, east, and south – and on the west side were three doors.29

Thus it would appear that the custom of using a triple-apsed plan for a throne room arose in Syria.

Finally which are the earliest examples of the combination of a trefoil apse and a basilical hall? The answer, fortunately, is easy to give.

1. Nola: Basilica of Paulinus, c. 401–3.30
2. Sohāg: White Monastery, c. 440.31
3. Sohāg: Red Monastery, c. 440.31
4. Dendera: Basilica, end of fifth century.32
5. Bethlehem: Church of the Nativity, alteration of Justinian, i.e. before 565.

Thus out of the five earliest examples of this feature,
no less than three occur in Egypt. I therefore conclude that the adoption of this feature for a throne room or audience hall first took place in Syria, and that the further development, in which the triple-apsed hall is preceded by a basilical hall, was due to Egyptian influence.

The Decoration of the South Façade

The decoration of the triangles of Mshattā can readily be divided into four groups, as follows:

\( A-C \) (= three triangles). This group is distinguished by the following features: (1) the division of the field into two parts by a horizontal band touching the lower edge of the rosette; (2) the living forms are limited to birds only, except for the human-headed feline in the apex of \( A \); (3) in \( A \) and \( C \) the lower field is filled by four tangential and nine intersecting circles respectively, which are knotted together at their points of contact.

\( D-L \) (= seven triangles). In these triangles two animals (some mythical) are affronted, and in every case (except in \( F \) and \( K \)), they are placed on either side of a central chalice.

\( M-T \) (= eight triangles). These are dominated by vine scrolls and there are neither birds nor animals, moreover the scrolls are quite different from the naturalistic ones of \( A-L \).

\( U-V \) (= two triangles). An extraordinary mixture of motifs: pine-cones, winged palmettes, etc.

We can therefore readily admit that several groups of craftsmen worked at this wonderful façade. From what countries did they come? When we come to examine the treatment of the vine, we find two remarkable features, so rare in fact that their significance cannot be doubted: (1) the placing of three little grapes on many of the five-pointed vine-leaves at the point of junction with the stalk; and (2) the torus mouldings of the socle and door-posts, and also on the inner arch of the basilican hall, are decorated with a pair of undulating vine-stems which continually cross each other to form pointed ovals, the points of intersection in the second and last being marked by a little rosette. This peculiarity also occurs at Qasr at-Tüba, on the frame of the door between \( M \) and \( N \).

As regards the former peculiarity, Strzygowski has shown that it is a characteristic of certain Coptic ivory carvings, of which he cites several examples, one in the Egyptian Museum, one from the Fouquet Collection, and one in the Louvre. To these may be added a very fine example in the Benaki Collection, which was bought in Egypt.

As regards the rosettes at the crossing of two undulating vine-stalks, the only parallel found so far occurs on the door from the Church of Sitt Burbā at Old Cairo, now in the Coptic Museum. It probably dates from the fifth century.

The fact that both these peculiarities are found before Islam in Coptic work, and in Coptic work only, leaves little room for doubt that the vine decoration cited, as well as the vine foliage and birds in triangles \( A-L \), has been executed by Coptic craftsmen, conscripted by an all-powerful Khalif, just as we have seen that they were conscripted for Damascus, Jerusalem, and Madina. Yet even here there is penetration of Persian influence, for in the midst of the vine-scrolls are mythical animals taken from Sassanian art, just as the Sassanian tulip-like motif occurs in the mosaics of the Dome of the Rock in the midst of Hellenistic motifs.

As regards triangles \( M-T \) and \( U-V \) the occurrence of the winged palmette in several of them shows Persian influence.

QASR BĀYIR

Qasr Bāyir lies about 109 km. (68 miles) north-east of Ma‘ān. It was first mentioned by Lammens in 1910, was seen by Musil in 1909 and Gertrude Bell in 1914, and planned in 1928 by Schroeder (130). Its masonry was unfortunately used in 1931 by Peake Pasha to build an outpost of the Arab Legion.

Description

Schroeder writes as follows:

A short description suffices for the existing ruins of Bāyir. They stand on a gravel bank above the bed of the wadi, and consist of a wall with round towers at either extremity, with a round [tower] of like circumference in the center. The remains of a few chambers
abutting on the wall exist to a height of 4 or 5 courses, and the lower courses of some other walls are barely recognizable elsewhere. The whole is nearly 70 m. [229 ft] in length.

A single course, itself broken, connects the southern corner tower on the east with the foundations of a chamber complex. In the thickness of the tower was built an irregular 4-sided chamber, apparently a latrine, of which two obtuse-angle corners remain, near the most westerly of which is a small recess in the tower wall, of rectangular plan. The threshold of this chamber remains, but both jambs are broken. Both chambers and recess are at varying irregular angles with the plan.

Halfway between the above and the semicircular (?) room in the center, a partition joins the outer wall, which together with neighbouring walls and foundations formed a group of 3 rooms looking on a small open court, a 'bayt' or suite, therefore, of the same type as those in Meshetta (Mshattā).

The central semicircular room contains a small rectangular latrine chamber in alignment with the general plan of the ruins, with a similar recess to the one described above let into the right-hand corner at an irregular angle. The doorway to this recess leads from a room which again is part of a third chamber-complex, with either 2 or 3 rooms opening onto a court, and a room or wide corridor along its northern side. The northern corner tower exists only in fragments, and a few foundations can be made out to the east of it.

At 55 m. [180 ft] east of the existing wall a few scraps of foundation remain; these probably mark the eastern wall of the building. The entire area here is littered with large blocks of the same sandstone as the ruins, and some have been gathered into graves for chieftains of the Huwaitat tribe. One of the wells now in use is dug within the bounds of the building's original plan, and another lies 30 paces north of it.

The Date

The only archaeologists to have seen Qasr Bāyir before its destruction in 1931, viz. Musil, Gertrude Bell, and Schroeder, classed it explicitly or by implication as Umayyad. Many elements, which were still recognizable in 1928 – for example the latrines, which are identical to those of Mshattā, and the bayts, of which the one to the east of the south tower is identical to those of Mshattā, and the pair in the centre of the south side resemble them, except that each appears to have lost a room –, justify us in grouping Qasr Bāyir with Mshattā, that is to say, in attributing it to Walid II (743–4) as Musil had already done.
NOTES

2. Ibid., p. 5.
3. Ibid., p. 257.
4. Ibid., p. 52.
5. Ibid., p. 336.
6. *QDAP*, xiv, p. 120.
8. R. W. Hamilton, ‘Who built Khirbat al-Mafjar?’ *Levant*, 1 (1969), pp. 61–7; ‘Khirbat al-Mafjar: the bath hall reconsidered’, *Levant*, 10 (1979), pp. 126–38. Creswell however found Hamilton’s suggestions in so far as they had been made untenable, and his reasons should be noted. The first is that Walid II was on the worst possible terms with his uncle Hisham who, by various humiliations, made things undependable for him at court. The Kitāb al-Aghānī says: “Hisham was displeased with al-Walid (II) and his associates, so al-Walid went away [from Rusafa] having with him a party of his associates and clients, and stayed at Abraq between the territory of [the tribe of] Balqain and Fazīra and a water called Aghdaf.” (n. VI, p. 104, ll. 27–8. Musil identifies Aghdaf with the Wādī Ghadaf, eighty miles south-east of Amman, on which Qsar al-Tūba stands, and Nöldeke agrees.) This makes it improbable that Hisham would have left him with the wealth needed to build and decorate Mafjar. And in another place the Kitāb al-Aghānī (n. II, p. 79, ll. 1–4) again speaks of al-Walid’s departure for Abraq and adds the important information “and stayed there until Hisham died”, so he could not have been busy building a great palace complex near Jericho. To this may be added the statement of Ibn ‘Abd Rabbih (c. 913) that al-Walid had lived in the desert for twenty years before he became Khalif, and that even when he was Khalif he never set foot in a town’ (*Early Muslim Architecture*, 1966, Vol. 1, part 2, p. 576). [J.W.A.]
10. His account, however, was not published until 1887, in his *Early Adventures*, i, pp. 114–15.
17. Loc. cit., p. 211.
20. Ruins of the Palace of the Emperor Druclian, pl. v.
21. His plan was published by Joseph Lavallée, *l’histoire pittoresque de l’Istrie et de la Dalmatie*, pl. 54 bis.
26. For the excavations, see *Kunstchronik*, xxii, col. 476.
29. See the continuation of Theophanes, Bonn ed., iii, pp. 139 ff.
30. As reconstructed from the description of Paulinus by Holzinger, in the *Zeitschr. für bildende Kunst*, xx, pp. 133–5 and fig. 1.
31. For the date see Monneret, *Les Couvents près de Sohāgh*, pp. 15–33.
32. Ibid., p. 47–8.
33. Creswell uses the letters of the alphabet to designate the upright triangles and half-triangles going from east to west. Included under each letter is the adjacent inverted triangle. Not all triangles, however, were carved.
35. See my *Early Muslim Architecture*, i, p. 388 and fig. 483.
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