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Reassessment of the Building Phasing and Entrance Halls of the Umayyad Palace of Qaṣṭal al-Balqā'

Abstract²

This paper presents some hypotheses and a series of relevant conclusions resulting from the research conducted by the author on the Umayyad complex of Qaṣṭal al-Balqā' (Jordan), reached after the re-assessment of existing evidences *in situ* and the review of the hypotheses produced by P. Carlier and F. Morin in 1983-5. Due to the limitation of space, we will deal only with the analysis of the *qaṣr* during the Umayyad period, presenting the research and related evidences that prove the existence of at least two construction phases during this period, which can be traced in the building techniques used and in its plan. An alternative hypothesis regarding the original vaulting system of the entrance vestibule, and for the reconstruction of the audience hall in its upper floor, is presented as well. The paper ends with a preliminary discussion about the general phasing of the complex with a *longue durée* approach.

The *Qaṣr* Plan and its Phasing

Despite its current dilapidated condition, the *qaṣr* of Qaṣṭal al-Balqā' still presents at first appearance the archetypical plan of a standard Umayyad *qaṣr*: externally it has round towers in the corners and alongside its perimeter wall (three on each side), plus a split one flanking the main entrance; internally, rooms are arranged around a central court with a perimeter portico, using as basic compositional unit the so-called 'Syrian *bayt*' (pl. *buyūt*), which consists in a main oblong room flanked by two lateral chambers in each side, which are accessed through the main one. These *buyūt* and the other rooms are set against the perimeter wall and around the central courtyard grouped in four units. The eastern and western ones run from wall to wall, while the southern and northern ones only occupy the central area, in correspondence with the central courtyard, not touching the east and west units, but leaving

1. This research has been conducted as part of the project entitled "Documentación y análisis de técnicas constructivas y tipología arquitectónica en la transición de la tardo-antigüedad al periodo omeya" funded by the Dirección General de Bienes culturales, Archivos y Bibliotecas del Ministerio de Cultura (*programa de ayudas competitivas para proyectos arqueológicos en el exterior*).

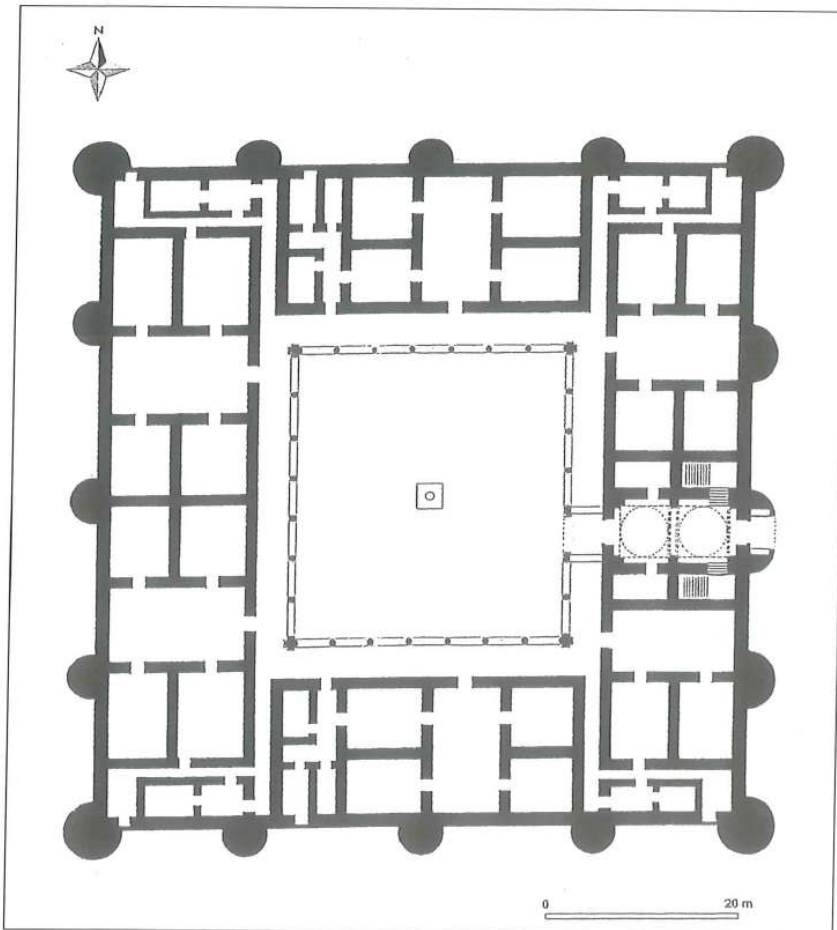
2. A preliminary version of the results of this research was presented

at the Islamic Archaeology Session of the 10th International Conference on the Archaeology of the Ancient Near East (10ICAANE) which took place at Vienna in April 2016. According to the DoA regulations, and for the sake of an easier accessibility to the colleagues working in Jordan, I present in this venue the updated results within the framework of the publications scheme of the Jordanian Department of Antiquities.

spaces in between them. These spaces define four “dead-end corridors” which run north-south in correspondence with the east and west bays of the courtyard porticoes (in a sort of “H” layout -see FIG. 2), and which give access to the service rooms in the corners³. The north and south units were composed by a single Syrian *bayt* and some service rooms added to their western ends, while the east and west units, which run from wall to wall, were composed by two Syrian *buyūt* with service rooms in both ends⁴. The entrance to the *qaṣr* is done through the entrance vestibule block, placed in the east unit, which most probably hosted an audience hall in the upper floor, which we will analyze in detail in the second section of this paper.

The Irregularities in Plan

However, the apparent symmetry and regularity in plan of the building gained *prima facie*, is belied by the position of the vestibule entrance block which is not in axe with the building nor with its courtyard, and by the different arrangement of the rooms to both sides of this entrance block: To the north of it, a complete ‘Syrian *bayt*’ was built, while the one built to the south of the entrance block is not complete, as it only has the two rooms from its south side, being missing the symmetrical ones from the north side (FIG. 1)⁵. As a result of this, the access to the court from the entrance block is displaced and not in axe with it, losing the assumed regularity and symmetry of the plan.



1. Qaṣṭal al-Balqā'. Reconstructed plan as built (Modified from Carlier and Morin 1984: Fig.69).

3. This is the same arrangement of circulation in plan that we can find at Khirbat al-Mafjar (Arce 2016 in press), and the urban palace from Aanjar.

4. The exact arrangement of the northwest corner is partly conjectural, although most probably correct, as it was inspected, *al-Bayt*

not fully excavated, by the French team before its demolition (Carlier and Morin 1987: Fig. 9).

5. A small group of service rooms were built at both ends of this east block of rooms, which included latrines and probably a postern gate.

Thus, the eastern portico of the court had four arches to the north of the arch corresponding to the gateway (which was supported by double columns), while it had only two arches to the south of it. We will try to understand the reasons behind this lack of symmetry in an otherwise very regular plan, which is noteworthy precisely because no apparent reason can be pointed out at first sight to explain it. In general, Umayyad *quṣūr* are quite regular, with an almost symmetrical lay-out. Actually, any irregularity in plan usually finds explanation on pre-existences (like the case of Qaṣr al-Ḥīr al-Gharbī due to the incorporation into the *qaṣr* of the pre-existing monastic tower), or due to a compulsory orientation of the *qiblah* (like at Khirbat al-Mafjar), or any other good reason which in this case is not evident at first sight.

Building Phasing

According to the French mission headed by P. Carlier and F. Morin in 1983-5, all the Umayyad complex and each of its buildings would have been built in one single phase, and



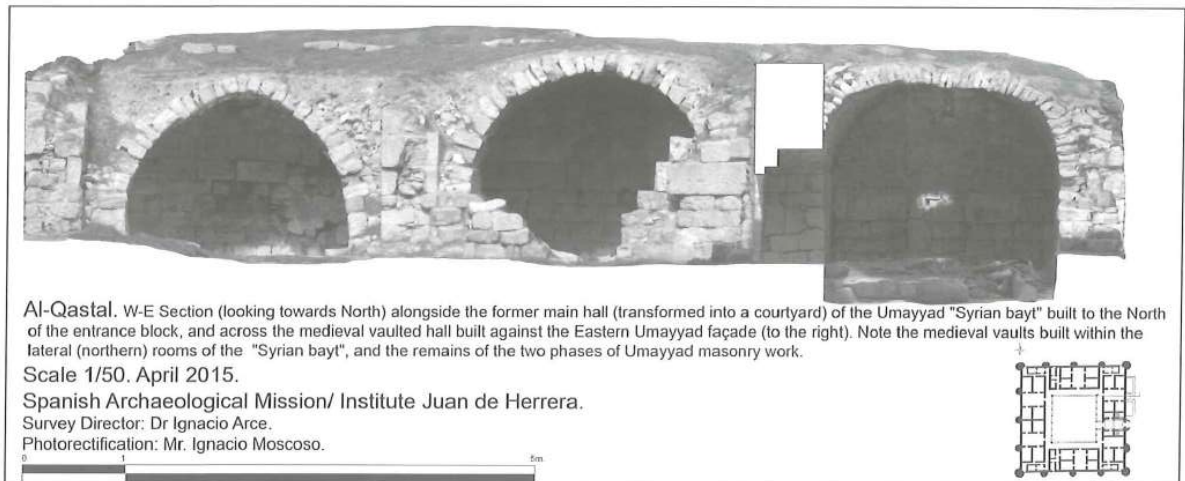
2. Qasṭal al-Balqā'. Umayyad wall from the 'Syrian *bayt*' to the north of the entrance block/vestibule (facing the court corridor), which presents two different building techniques corresponding to two consecutive building phases (both datable to the Umayyad period). The vault seen to the right, dates from Ayyubid-Mamluk period; it is built within the width of the Umayyad room, and rests on its own walls which double the Umayyad ones (see FIG. 3).

using the same and sole building technique: "*Le chateâu, la mosquée, le barrage et le reservoir presentent des techniques de construction rigoureusement identiques*" (Carlier and Morin 1984: 344). However, the analysis of the building techniques actually used in the *qaṣr* denies this assertion, as at least two Umayyad phases of construction with two different building techniques and materials can be identified in this building. The walls in the areas to the north of the entrance block (the 'Syrian *bayt*' to the north of it, and the service rooms in its northernmost end) present in their lower courses a different building technique to the one used in the upper sections of these same walls and the rest of the building (FIGS. 2, 3 and 4). The masonry work in the lower sections of these walls is composed of five or six courses (in average), quite regular in height, using ashlar smaller but more regular in size than those of the upper section. It does not present apparently the combination of headers and stretchers that we find in the upper courses, nor the inclusion of any *spolia* or reused ashlar. The quality of the stone used in these lower courses is quite poor as it consists of a porous and friable limestone (clearly worse than the compact limestone from the upper courses), and as consequence, they present a higher degree of weathering and decay (FIG. 2).

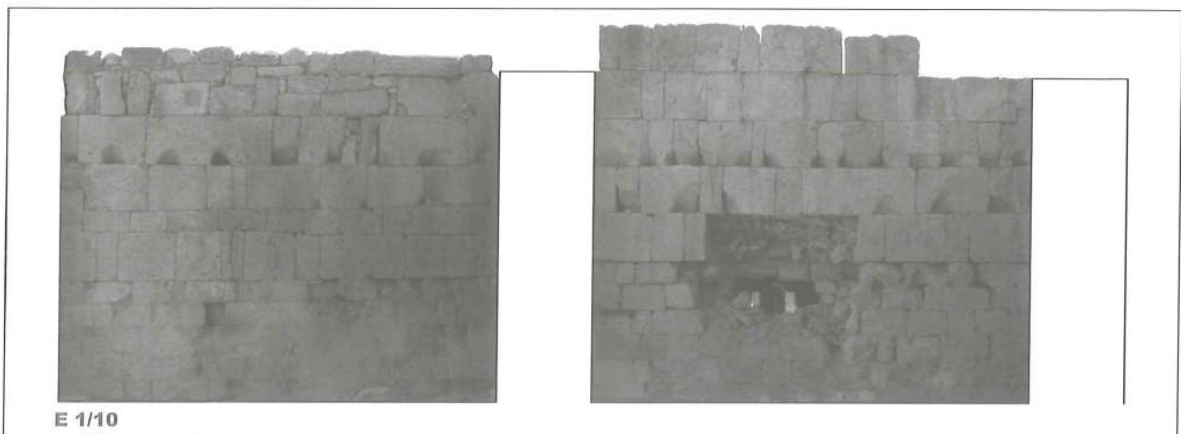
The masonry in the upper courses uses a different building technique and material. The quality of the limestone used is much better, more compact and hard than the one used in lower section, while the average size of the ashlar used is in general bigger than in the lower courses, although more irregular in shape and size, not keeping the courses a regular height either. In most courses, stretchers are alternated with headers that present a characteristic dove-tailed and "T" shape in plan, which are found in other Umayyad structures like 'Ammān, al-Mushatta, al-Manyyah, etc. (Arce 2007)⁶.

6. This type of header, which used in a header-and-stretcher bonding pattern is characteristic of certain late Umayyad buildings in the

region, will be the focus of a coming paper by the Author devoted specifically to its origins and use.



3. Qaṣṭal al-Balqā'. West-East Section across the main hall of the 'Syrian *bayt*' located to the north of the entrance block, and across the medieval vaulted hall built against the Umayyad *qaṣr* eastern façade (at the right -easternmost-end of the image). On the left end of the image, it can be noticed the two phases and building techniques used in the construction of the Umayyad walls in this area of the *qaṣr* (compare with FIG. 2). The Ayyubid-Mamluk vaults, built within the original Umayyad lateral (northern) rooms/apartments of the original 'Syrian *bayt*', rest on their own walls, which were built against the Umayyad ones. The latter would have supported the original Umayyad vaults.



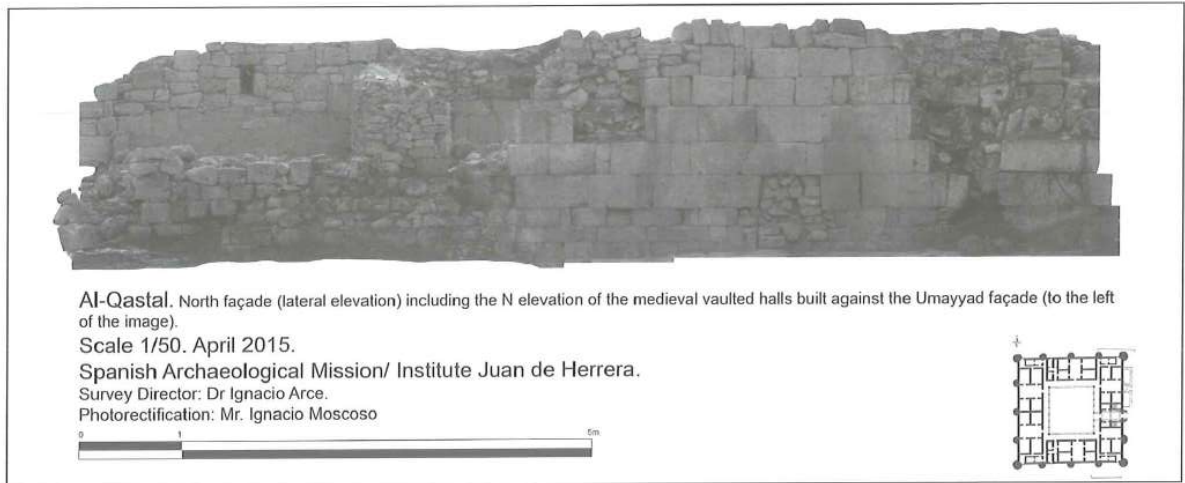
4. Qaṣṭal al-Balqā'. Umayyad walls from the south apartments of the 'Syrian *bayt*' built to the north of the entrance vestibule block (located right behind them). They present two different superimposed building techniques, corresponding to two consecutive phases (both datable to the Umayyad period): the lower one is composed of five-six courses of regular-height masonry built with a friable limestone, while the upper section uses bigger, although not regular sized ashlar of better quality limestone arranged in a headers-and-stretchers bonding pattern (see FIG. 6 for a detail of the building technique). On the top section of the left (east) wall, it can be seen a latter addition corresponding (together with the put-holes for rafters) to latter phases from Ayyubid-Mamluk and Ottoman periods, not discussed in this paper.

These headers link the stone facing with the core of the walls (*emplekton*), keeping also in place the adjoining stretchers (FIG. 6a).

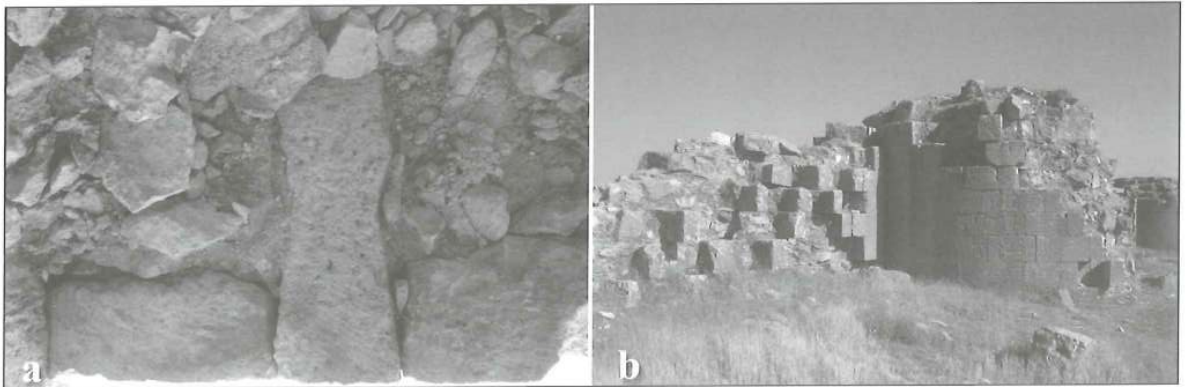
Abundant re-used ashlar and *spolia* are found as well in this later phase, which in some cases correspond to huge blocks, probably former lintels (see FIG. 23a), although they could be also blocks extracted on purpose from

the quarry which were not cut down into smaller elements (FIG. 7), to offer more strength to the masonry.

This technique and this lime mortar is the same found in the rest of the building, where huge blocks of stone and numerous *spolia* fragments are inserted. Among the latter, we can mention the elements used in the staircase



5. Qasṭal al-Balqā'. Eastern end of the North façade of the Umayyad *qaṣr*. To the right of the image can be seen the two different superimposed Umayyad building techniques used, corresponding to two consecutive phases (both datable to the Umayyad period): the lower one is composed of five-six courses of regular-height masonry built with a friable limestone, while the upper section uses bigger, although not regular sized ashlar of better quality limestone arranged in a headers-and-stretchers bonding pattern. Note: the walls seen on the left of the image, which are built with irregular masonry correspond to the medieval vaulted halls added to the eastern façade of the *qaṣr*.



6a. (left): Qasṭal al-Balqā'. Header with dove-tailed "T" shape in plan. Notice how its 'head' is anchored into the core of the masonry, while the dove-tailed 'foot' keeps in place the adjoining stretchers (detail photo taken looking upwards in the wall cavity seen on FIG. 3). 6b. (right): al-Mushatta, external perimeter wall; notice how the stretchers have been looted while the dove-tailed headers with "T" shape in plan remain still fixed to the core of the wall.

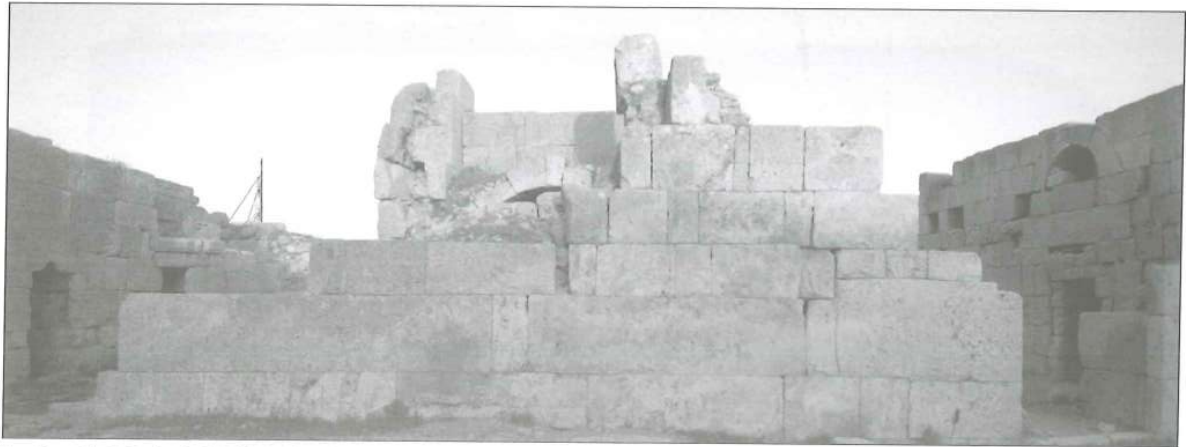
that gives access to the cistern in the court of the *qaṣr*: The curb-stones from a church chancel (FIG. 8a) are reused as a parapet around the opening of the staircase (a post of the chancel has also been retrieved from the rubble -FIG. 8b), while the head of a niche with classical scalloped decoration is reused as the lintel of its entrance door. Other noteworthy elements reused as *spolia* are two fragments of a split flat *tabula ansata* (FIG. 8c), and some unusual *voussoires* in the shape of a double-

hexagon, which present a classical decoration and apparently belonged to a barrel vault⁷.

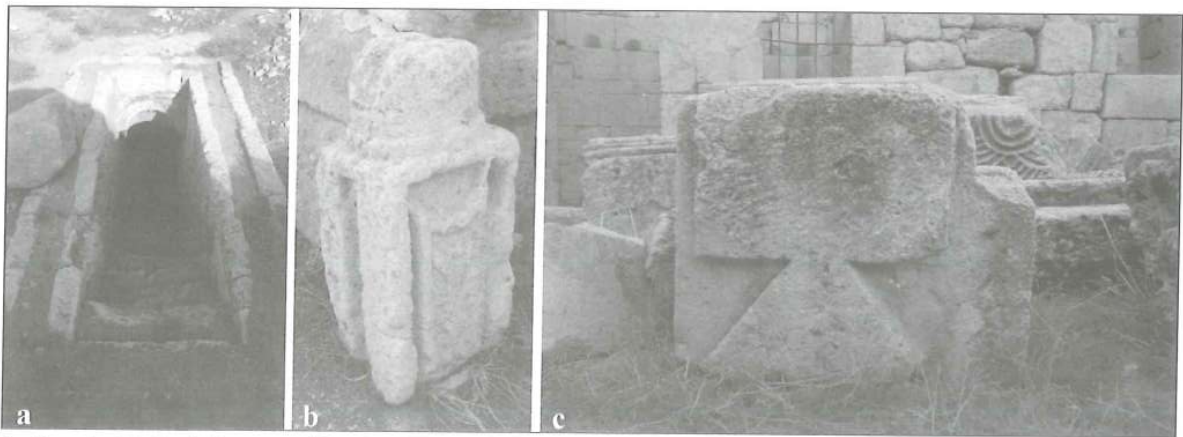
The lime mortars used in both sections of the wall are also different. Although both are used in the same way, filling the core of the wall following the *emplecton* technique, and both are composed of lime mixed with vegetal ashes, their relative appearance and characteristics are quite different: The mortar from the lower courses presents a whitish/light grey background matrix (FIG. 9a), against

7. One of the fragments of the *tabula ansata* is reused in a later wall in the SW area, and the other one was found among the fallen

rubble. These unusual double hexagonal *voussoires*, could belong to Umayyad period.



7. Qasṭal al-Balqā'. Wall facing the court (corresponding to the second Umayyad phase). Notice the presence of huge ashlars incorporated in its masonry. Behind this wall can be seen the entrance vestibule (to the left), the south flight of stairs (centre), and the 'incomplete' south Syrian *bayt* (right).



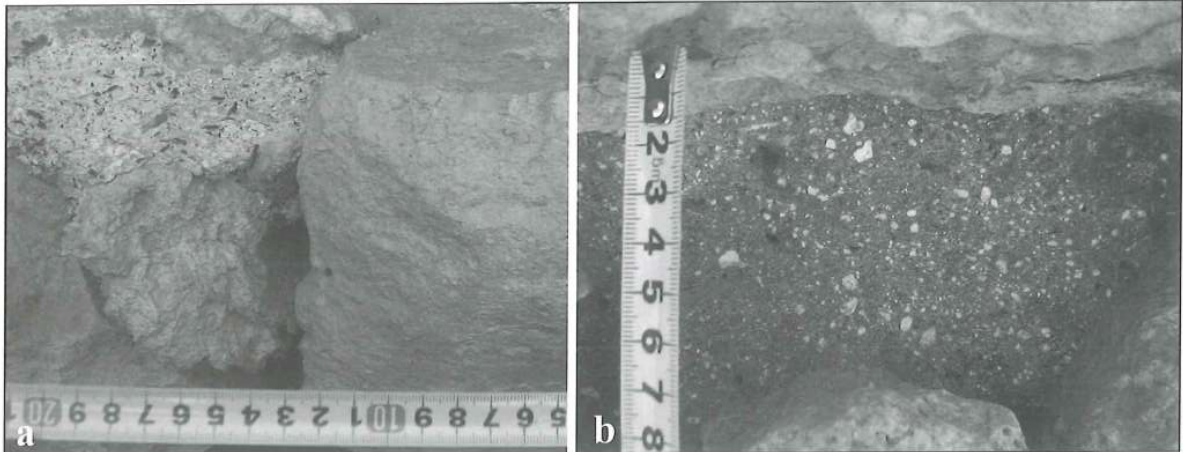
8a. Qasṭal al-Balqā'. Roman and late Antique *spolia* reused in the *qasr*: a. Base of chancel and head of niche reused in the access to the court cistern. 8b. One of the posts of the reused chancel. 8c. Plain *tabula ansata*, re-carved (the other half was found reused in a later medieval wall).

which contrast the small fragments of black vegetal ashes (a by-product resulting from the production process -Arce 2003), and those of crushed bricks intended as hydraulic agent. The mortar from the upper course appears more compact and homogeneous, and is poured more generously in the core of the wall (while in the lower section a bigger amount of small fragments of broken stones were inserted in the mortared core of the wall). It presents a mid-dark greyish background matrix spotted with tiny fragments of white lime and few others of black ashes (FIG. 9b), although no traces of crushed bricks are found in the matrix. Their respective methods for lime production probably did not differ too much, but the final result of the

lime mortar itself is clearly different, due to its preparation (mixing) and different additives used (Arce 2003).

These pieces of evidence demonstrate beyond any doubt, the existence of two different Umayyad phases of construction which had not been identified nor differentiated before, and which contradict the conclusions of Carlier and Morin.

The distribution/location within the *qasr* of the masonry of this (up to now) unnoticed first building phase and its characteristic technique is also very relevant, as it was used in the lower courses of the complete northern Syrian *bayt* and the service rooms built to the north of the entrance vestibule block (the northeast



9. Qasṭal al-Balqā'. Lime mortars corresponding to the two phases identified on the walls of the Syrian *bayt* to the north of the entrance vestibule. 9a. First phase and 9b. Second phase.

quarter of the building – FIGS. 3, 4, 5 and 10b), including apparently the corresponding section of the perimeter wall (FIG. 5). No traces of this earlier masonry have been found in the 'incomplete' Syrian *bayt* built to the south of the entrance block or in the rest of the building. This distribution and location in plan of the different techniques (and related building phases) identified, would indicate that the first phase of construction of the *qaṣr* was started from this northeast corner and was soon interrupted, being resumed after an undetermined lapse of time, with relevant changes in its plan and the building techniques and materials used. At this point, we must analyze which are the changes in plan that certainly occurred after resuming the construction, and which gave as a result the irregularities in plan that we have described. Two different hypotheses can be put forward regarding the original plan of the first Umayyad *qaṣr*, the construction of which was interrupted and later resumed with the availability of more economic resources. According to the first hypothesis, the original plan that was not fully implemented, would have incorporated in its design the same entrance block that was

finally built, which would have been placed symmetrically in the middle of the east section of a slightly bigger and symmetrical *qaṣr*. After resuming its construction it would have been decided to reduce slightly its originally foreseen size in plan, and to use a different building technique and better materials. This would explain the aforementioned asymmetry in the location of the entrance block, but also the 'incomplete Syrian *bayt*' built south of it. According to this first hypothesis, if we redraw the plan of the *qaṣr* with a 'complete' Syrian *bayt* to the south of the entrance block, we would regain a symmetric setting for this entrance block in plan, located in axe with the court (FIG. 10a). This would give as a result, a larger but regular plan, with an average side length of 77,5 meters in comparison with the 67,8 meters of the *qaṣr* actually built⁸. The arrangement of the groups of rooms (*buyūt*) in the north and south units would regain setting a symmetric with this hypothesised 'original' layout, by flanking both sides of their respective single Syrian *buyūt* with service rooms. Thus, these *buyūt* would have had their respective central room (*iwān*) located in axe with the court

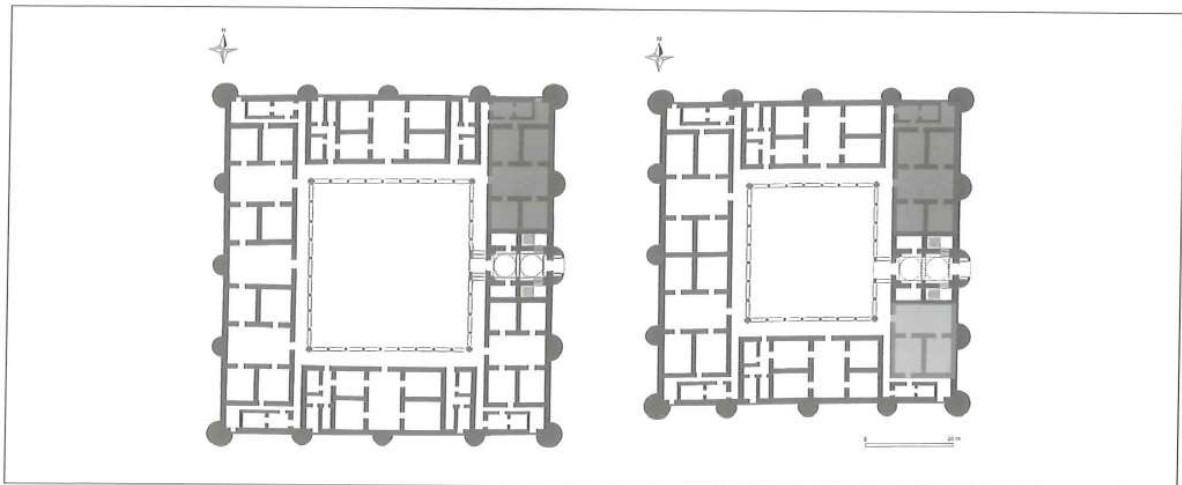
8. However, this resulting dimension (77,5 m) exceeds the average ones found in other Umayyad *qaṣūr*. They share several features although not always exactly the same size, which vary within certain range; (the dimensions in meters here gathered, are from Creswell and Allan 1989). Khirbat al-Mafjar: 65×65; al-Manyah: 67×73; Jabal Sāyis 67×67; Muwwaqar: 65×39; Qaṣr al-Kharrānah:

36,5×35,5 (72 / 2×72 / 2); Qaṣr al-Ḥīr al-Gharbī: 71,5×73 (average); Qaṣr al-Ḥīr ash-Sharqī (lesser enclosure): 68×67×71,5×74; Resafa Hisham 72×72; Qaṣr Bāyir (length of remaining W wall): 70m aprox.; Qaṣr at-Tūba: 140,5×72,85 (a double square of 72,8×72); al-Mushatta: 144×144 (internally) [72×2]×[72×2] and 147,4×147,4 (externally).

as well. Similarly, the arrangement of the west unit would allow placing a central Syrian *bayt* in axe with the entrance gate and the court. In this case, this new central *bayt* would share the small lateral rooms with the two flanking *buyūt* (as occurs in the plan of Qaṣr al-Kharrānah -Arce 2016). All this would allow regaining a regular and symmetrical plan, which might have corresponded to an original plan eventually not fully implemented. However, against this first hypothesis can be pointed three evidences, which would rule out its feasibility: firstly, the aforementioned (unusual) resulting dimensions of this hypothetical first *qaṣr* (77,5m square); secondly, the fact that this reduction in plan would have implied the anti-economical and illogical complete re-laying of the foundations of the building (according to the standard procedures, the foundations would have been laid in its entirety before any wall would have been raised above ground level); and thirdly, the fact that at the base of the walls of the existing entrance block/vestibule, no traces of the characteristic masonry that defines this first Umayyad building phase are found anywhere. Thus, the dimensional rarity of the hypothesised

resulting original plan, the illogical re-laying of the foundations which this change would have implied, and the absence of the first type of Umayyad masonry at the entrance block walls, leads us to rule out this first hypothesis, which considers the current entrance block as belonging to the first phase.

Nonetheless, a second, better founded, and more reliable hypothesis can be put forward regarding the original appearance in plan of this “first” Umayyad *qaṣr*, the construction of which was interrupted and not completed as originally planned, giving as a result the aforementioned irregularities. This hypothesis would imply an original symmetrical plan as well, but in this case with the same perimeter and size of the current building (closer to the “standard” dimensions of Umayyad *quṣūr*), but without the ‘entrance block’ that we can see today: it would have had a simpler and narrower vestibule, consisting of a simple corridor with just benches in both sides (FIG. 11a), instead of the complex and articulated entrance block with two lateral flights of steps leading to the upper floor that was finally implemented⁹ (which would be part of the plan changes introduced in the



10. Qaṣṭal al-Balqā'. 10a (left). Hypothetical original plan (first hypothesis) of the *qaṣr* as originally intended (larger in size, completely symmetrical and with the same vestibule and entrance block that exists today) confronted with the final version actually built. 10b (right). The walls from the area in dark grey correspond to those which present in their lower courses the oldest building technique identified (corresponding to those surviving from the earliest Umayyad building phase). In light grey the ‘incomplete Syrian *bayt*’.

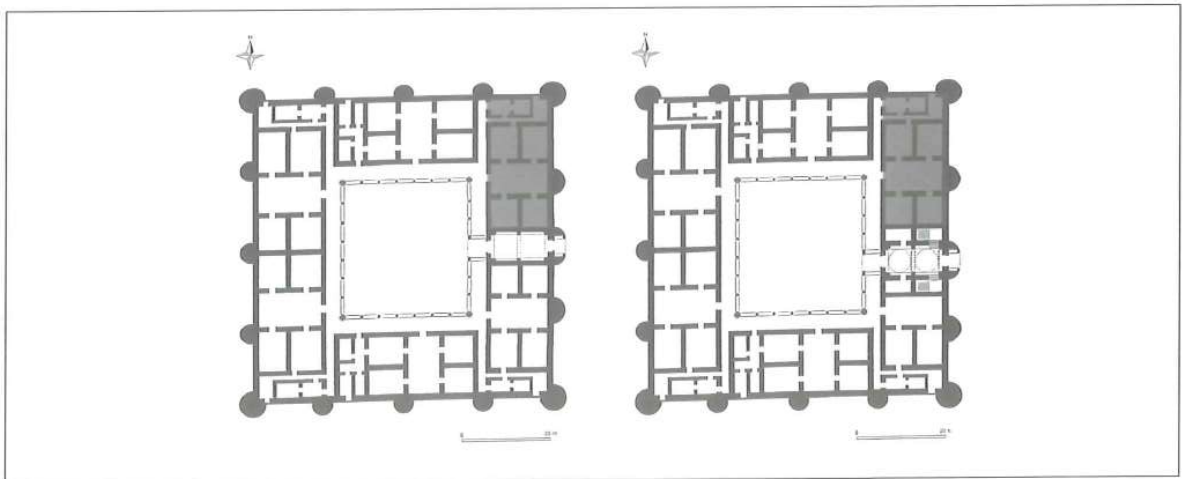
9. In this first phase, the staircases might have been planned to be placed in the “dead ended” service corridors that separate the main

blocks of rooms, like at Khirbat al-Mafjar.

second phase). This narrower original entrance corridor, being placed in the centre/axe of the building would have thus allowed the existence of two complete Syrian *buyūt* flanking it, in a completely regular and symmetrical plan. This original vestibule would have been similar to the standard Umayyad entrance corridors that can be found at Khirbat al-Mafjar, Qaṣr al-Ḥīr al-Gharbī, Qaṣr al-Kharrānah, Shuqayra al-Gharbiyyah, etc. The internal distribution of the original *qaṣr* would have been thus very similar, if not the same, to the one finally implemented. This would make sense because the foundations, as we have pointed, were probably already laid in the first phase, being used when the works were resumed, with the exception of the south-eastern area where the inclusion of the new and wider entrance block would have altered that symmetrical plan, creating the irregularities described, which would have implied just minor changes in the foundations in this entrance area, adding two extra foundation walls (see FIG. 11).

This second hypothesis would be also more coherent with the elicited scenario of improvement of the economic context that characterized the second building phase, which implied the availability of more financial resources and the use of better quality materials

in its construction: It would be more logical that this lavish and very elaborated vaulted entrance block would have been added to the modest original plan during this new and prosperous economic context, keeping the original dimensions in plan of the first *qaṣr*, instead of reducing it in size as hypothesised in the first option (a weird change for a wealthy period, but also because it would have turned the plan asymmetrical on purpose). We have also to take into account that, as pointed, we cannot find traces of the type of masonry used during the first phase in this entrance block, with the exception of the north face of the wall shared with the Syrian *bayt* located to the north of it (FIG. 4): a wall which seems to have been doubled southwards for the construction of the staircase (FIG. 12). As mentioned, the foundations of the perimeter and partition walls for the rest of the building were most probably already laid during the first building phase and later reused. As a result, the new walls built in this second phase would have followed closely, if not identically, the original plan except in the east section where the new entrance block was incorporated. The addition of this new lavish entrance block, more complex in elevation and plan, without modifying the original perimeter



11. Qaṣṭal al-Balqa'. 11a (left). Hypothetical original plan (second and definitive hypothesis) of the *qaṣr* as originally designed (same size and internal distribution, but with a simple corridor as entrance vestibule instead of the complex entrance block, in a symmetrical plan), confronted with the final version actually built. 11b (right). Notice how due to the inclusion of the new and wider entrance block, the south-eastern *bayt* loses its northern apartments becoming thus 'incomplete', and the general plan of the *qaṣr* becomes in its turn asymmetrical.

of the *qaṣr*, implied the reduction in size of the south Syrian *bayt*, eliminating the two northern rooms. This would have also provoked the asymmetry in plan of the building finally built, which would find in this hypothesis a logical and fully satisfactory explanation, which we adopt as the most convincing one. Two final pieces of evidence would confirm that this second hypothesis is the correct one: firstly, the fact that all the entrance block/vestibule, including the lateral staircases, is built entirely using the materials and building techniques employed in the second Umayyad building phase (not being present a single course using those from the first phase); secondly, the confirmation that the wall between the entrance block and the northern *bayt* was doubled as can be seen in (FIG. 12).

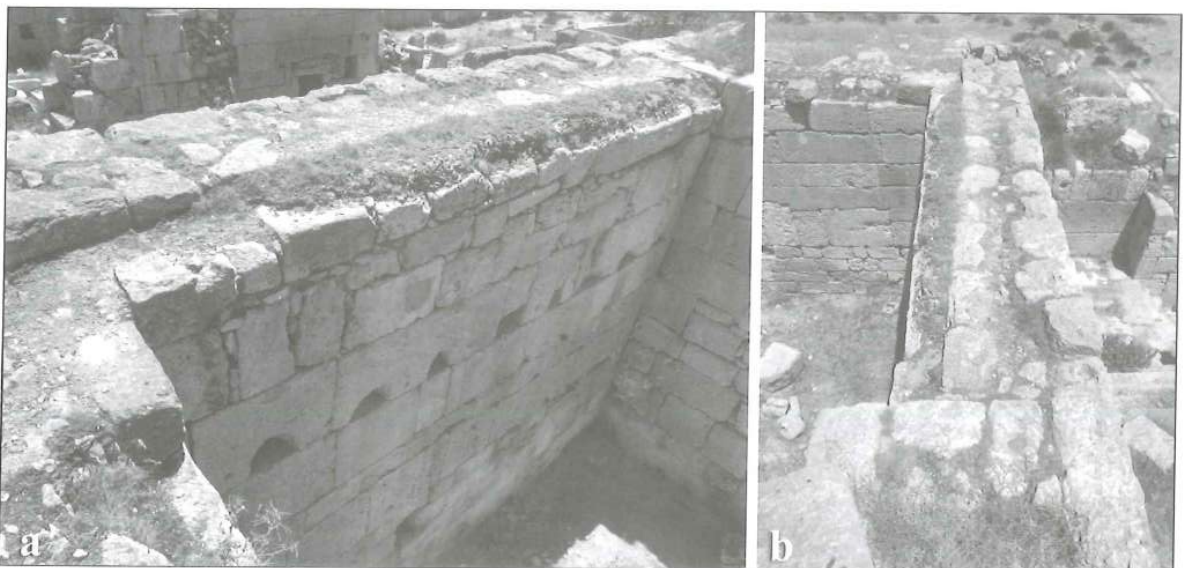
The Entrance Vestibule Block and the Upper Audience Hall

The second section of the paper deals specifically with the analysis and the related hypoth-

esis of reconstruction of the original appearance of the gateway and the vestibule entrance block, its elevation, and the vaulting systems which covered its lower and upper rooms.

This entrance or vestibule block, which we have concluded would belong to the second building phase of the Umayyad *qaṣr*, is composed by two almost square bays¹⁰, which define a corridor that gives access from the exterior to the court. The plan of the vestibule is articulated by pilasters dividing both square bays, and from which sprang the arches that divided the vaulting in two square sections as well. These pilasters divide in two sections also the elevation of the lateral walls of this vestibule, each of which has a semicircular profile which proves that these two square bays were vaulted (FIGS. 13, 14). In principle, these material remains indicate that this vestibule could have been covered by two groin (cross) vaults, two sail vaults or a couple of domes on pendentives¹¹.

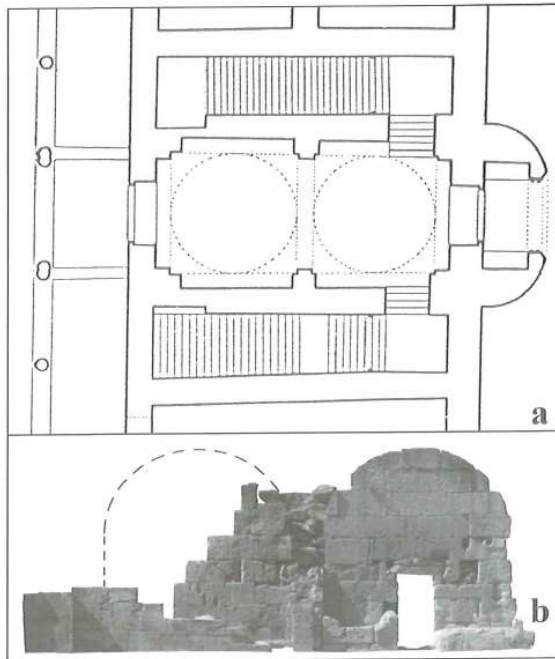
This corridor was flanked by two symmetrical



12. Qaṣṭal al-Balqā'. Doubled wall between the entrance block and the south rooms of the *bayt* placed to the North of the access block. 12a (left). On this side of the wall, which looks northwards (see also FIG. 4) it can be seen, how its lower courses are built using the aforementioned first Umayyad building technique, on top of which was added the later section built with the headers-and-stretchers technique (corresponding to the second Umayyad phase). On top of the latter, would have rest the barrel vault covering the room. The space left by the missing springers of the vault was replaced in medieval times by new courses of irregular masonry, seen in the photo crowning this side of the Wall.

10. The two lateral walls taper slightly. This makes the bays slightly irregular. Thus the transversal sides of the 'square' bays oscillate between 5,16 and 5,36 meters.

11. Creswell supposed the entrance was covered by two cross vaults (Cresswell and Allan 1989:173), but gives wrong dimensions for the *qaṣr* ("approximately 59m square, excluding the towers").



13. Qasṭal al-Balqā'. The entrance corridor or vestibule of the *qaṣr*. 13a. Plan (Carlier and Morin 1984: Fig.54). 13b. E-W section across the vestibule looking towards south (survey and ortho-rectification by I. Arce and I. Moscoso).

flights of stairs leading to the upper floor, and which were accessed from two lateral doors of the lower floor first bay, in an arrangement not seen in any other Umayyad *qaṣr*. Thresholds with pivot-holes were located not only in the main external gateway, but also dividing these two consecutive square bays. This would grant access to the reception hall in the upper floor through the two lateral flights of steps¹², while keeping closed the access to the courtyard and the residential areas in the lower one. The two small rooms under the staircases (accessed from the second square bay) were most probably used as guard rooms. Against the lateral walls are placed the typical waiting benches found in most Umayyad *quṣūr*:

The Vaulting Hypothesis for the Lower Vestibule

The hypothesis put forward by Carlier and Morin imply that the two square bays of the low-

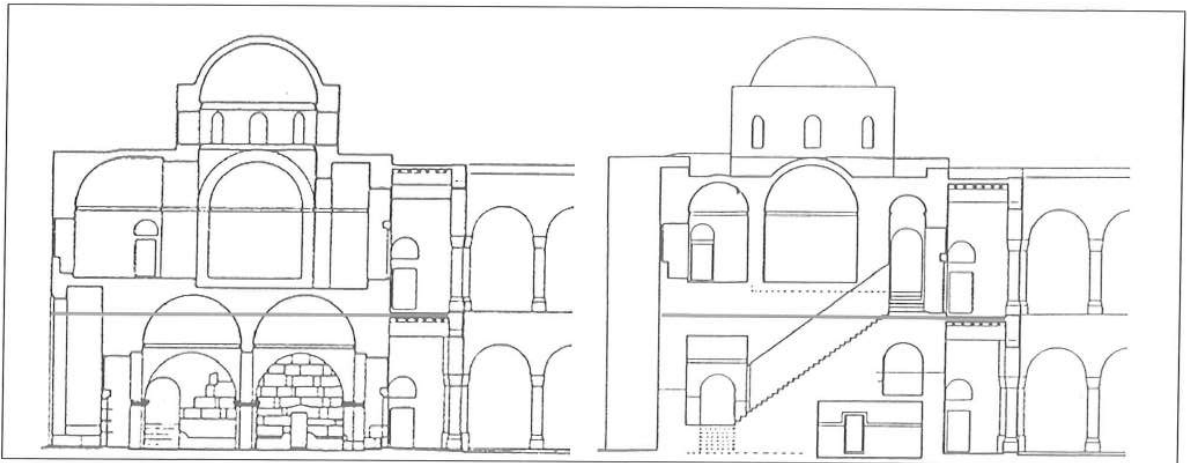
er floor vestibule were covered by two domes on pendentives. This is based on the aforementioned semicircular profile of the lateral walls, and the survival of some domical voussoires (Carlier and Morin 1984: 348). The rest of the rooms of the *qaṣr* are drawn by them as roofed with flat ceilings using beams and rafters. In my opinion, and due to the span of the rooms, they would have been roofed with barrel vaults as it is the case in most the Umayyad *quṣūr* ('Ammān, al-Kharrānah, al-Mushatta, aṭ-Ṭūba, Qaṣr al-Ḥīr ash-Sharqī, etc). These vaults would have been supported by the thick walls and they would have also counteracted the lateral thrust of the vaulting from the entrance block.

The Floor Levels, Plan and Vaulting of the Audience Hall in the Upper Floor

According to the hypothetical scheme put forward by Carlier and Morin, the resulting height of the audience hall in the upper floor would be 8,55 meters above the lower floor level. This height is excessive and creates insurmountable problems in the reconstruction proposed. The remains of the original flights of steps prove that they would have not been enough to reach the resulting floor level of the audience hall in the upper floor, placed on top of these two domes on pendentives. Just to reach the floor level of the upper portico, it would be necessary to devise a single flight of more than 30 steps in a single row with a slope of almost 40 degrees (FIG. 14b). This also forces to raise the floor level in the lateral arms of the audience hall even further, to allow placing the staircases running underneath them. Despite this disproportionate and unlikely flight of steps, the staircases still would have not reached up to the floor level of the audience hall, which remains at a higher level than that of the upper portico: it would be necessary to add an extra flight of steps, placed inside the audience hall itself (FIG. 14b). If the floor level

12. Door jambs were built at the beginning of the main flight of steps (close to the first landing) to insert doors which would close

the access to the upper floor.



14a. (left). Qasṭal al-Balqā'. Entrance vestibule block and upper audience hall. Reconstruction hypothesis by Carlier and Morin roofing the vestibule entrance corridor with two domes on pendentives, and placing in the upper floor a 'triconch hall' surmounted by a huge dome on pendentives placed in between the two lower domes. 14b (right). Section through the staircase showing the awkward difference of floor levels between the upper portico (indicated by the red line) and the audience hall (Carlier and Morin 1984: cropping of Figs.59, 64)

of the upper portico would be set at the same level of the floor of the audience hall, it could not be reached by these steps, and would also give as a result a disproportionate height for the elevation of the lower portico of the court as well (FIGS. 14a, b). To disguise these evident problems in Carlier and Morin reconstruction drawings, the floor level of the upper portico is drawn more than one meter and a half below the floor level of the upper audience hall (in correspondence with the maximum height that could be reached by the flights of steps), but without a direct access between them (FIG. 14a). The access between both floor levels is not satisfactorily nor convincingly solved either: the main opening that should have been a door connecting them, giving access to the audience hall from the upper corridor becomes a sort of window, which overlooks onto the upper portico corridor, but does not offer access between them. According to their proposal, to reach the audience hall from the lateral flights of steps leading to the upper portico corridor, it is necessary to place in the western arm of the audience hall plan a supplementary flight of steps, set transversally with the extra

steps required (FIGS.14a,15a). All these problems make this hypothesis not feasible nor convincing, as it does not make sense to design ex-novo such a lavish double staircase that does not fulfil properly its main purpose.

The 'Triconch Hall'

The hypothesis put forward by Carlier and Morin becomes structurally inconsistent and even more unlikely when it is suggested the existence of a 'triconch hall' in the upper floor, on top of the double-square plan of the lower vestibule, and surmounted by a huge dome on pendentives of 6,30m of diameter (Carlier and Morin 1984: 348-9). This upper dome would be placed not above one of the lower square bays, but astride in between the two lower domes on pendentives.

As a matter of fact, the hypothesised plan it is not an actual triconch, but a sort of Greek-cross plan, with a central square area with two oblong lateral arms, instead of semicircular apses and with small domes in the resulting corner spaces (FIG. 15a)¹³. The issue of the floor levels becomes even more complex and confusing, because according to their solution,

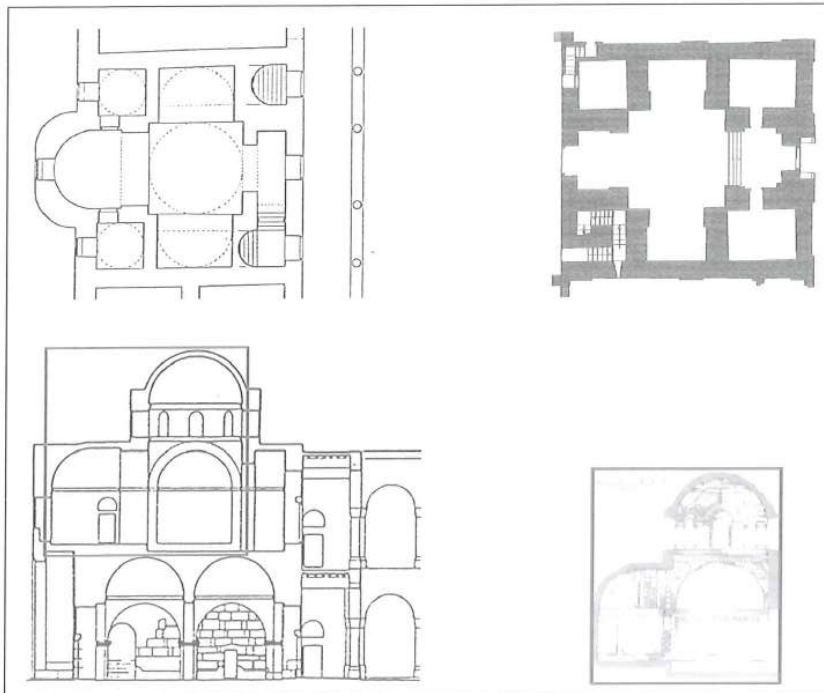
13. The plan suggested might be better described as an incomplete quincunx, *i.e.*: a cruciform plan with a central dome and four more in the corners defined by the arms of the cross, similar to that of the

al-Mundhir 'pretorium' in Resafa (or to the vestibule at 'Ammān Citadel which they claim has been used as a model for their hypothesis).

the floor level of these lateral arms should be higher than the one of the central hall itself, to allow the staircases (which run underneath the lateral arms), reaching the floor level of the upper portico (FIG. 14b). Thus, the floor level of the portico would remain, as we have pointed, one meter and a half below the resulting floor level of the audience hall, and almost two meters below the floor level of these lateral arms (FIG. 14b). However, the main problem with this solution results from the fact that the hypothesized dome on pendentives of this upper 'triconch' audience hall, instead of being placed in correspondence with one of the two square bays which articulate the lower space, would be placed astride between them, something that structurally does not make any sense (FIG. 14a). With this solution, this huge dome would not be properly supported, as its weight would be resting on the weakest points of the lower floor structure. The pendentives which receive the weight of a dome, concentrate the thrust at the four corners, where it should be received by the piers beneath. The problem is that according to Carlier and Morin reconstruction, the weight would be resting not on the lower floor piers,

but on the fragile crowns of the twin domes on pendentives, which they hypothesise roofed the lower floor vestibule. This demonstrates that this upper domed hall, as presented, has neither structural support nor a coherent spatial relationship with the area over which it is set.

On top of this, when this hypothetical reconstruction is analysed more in detail, it can be noticed that the section (FIG. 15c) suggested for this upper 'triconch' audience hall, actually replicates the longitudinal section of the *bahū* or *dīwān* at Khirbat al-Mafjar (FIG. 15d, Hamilton 1959 Fig.25), while the plan (FIG. 15a) is an adaptation of the one from the entrance hall of the Umayyad palace at 'Ammān Citadel (FIG. 15b). The resulting combined structure is inserted arbitrarily without any spatial, nor structural logic, on top of the entrance gate and vestibule of our *qaṣr*; straddling the two lower bays, in a sort of "architectural collage". As a result, the whole solution becomes inconsistent and unconvincing. We can thus conclude that this hypothesis should be discarded as it does not have enough evidences to be supported, and it is not spatially nor structurally coherent or compatible with the remains found still *in situ*.



15a. Qasṭal al-Balqā'. Plan of the upper audience hall as hypothesised by Carlier and Morin (1984: Fig.55). 15b. 'Ammān Citadel, plan of the monumental Vestibule (Arce 2009), notice the similarity to the plan of 15a. 15c. Qasṭal al-Balqā'. Section of the Entrance block as hypothesised by Carlier and Morin (1984: Fig.59), notice the domes on pendentives covering the lower vestibule, and the "triconch" hall awkwardly located astride in between the two lower domes. 15d. Khirbat al-Mafjar. Section of the *dīwān* or *bahū* (Hamilton 1959: Fig.25); compare with FIG15c.

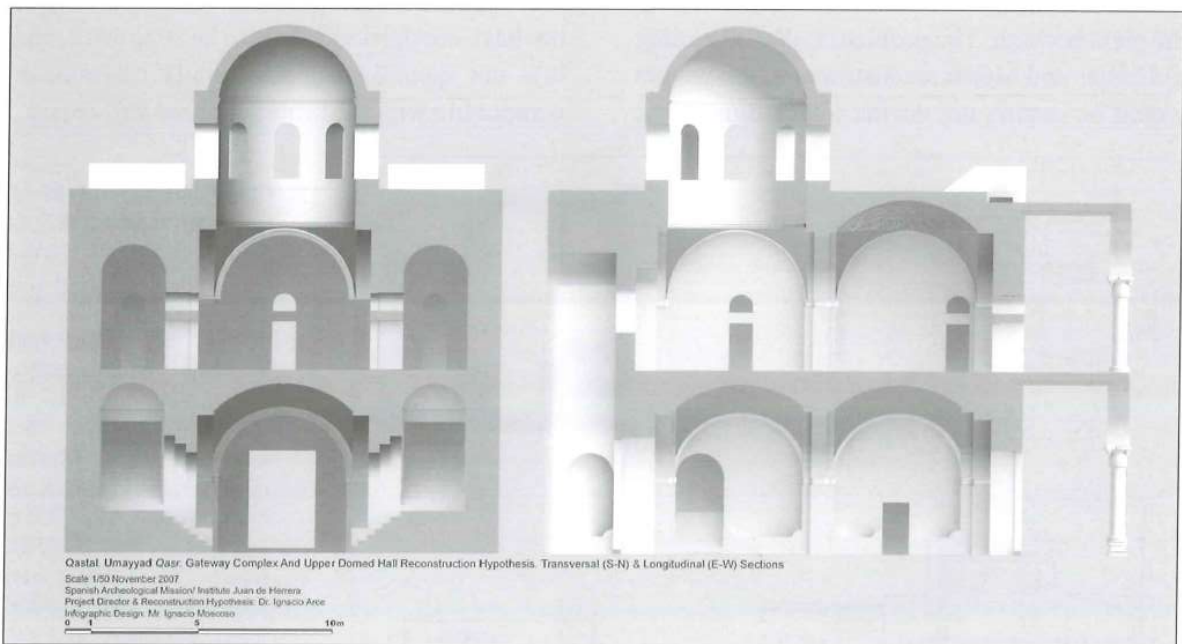
Alternative Vaulting Hypothesis

The detailed and thorough analysis of these architectural material remains, has led to an alternative hypothesis still based on the existing material evidences, but following the architectural and structural coherence required, which would sort out the problems, inconsistencies and incongruences identified. According to this proposal, the two square sections of the lower vestibule would not be covered by two domes on pendentives but by **two sail vaults** (FIGS. 16, 17, 18). We do not consider the choice of a couple of cross or groin vaults, as suggested by Creswell¹⁴, because no single trace of the groins, or lines of intersection of the cross vaults, have been found, while we have a huge number of domical *voussaires*, which would belong to the sail vaults (FIG.17).

This solution would reduce noticeably the resulting height of the floor level of the upper audience hall, while keeping the coherence with the remaining evidences of the lower supporting

infrastructure and the domical *voussaires* found (FIG. 17). This hypothesis would also allow regaining adequate proportions and heights for the whole structure, including the porticoes of the courtyard: Instead of +8,55 meters, the upper floor level would be just +6,04 meters above the lower floor level (as we will demonstrate below). This would also allow setting the floor of the upper portico and that of all the upper rooms (including the audience hall) all at the same height, which would be easily and comfortably reached by the existing two lateral flights of steps (not being necessary the awkward addition of extra flights of steps).

The domical *voussaires* found in the rubble (FIG. 17), which Carlier and Morin thought belonged to a huge dome in the upper floor would actually belong to these sail vaults roofing the lower floor. We will analyze now the dimensional congruency of our proposal, supporting the existence of sail vaults covering the two square bays of the vestibule in the first



16. Qastal al-Balqā'. Proposal of reconstruction of the entrance vestibule block put forward by the author (infography by I. Moscoso). Note the lower vestibule covered by two sail vaults, while the solution for the upper audience hall is domed following the spatial and structural constrictions fixed by the existing elements in the lower floor: the resulting two bays are covered respectively with a dome on pendentives and a sail vault, placed above and in correspondence with the two square bays of the lower entrance floor (compare with FIG.14a,b).

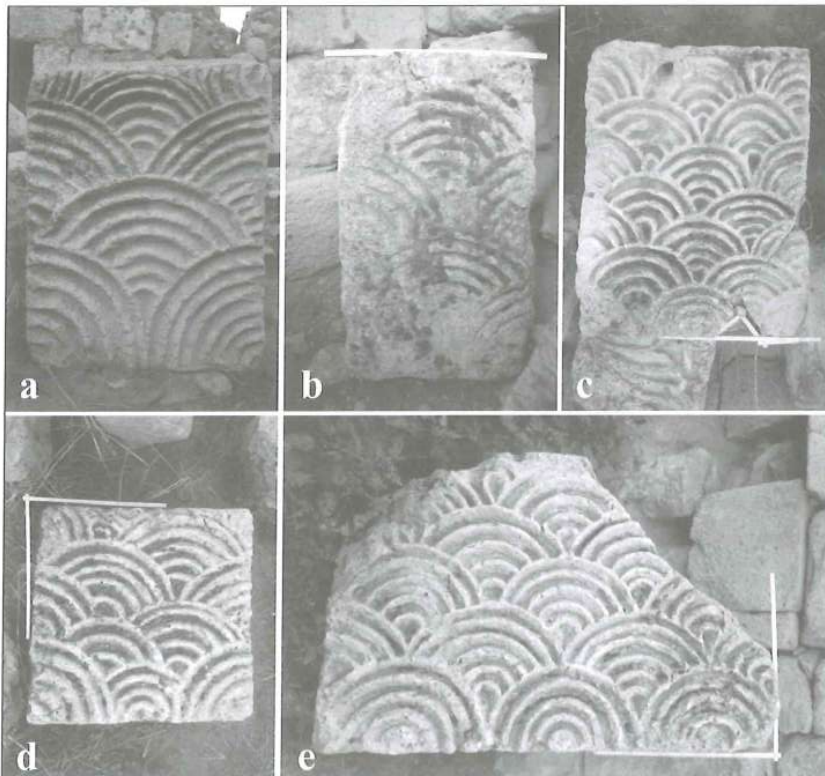
14. Creswell and Allan 1989:173.

floor, using these domical *voussoires*.

We have to take into account that the pendentives supporting a dome are actually the remaining surface of a sail vault that has been horizontally cut to obtain a circular base on which the semi-spherical dome is set (FIG. 18)¹⁵. The circular base of this dome has thus the same diameter of the pendentive upper circumference, which corresponds to the circumference inscribed in the square on which the dome is set in plan (which in its turn, is inscribed in the equatorial circumference of the hemisphere corresponding to the related pendentive and/or sail vault (FIG. 18)).

Thus the relationship between the Radius of the pendentive's spherical surface (R) and that of the supported dome's hemisphere (r) is square root of 2 ($R=r\sqrt{2}$), while the diameter of the supported dome equals the side of the square in plan on which it is set and built (FIG. 16b). Accordingly, the total height

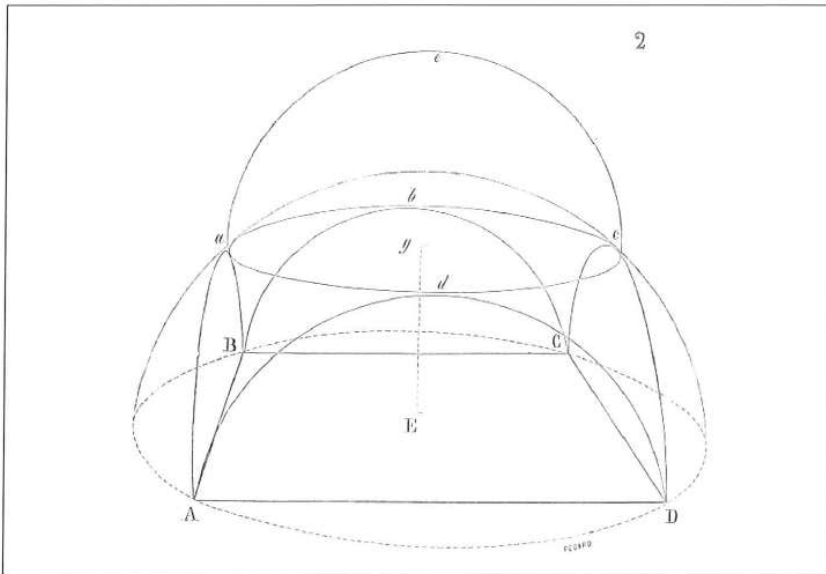
(from the springing line) of the crown of a dome on pendentives equals the diameter of the supported semi-spherical dome (twice its radius $=2\times r$), while the height of the crown of the corresponding sail vault would be just the radius of the hemispherical dome multiplied by square root of 2 ($r\sqrt{2}=1,4142\times r$), almost a third less than the previous one (FIGS. 16, 19). Thus, if the resulting height of the upper floor of the audience hall supported by the twin domes on pendentives was +8,55 m above the lower floor level, the resulting height if it would have been supported by the twin sail vaults would be of just +6,04 m above the lower floor level. This dimension of the radius of the semi-sphere of the sail vault, corresponds to that of the big *voussoires* found in the site (FIG. 17), which would belong to these sail vaults in the vestibule entrance, and not to the huge semi-dome that Carlier and Morin hypothesised for roofing the upper floor.



17a-e. Qaṣṭal al-Balqā'. Domical voussoires corresponding to the sail vaults covering the bays of the first floor, which have a spherical radius of 6m approx.

15. The sail vault and the pendentives are both spherical surfaces resulting from cutting away sections of the same semi-sphere: In the case of the sail vault the semi-sphere is cut by four vertical planes corresponding to the square inscribed in the equatorial circumfer-

ence; in the case of the pendentives, this spherical resulting surface (the sail vault) is further cut by an horizontal plane on which the actual dome will be set.



18. Formation of a pendentive. Eugène Viollet-le-Duc 1856. Notice the resulting sail vault (with the same radius of the pendentives 'R') in case the semi sphere is not cut horizontally to place on it a semi-spherical dome.



19. Qasṭal al-Balqā'. Umayyad qasr. Entrance vestibule. Reconstruction hypothesis. 19a. Present condition of the remaining elements. 19b. Composite view with the infographic reconstruction of the two sail vaults (Reconstruction hypothesis by I. Arce; infography: I. Moscoso).

Parallels and Antecedents

We have numerous samples of antecedents for the use of sail vaults in the region from Roman epoch and throughout the Byzantine and Umayyad period (Arce 2006 and 2007): In the south baths at Jarash (Jordan -FIG. 20a), and in the funerary mausoleum in Nuayyis ('Ammān -Jordan), both dated in the 2nd century AD, or at the theatre of Shahba-Philippopolis (South Syria), dated in the 3rd century AD (FIG. 20 b); at Qaşr ibn al-Wardan (North Syria), 6th century AD (FIG. 20c), or in Jerusalem, at the Double (FIG. 20d) and Golden gates in the *al-Haram al-Sharif*. The latter ones represent the antecedent of a recurrent use of sail vaults in Islamic period gateways, which would become almost customary in later periods, like at the Fatimid period gates of Cairo of *Bab al-Futuh* and *Bab al-Zuwaylah* (Creswell 1978).

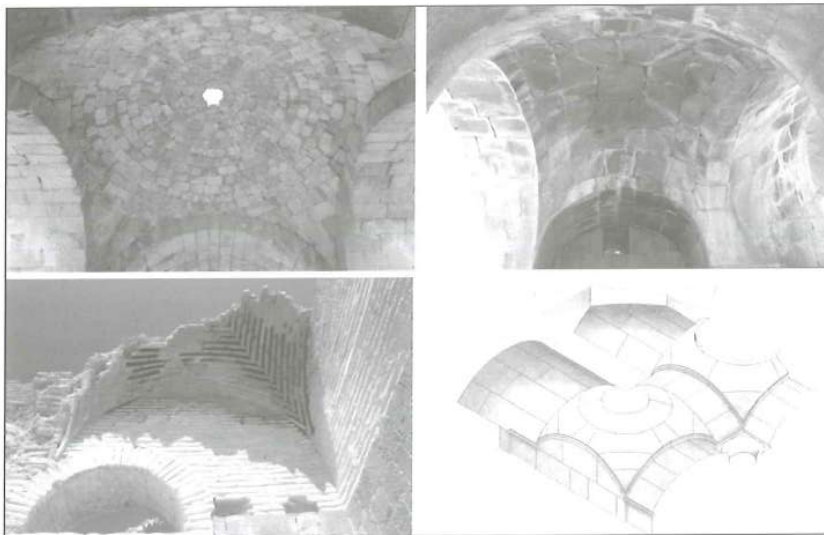
The Vaulting of the Audience Hall in the Upper Floor

The space distribution and vaulting of the hypothesised audience hall of the upper floor¹⁶, as we have seen, should follow and be coherent with the structure existing in the lower floor. Accordingly, we suggest that the two

square bays should be replicated in the upper floor exactly above the lower ones (FIG.16). One of these bays (probably the easternmost one), would have been roofed by a dome on pendentives (maybe with an intermediate drum pierced with windows), while the other bay could have been covered by one sail vault, (or even by a barrel vault placed in axe, E-W, and connected with the dome's pendentives. In order to keep the maximal structural coherence, we have chosen and drawn the solution with the sail vault, which would have the same dimensions and radius of the lower ones (and of the upper floor pendentives).

The Dating of the Qaşr

According to the hypothesis put forward by Carlier and Morin, the *qaşr* and the whole Umayyad complex would have been built in a sole single phase, and in quite early date. Their early dating is in part based on their hypothetical reconstruction of the upper domed chamber as a triconch hall, claimed as evidence of 'archaism'¹⁷ of its design, while the single phasing was based on the supposed existence of a sole and single building technique used throughout all the complex, hypotheses which



20. Sail vaults from antique and Late-antique buildings in the Levant. 20a. South baths at Jarash (Jordan), 2nd century AD; 20b. Theatre of Shahba-Philippopolis, 3rd century AD; 20c. Qaşr ibn-Wardan (Syria) 6th century AD; 20d. al-Haram al-Sharif, Jerusalem. Double gate, 7th century? AD.

16. We would assume the existence of an audience hall taking into account the general design and the existing antecedents and parallels at Qaşr al-Kharrānah, Qaşr Minya, Qaşr al-Ḥīr al-Gharbī, Khirbat al-Maḥjar etc.

17. "L'étude typologique des sailes d'audience umayyades mon-

tre également l'archaïsme des dispositions du triconque de Qastal" (Carlier and Morin 1984: 244). Our research points, on the contrary, to the conclusion that the entrance block would have been part of the second phase of construction of the complex, with a different structural and spatial solution.

we have demonstrated are both wrong. Their dating would be also based on the hypothetical early *qiblah* towards Jerusalem that they claim was used and they would have identified at the site (Carlier and Morin 1987: 242-4)¹⁸.

Actually, this hypothetical *qiblah* towards Jerusalem was inferred from the general orientation of the buildings of the complex the walls of which are set in parallel to the compass directions (E-W and N-S). Most Umayyad *quṣūr* built *ex novo*, follow however this standard orientation (even if this results in some minor deviation from the proper alignment of the *qiblah* towards Mekka)¹⁹. The claim of the use of this *qiblah* towards Jerusalem would be also incompatible with the assertion that all the complex (including the mosque) would have been built in one sole phase because the mosque is not oriented towards Jerusalem, but due south, following the same ‘cardinal’ orientation of the *qaṣr*. This idea of an early *qiblah* towards Jerusalem would be also supported by the discovery claimed by Carlier and Morin of some ‘Islamic tombs’ in the cemetery oriented according to this *qiblah*. Due to the inconsistency of the other alleged evidences we might consider the possibility that this ‘weird’ orientation for Muslim tombs could be explained by the fact that they might be not Muslim tombs, but pre-Islamic and Christian ones belonging to an earlier settlement, which certainly existed in the vicinity of the Umayyad *qaṣr* as the written sources and the material evidences (*spolia*) prove. Carlier and Morin mention the finding at Tall Zabayir al-Qaṣṭal, 800 meters to the southwest of the Umayyad complex, of remains of a late antique (pre-Islamic) settlement, located by a Roman road. This dating and phasing of the complex (and the area) should be thus thoroughly reviewed:

18. According to the tradition, the *qiblah* originally faced the *al-Haram al-Sharif* in Jerusalem. This *qiblah* was used for over 13 years, from 610 AD until 623 AD, till “Prophet Mohammad” changed it towards Mecca. This *qiblah* towards Jerusalem would have been re-instated as a result of the war between Abd el-Malik and Ibn Zubayr, who had seized Mecca. During this period it was not possible to perform the Hajj to Mecca (it was even banned by

firstly, because as we have proven, the *Qaṣr* was built in two phases with the inclusion in the second one of pre-Islamic *spolia* (the Mosque might have even been built as part of a third building phase, or during the second one); secondly, because the dating claimed on the base of the archaism of the building type of the triconch audience hall cannot be taken into account because it is impossible that the audience hall would have had such shape; and thirdly, because the orientation of the complex according to an early *qiblah* oriented towards Jerusalem does not seem to be proven.

Alternative Phasing of the Complex: Continuity of Occupation and the Longue Durée Logic of the “Genius Loci”

According to our hypothesis, the first structure built in the site (nearby, not on the same spot) would have corresponded to a Roman fort or similar military installation, which was completely looted, which would have given name to the site (Castellum > al-Qaṣṭal), and probably located at Tall Zabayir al-Qaṣṭal. This would have belonged to the chain of forts from the *limes Arabicus* linked by a secondary road (a *via militaris*)²⁰ running north-south from ‘Ammān in parallel and to the east of the *Via Nova Trajana*, and with a major stop at Zizyā, where still survives the huge cistern and traces of the roman fort dismantled to built several and successive military posts (the latest one dating from the British mandate still re-uses Roman *spolia*). The existence of this “outer road” between ‘Ammān and Udhruh that bypassed the *wadi* systems to the west (and which forced the *Via Nova* to sort out the deep canyons of Wādī az-Zarqā’ and Wādī al-Ḥasā) is accepted by both Benjamin Isaac and Thomas Parker (FIGS. 21a ,b). There is extensive evidence of

Abd el-Malik to prevent the propagandistic influence). This would have been the reason for Abd el-Malik to change temporarily the *qiblah* from Mecca back to Jerusalem even to develop a new pilgrimage centre (Carlier and Morin 1984: 245).

19. Arce 2015-2015.

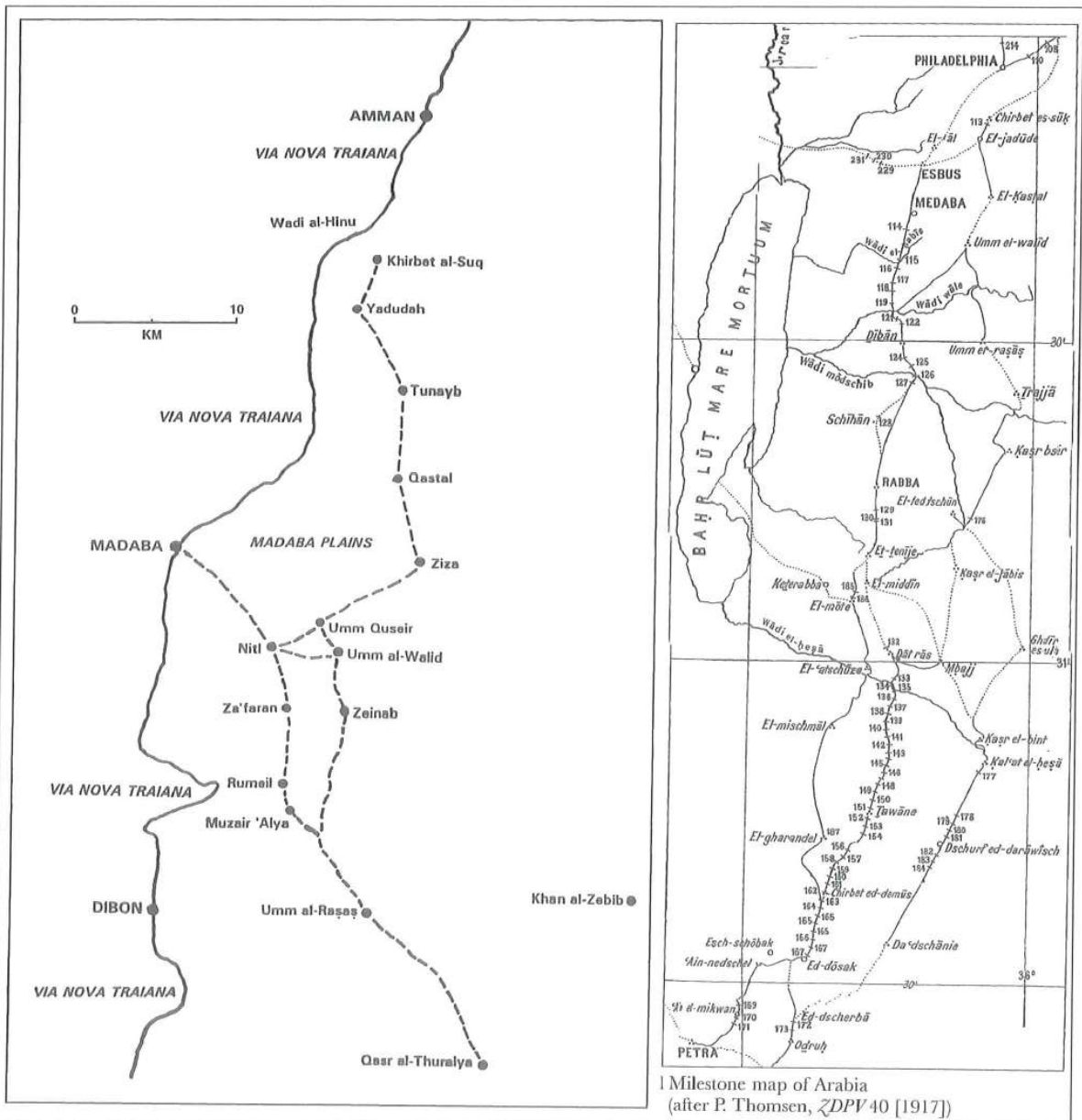
20. B. Isaac has acutely observed that the road system is the *raison d’être* for the forts, not the reverse (Isaac 1988).

the abandonment of Roman forts from the *limes Arabicus* in the region during the 5th century AD, many of which were re-occupied by monastic communities. This would have been the case of al-Qasṭal as well. References to a 'Dayr al-Qasṭal' (the monastery of Qasṭal) are found in different written sources: A verse of the Umayyad poet *Jarir*, in an elegy on the *caliph Al-Walid I*, news of whose death in 715AD reached the poet while he was at al-Qasṭal, speaks of *Dayr al-Qasṭal* (Jarīr, Dīwān, (ed.)

N.M. Ṭāhā, Cairo: Dār al-ma'ārif, 1969: 242/33 and Shahid 2002:188). This monastery would be also mentioned in the *List of Hamza* and the *Letter of the Archimandrites* (Shahid 2002: 188).

Umayyad Qasṭal

This monastery could have been one of those seized by the Umayyad elite, like the case of Haliarama, which became Qasr al-Ḥīr al-Gharbī, or the one at al-Ḥallābāt, which



21. Plans of the via militaris linking forts to the east of the *Via nova Trajana*.

occupied together with a palace, the premises of the former Roman fort during the 6th century AD (Arce 2015). The new Umayyad *qaṣr* of Qasṭal would have been built close to this previous building(s), probably while it was still used as a monastery, or after its seizure, following a ‘*parallactic*²¹ model’ of settlement, and adopting the toponymy. This might explain the use of the term *Qasṭalain* (‘the two Qasṭals’) used by Kuthayyir ‘Azza to describe the site as a double settlement²². Later, in coincidence with the second building phase of the Umayyad *qaṣr* that we have identified, this pre-Umayyad building (probably a fort transformed into a monastery) would have been completely dismantled and part of its material reused as *spolia* in the works of the second phase of the Umayyad *qaṣr*; in a moment with more financial resources available. Different scholars have pointed that the term “*Qasṭalain*” (“*the two Qasṭals*”) here may “refer to al-Qasṭal and al-Muwaqqar just as ‘al-‘Iraqayn’ (the two ‘Iraqs) refer to Kufa and Basra, or ‘al-Qaryatayn’ for Mecca and Medina” (Bisheh 2000). The association is done between al-Qasṭal and al-Muwaqqar due to other poem by Kuthayyir ‘Azza which relate them to the same owner. But this term could make reference instead to the existence side by side of two different settlements or structures at al-Qasṭal itself: One pre-Islamic (probably a Roman fort which could have been transformed into a monastery after its abandonment in the 5th century AD, and later looted and dismantled), and another one built *ex-novo* by the Umayyad elite beside or in the vicinity of the previous one. This hypothesis would be coherent with

the “*parallactic model*” of settlement adopted very early by Muslims settlers. The cases of Raqqa and Rafīqa (*Raqqain*, the two *Raqqas*) set successively beside the Roman Callinicum, or those of Fustat founded *ex-novo* besides the Roman fort and settlement of Babylon on the Nile, or Jabiyya outside Damascus, would be clear parallels of this procedure. Closer and more similar to our case would be the settlement founded by Hisham south of Resafa-Sergiopolis, or Qaṣr al-Ḥayr al-Gharbī, founded on the premises of a monastery (Haliarama) patronized by the Ghassanids and seized by the Umayyads.

The question posed now is if we can associate these phases to any precise patron. Written sources associate Qasṭal al-Balqā’ firstly with the Ghassanid *phylarch* Jabala ibn Harīth (al-Isfahani in his *Annals*)²³, and later with the Umayyad caliphs *al-Walid ibn ‘Abd al-Malik* (65–86/685–705), *Yazid ibn ‘Abd al-Malik* (101–105/720–24) and *al-Walid ibn Yazid* (125–26/743–44)²⁴. The association of these patrons with any structure, surviving or demolished, can be only conjectural and is based on these few surviving texts (and their meagre information), and on the material evidences retrieved.

A Third Phase Patronized by Walid Ibn Al-Yazid?

Despite the destruction inflicted to the *Qaṣr* in 1984, it was possible for the French team to explore the remains of the north area where some floor mosaics were miraculously found. It was noted a clear difference between the

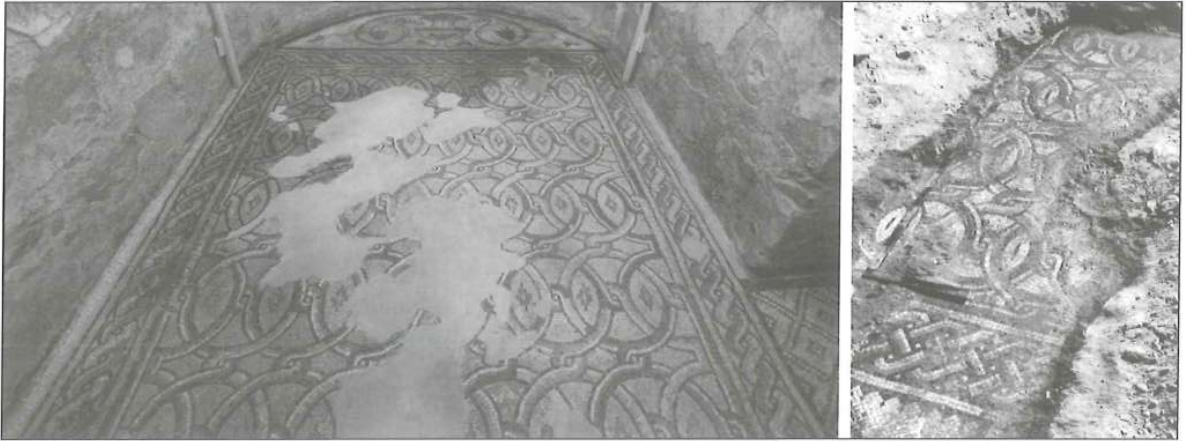
21. “Parallactic” model (in opposition to “palimpsest” model) makes reference to the construction of a new structure or a city beside an existing one, and not on top of the pre-existing one or growing concentrically. The use of this term to describe this characteristic of many new Islamic urban settings was already used by Paolo Cuneo in “Storia dell’urbanistica Il Mondo Islamico” Roma 1986. See also Patrizio A. Cimino, G. Matteo Mai, Vito Redaelli (2010) “Dizionario di storia urbana”, Maggioli Editori, Santarcangelo di Romagna. P.129.

22. In a panegyric verse addressed to Yazid, the poet Kuthayyir ‘Azza (dead in 105: 723) mentions al-Muwaqqar and al-Qasṭal in a context which indicates that both belonged to the same patron: ‘May God bless the quarter (family) whose abode is in Muwaqqar (and

extends) to Qasṭal al-Balqā’ of the elevated *maḥarīb*’, or ‘where the *maḥarīb* are’ (Kuthayyir ‘Azza, *Dīwān*, (éd.), H. Pérès, II: 133). In another poem composed by the same poet in praise of Yazid, mention is made of the two Qasṭals (*bi-l-Qasṭalayn*): ‘May God reward a quarter in Muwaqqar with pleasant life, and may the thunder clouds let fall copious rains with the abounding clouds and pouring showers, he was bestowed in the two Qasṭals with abundant boon’.

23. “Jabala ibn Hārīth, king of the Ghassanids, order to build *Adraj* (Udhruh), *Canathir* (Umm al-Walīd) and Qasṭal” al-Isfahani *Hamza al-Hasan: Annales*, Petropoli 1844: T. I. P. 117; T. II, VII, P. 92.

24. Jarīr, *Dīwān* (ed.), N. M. Ṭaha (Le Caire : Dār al-ma‘ārif 1969): Pp. 233-242; Kuthayyir ‘Azza, *Dīwān* (ed.), I. ‘Abbās (Beirut: Dār al-Thaqāfa, 1971): Pp. 340-349; al-Ṭabarī, *Tārīkh*, II: 1784.



22a. Quṣayr 'Amra, alcove floor mosaic, dated to the time of Walid ibn al-Yazid (Walid II). 22b. Qasṭal al Balqā', mosaic floor from the north portico with the same pattern consisting in a double superimposed net of entangled polychrome circles (Carlier and Morin 1987: Pl.XL.2).

richness and complex patterns found in the floor mosaics from this north portico and its apartment (using tiny and richly coloured glass *tesserae*), contrasting with the simpler patterns and lower quality observed in the mosaics from the eastern and southern porticoes (with a simple pattern of circles and squares alternated, using coarse big-sized stone *tesserae*). The peculiar pattern of this richer mosaic floor from the northern portico (FIG. 22b) consisted in a double superimposed net of entangled circles executed with small glass tesserae with a rich combination of hues. This pattern, plus the size and material used, are exactly the same ones found in the mosaic floor from one of the lateral alcoves at Quṣayr 'Amra (FIG. 22a). The latter can be dated as coeval with the mural painting decoration, which has been recently proved that was implemented under Walid ibn al-Yazid²⁵.

This distinctive decoration of the north apartments at Qasṭal could have been carried out by the same artisans, and commissioned by the same patron of Quṣayr 'Amra. The use of identical patterns in both mosaics, combined with the use of the same kind and size of glass *tesserae* in the north block at Qasṭal and in the lateral alcove at Quṣayr 'Amra, would indicate

that both floors are coeval, and quite late in date (both would date from Walid II epoch), in contrast with the older and coarser mosaic floors from the other areas of Qasṭal, which present simpler patterns, and stone tesserae of much bigger and coarser size. This would reinforce the idea of a more complex sequence of construction and/or execution of its decoration (which in this north section might belong to a third phase). This hypothetical latest Umayyad phase (these later and richer mosaics) could be thus coeval to that of the decoration of Quṣayr 'Amra, *i.e.* corresponding to the caliphate of Walid ibn al-Yazid.

Conclusions

All these evidences lead to the conclusion that the Umayyad *qaṣr* at Qasṭal was built in at least two phases (maybe even three, not taking into account latter medieval transformations), corresponding probably to two different economic and political contexts during the Umayyad period, with a clear improvement in the prosperity and availability of resources for its construction in the latter phase. The first phase would have foreseen the construction of a *qaṣr*, completely symmetrical and regular in

25. The hypothetical coeval dating of the paintings and the mosaics in 'Amra would be confirmed by the finding of big amounts of freshly cut mosaic *tesserae*, ready to be applied on the semi-domes of the *caldarium*, which have been recently discovered in a service room

excavated by the author at Quṣayr 'Amra. This would indicate that the decoration scheme of the bath house (at least the wall mosaics) was not finished, probably due to the death of Walid II in 744 AD.

plan, with a simple corridor as vestibule, which was not completed. Its construction was undertaken using cheap materials, and a simple building technique, not usual in other Umayyad buildings²⁶. This first *qaṣr* was started from its northeast corner, building apparently at the same time the external perimeter wall and the internal partition walls²⁷. The construction of this ‘first’ *qaṣr* was interrupted at a certain point, being resumed later²⁸ with relevant changes, which included the addition of an elaborate and complex entrance hall to the south of the only remaining Syrian *bayt* built in the first phase, and the general improvement of the quality of the building materials used in this second phase. The new lavish entrance vestibule, composed of two square bays, was flanked by two symmetrical staircases, and roofed in its lower floor most probably with two sail vaults. The upper floor of this entrance block would have hosted an audience hall, divided also in two sections, one of them covered by a dome on pendentives and the other one by a barrel or sail vault. This second phase is also characterized by the systematic use of *spolia* from Roman and Christian buildings (chancels of a church, and other Classical elements, like the niche head or the big plain *tabula ansata*). This indicates it was built during a different socio-politic and more prosperous economic context, with the availability of more economic resources and the possibility for the new Umayyad patrons to dismantle and reuse *spolia* from pre-Islamic structures existing in the vicinity. A further third phase could

be hypothesized, which would involve the addition of rich decorated glass-mosaic floors in the north portico and its corresponding *bayt*. Our hypothesis would also help clarifying the discussion on the existence of a Roman fort in the area which would have given name to the site (and the Umayyad palace itself: *Castellum* > *Qaṣṭal*). It would explain also the presence in the area of a palace and a monastery patronized by the Ghassanid *phylarchs* (*Dayr al-Qaṣṭal*) recorded in the *List of Hamza* of Ghassanid-supported monasteries (Shahid 2002, 187)²⁹, and recorded in the *Letter of the Archimandrites* as well. According to these sources, *Qaṣṭal* would have been built (or refurbished) by Jabala ibn al-Harith (Shahid 2002, 326). The niche, the chancel base and the post reused by the Umayyads in the access to the subterranean cistern in the court might have come from the monastic church, while the *tabula ansata* might have come from the Roman military installation (possibly reused as palatine/monastic venue, like at al-Ḥallābāt)³⁰. In this case we would have at *Qaṣṭal al-Balqāʾ* another sample of the sequence we have identified in other Umayyad sites, where abandoned Roman forts were re-occupied and refurbished as monasteries (and in some cases also as palaces), before being transformed into Umayyad *quṣūr* (Arce 2012, 2015). In our case the Roman fort, which might have been transformed into a monastery (*Dayr al-Qaṣṭal* in the written sources) was probably dismantled and its material used as *spolia*. It was located probably near the current *qaṣr* at

26. A similar technique can be found in the eastern façade of the Umayyad palace of Shuqayrah al-Gharbiyyah.

27. This fact is unusual, as it would contradict the normal procedure of construction which we can identify in many other Umayyad *quṣūr* (*Khirbat al-Maḥjar*, *al-Mushatta* etc). According to this standard procedure (of Roman Military origin), the perimeter wall was built first. Later, all the internal partition walls were built against it (usually bonded to protruding stones left on purpose projecting out of the perimeter wall to link the partition walls to it -Arce 2016). An explanation to this unusual situation found at al-Qaṣṭal, would be that the remaining sections of the perimeter wall (if any) built in the first phase with such a poor material were dismantled and rebuilt a *fundamentis*.

28. It is not possible to know if this interruption and change of plan was a small lapse of time or a long period, although the higher level and the pattern of weathering of the first phase masonry could have

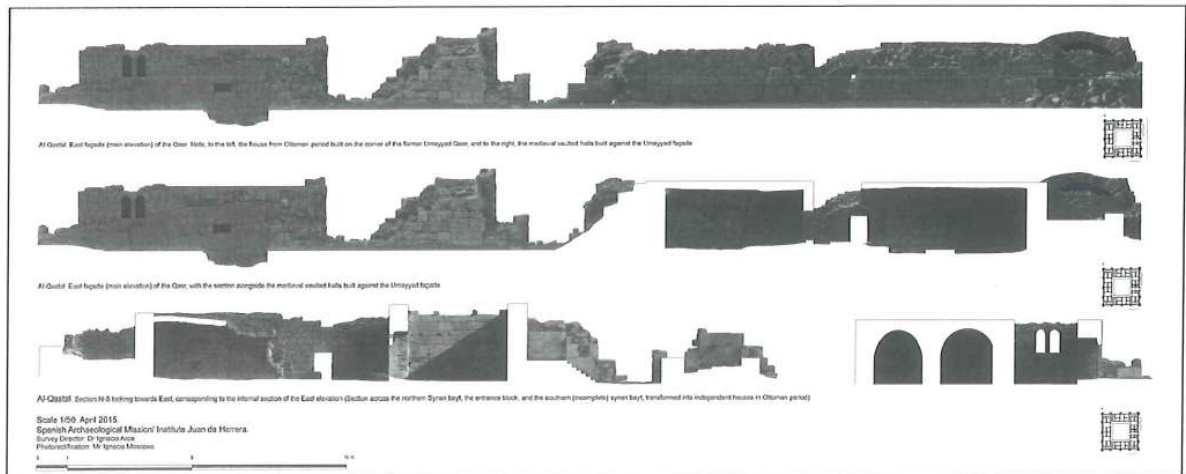
been not only the result of the worse quality of the stone used, but also because of a long exposure to the elements during the interruption, before the works were resumed and completed.

29. A verse of the Umayyad poet Jarir, in al elegy on the Caliph Al-Walid I, news of whose death in 715 AD reached the poet while he was at *Qaṣṭal*, speaks of *Dayr al-Qaṣṭal* (Shahid 2002: 188).

30. Hamza in his Chronicle or *Tarikh* (77 Quoted in Shahid 2002: 326) states that Jabala ibn al-Harith “built (*bana*) *al-Qanatir*, and *Adruh* and *al-Qaṣṭal*”. The three of them in present-day Jordan : *Qanatir* would be *Umm al-Walid*, *Adruh* would be the former Roman camp of *Udhruh* and *Qaṣṭal* would make reference to our site. Shahid quotes Noldeke pointing that the term *bana* used by Hamza could make reference to the refurbishment of pre-existing structures (Shahid 2002: 327), something that would make sense in the case of reusing pre-existing Roman installations from the limes, like *Udhruh* and *Qaṣṭal* itself.

Tall Zabayir al-Qasṭal (identified as the “ancient settlement” -Carlier and Morin 1987: 222 and fig. 1), where pre-Umayyad remains and a cemetery were found, in an area located by the Roman road that runs southwards to the Roman Fort of Zīzyā. The strategic location, the hydraulic infrastructures available and the ad-

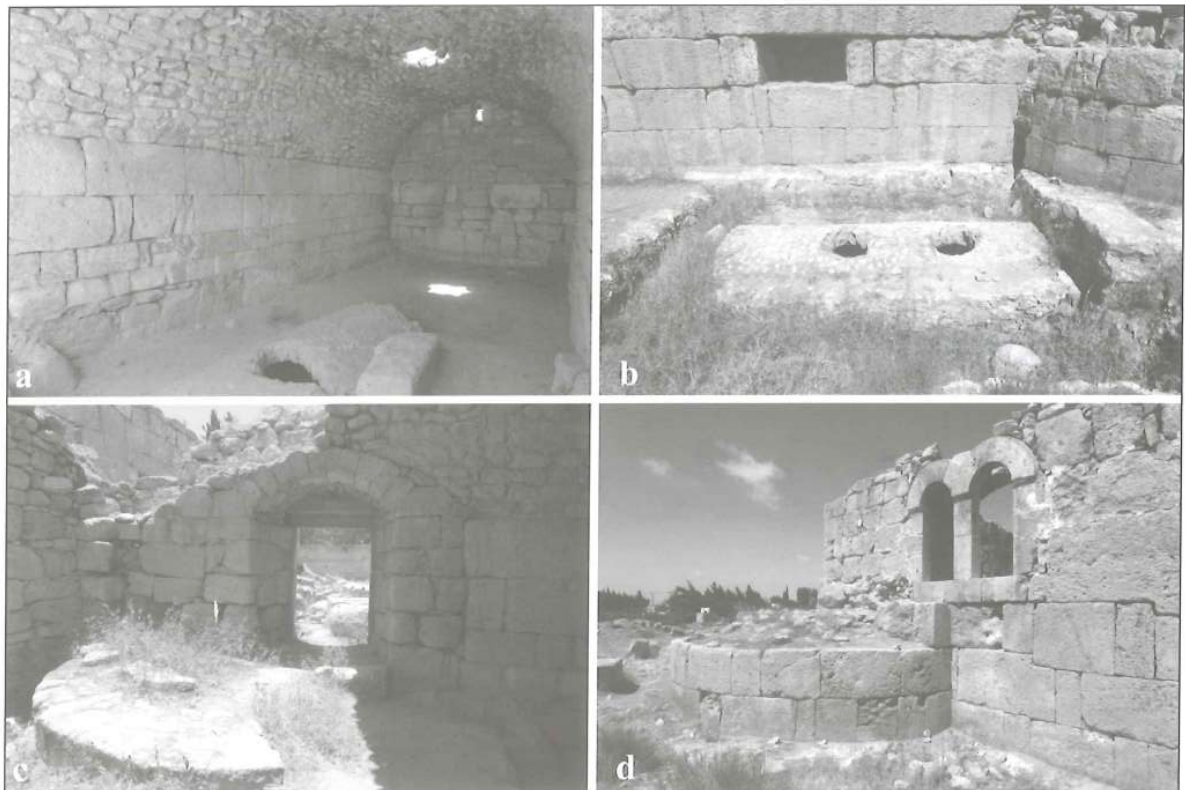
vantageous conditions of Qasṭal in many other aspects, explain why the site, occupied at least from Roman times would be continuously inhabited after the fall of the Umayyads, during the Abbasid, Ayyubid-Mamluk, Ottoman and the Mandate period, till present times (FIGS. 23 , 24).



23: Al-Qasṭal al-Balqā'. Orthorectified photographic documentation of the complex. 23a. East façade of the *qaṣr*. Notice on the left (southern) end of the elevation, the dismantled Umayyad circular corner tower, and the Ottoman house built in the SE corner of the complex (with a *geminated* window); in the central area can be seen the remains of the collapse of the central block which apparently was never rebuilt after its collapse during the 748-9 AD earthquake; meanwhile in the right section (northernmost end of the elevation), it can be seen the extramural vaulted halls built in Ayyubid-Mamluk to shelter (and reuse) the Umayyad extramural cisterns built alongside this eastern façade of the *qaṣr*. 23b. East elevation of the *qaṣr*, including the longitudinal section along the aforementioned Ayyubid-Mamluk vaulted halls; 23c. South-North section (looking towards East), across the northern Syrian *bayt*, the entrance block, and the ‘incomplete’ southern *bayt*; on the right section (southernmost end of the section) can be seen the medieval vaults built atop the Umayyad walls, and the internal elevation of the Ottoman house, with the mullioned *geminated* window and its access gate, opened in the southern façade

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24. Qaṣṭal al-Balqā'. Adaptive reuse throughout the centuries: the relevance of the *Genius Loci*; 24a. Ayyubid-Mamluk vaulted hall built against the east façade of the Umayyad *qaṣr* to make use of the extramural Umayyad subterranean cisterns (note how the medieval vaults spring from the Umayyad masonry; 24b. Detail of one of the Umayyad cisterns which justified the continuous reuse of the structure; 24c. Ayyubid-Mamluk gate opened on the east façade of the Umayyad *qaṣr*, dismantling one of the semicircular towers of the façade, to give access to the new vaulted hall seen in FIG. 24a; 24d. Ottoman House with a characteristic mullioned window, built on the SE corner of the former Umayyad *Qaṣr*, once the corner tower was dismantled.

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