The vaulting structure of the Temple of Venus and Rome at the Roman Forum

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ABSTRACT: The Temple of Venus and Rome at the edge of the Roman Forum displays the unique pattern of two back-to-back cellae. The Hellenistic proportions of the building belong to the eclectic architecture of the emperor Hadrian, who allegedly designed the temple. Significant restoration works were carried out later in 307 A.D. by Maxentius and the prevailing opinion associates the vaulted roof with this intervention. An attempt to clarify the origin of these vaults and to discuss design issues and solutions associated with these systems through a stylistic, constructional and structural analysis is carried out. The major construction phases of the temple will be identified and the main characteristics of each period will be studied, in terms of aesthetic preferences and construction techniques. Structural assessment of the cellae will be performed and an attempt is made to interpret the degradation and collapse of the building.

1 INTRODUCTION

1.1 The temple

The Temple of Venus Felix and Roma Aeterna was the biggest temple of Rome and one of the biggest of the Antiquity. Founded and allegedly designed by the emperor Hadrian, its construction was initiated in 121 A.D. (there was already a project in 117 A.D.), it was inaugurated in 135 A.D. and finished by Antoninus Pius in 140 A.D. It is an example of Hadrian’s eclectic architecture that combines Hellenistic proportions with Roman construction techniques like vaulting systems from solid masonry.

The temple has an extremely interesting design, where the Greek architecture meets the Roman. It displays the unique pattern of two back-to-back cellae of considerable dimensions under a single roof, and no other similar arrangement is known.

The best-conserved cella is that dedicated to Rome (West), which was later incorporated to the church and monastery of Santa Maria Nova, known today as Santa Francesca Romana.

The cella was raised by five steps from the surrounding peristyle (Lorenzatti 1990), which is composed by a double line of white marble Corinthian fluted columns, ten in the front and twenty-two to the sides, above a seven steps stylobate. Taking in account the existing foundations, two different possible plans have been proposed for the original temple (Fig. 1).

The cellae were roofed by coffered masonry barrel vaults of which today only fragments survive in the springings along the perimetric walls. The interior of the cella presents an apse semidome finished in stucco flanked by two porphyry columns, while two lines of porphyry columns on a common stylobate run parallel...
to the main axis, encasing niches with aediculae in between.

1.2 The site

The site had important symbolic connotations, and probably also historical, architectural and urban values for Hadrian, acting as a ‘hinge’ between the new and the old part of the city. It was occupied previously by the Nero’s Golden House Hall and later by a temple dedicated to the Sun. A huge operation had to take place to allow the temple to be built, including the relocation of the Colossus of Nero and subsequently a massive 100 × 145 m artificial concrete platform was laid (Fig. 2).

The location, orientation and perhaps the form of the building could have been heavily conditioned by important pre-existences. The actual dimensions of the temple precinct were probably determined by the precedent Golden House Hall as a similar approach was followed at the Pantheon, another foundation by Hadrian, where a previously open public space was covered (Loerke 1990).

1.3 Greek and Roman precedents

Hadrian was an innovative architect and a keen traveller. Probably during his multiple travels he had the chance to study buildings that would influence the design of the temple of Venus and Rome.

There is a clear dichotomy in the approach to the design of the temple. From the exterior it follows the Hellenistic tradition of the temple as urban and sculptural element, and as such appears at an urban scale. But in its interiors he pursues the Roman innovation of his age through the achievement of an interesting spatial experience. Unity of design and correspondence between the exterior and the interior did not appear an important issue. The symbolic, ideological and even iconic purpose was more important in this case.

The archaic and classic Greek temple was an autonomous organism, built in almost the same way in every place. The Hellenistic period brought a more refined and intellectual approach, as optic axes and perspectives form part of the design (as for example in the Altar of Zeus and the Temple of Athena Polias Nikesphoros in Pergamon).

So far as the layout is concerned, it is known from Pausanias that there were double temples in the Peloponnese, which probably Hadrian saw during his tour in 124–125 A.D. Unfortunately, the remains today from these temples are inconclusive. Probably the closest similarity could be found at the temple of Aphrodite and Ares in the route between Argos and Mantinea (Barattolo 1978).

The temple of Venus and Rome was a gigantic construction of 113 × 56 m in plan and around 30 m high. Similar dimensions (108 × 51 m) are found only in the Hellenistic temple of Apollo in Didymae (Asia Minor), which had an open roof and double colonnade.

There are however other major buildings that Hadrian would have visited which could have influenced the temple of Venus & Rome, such as the Temple of Jupiter in Baalbek, the Temple of Artemis Leukophryene in Magnesia ad Maenandrum, or the double Temple of Zeus and Cable in Sardes.

Other Hadrianic examples of coffered vaults exist in the main Baths of Villa Adriana (a precious collection of Hadrian’s architectural repertoire), and of course in the Pantheon. There is a clear relation between the construction of this temple and the almost contemporary construction of the Pantheon (started about 118 A.D.), due to similarities in the colossal proportions and function. As well as the main dome, a similar coffered barrel vault appears in the Pantheon doorway, while its intermediate block presents also affinities with the area of the temple between the apses that contains a staircase to the roof (Fig. 3). There are also other architectural elements, like the alternance of
circular and square exedras and aediculae in the wall, which are also very similar to previous Flavian (Trajan) or even Augustean constructions. This demonstrates, despite the profound spirit of innovation, a well-rooted intention in Hadrianic constructions of following traditional forms of architecture, building techniques and decoration.

But the most clear and direct influence appears to come from the Temple of Olympian Zeus (the Olymppeion) in Athens, even if this was slightly smaller (110.35 × 43.68 m). It consisted of eight Corinthian columns in triple rows under the pediments and twenty in double rows at the sides, 1.70 m in diameter and 17.25 m high (Fig. 4). There was a temple already in this location since the 6th century B.C., but it was Hadrian who completed it in 124–125 A.D. Earlier, in 86 B.C., the general Sulla took two columns from the unfinished temple to adorn the Temple of Jupiter on the Capitoline Hill in Rome. These columns are considered to have influenced the development of the Corinthian style in Rome.

There is also another precedent in Athens that could refer to the arrangement of the external wall of the cellae: the Library of Hadrian (Fig. 5).

2 CONSTRUCTION PHASES OF THE TEMPLE OF VENUS AND ROME

2.1 Original design by Hadrian (117–138 A.D.)

Due to the bad quality of the soil and the presence of water in the site, a huge platform had to be built to support the temple (Giuliani 1992). It is about 150 × 88 m, standing 8.5 m above the area around the Colosseum and 2.7 m above the Summa Sacra Via.

It is known from the anecdote concerning the criticism from Apollodorus of Damascus, quoted by Cassius Dio (IV, 1–5), that Hadrian personally decided on the design of the temple. The unusual fact that the name of the architect for important buildings like this temple or the Pantheon has not transcended (unlike buildings under other emperors mandate) could be further evidence. In this case, the design and construction of this temple could have been a life-long project for Hadrian. He consecrated the still unfinished building on his return from Judea (136–137 A.D.) but it would be completed by his successor Antoninus Pius.

Hadrian’s intention for the temple to be recognized externally as a Greek temple is clear. For its design, the temple follows the basic ‘rule’ mentioned by Vitruvius (Book IV): ‘the length of a temple must be twice its width’.

According to Barattolo (1978), the temple follows the pseudo-dipteral canon dictated by Hermogenes (who has taken previous models like the peripteral doric temple). However, considering that the temple of Venus and Rome was decastyle (Plato called ten a ‘perfect number’), the design should rather fall under the hypaethros canon, as described by Vitruvius (Book III):

‘The hypaethros is decastyle, in the pronaos and pos­ticum. In other respects it is similar to the dipteral, except that in the inside it has two stories of columns all round, at some distance from the walls, after the manner of the peristylia of porticos. The middle of the interior part of the temple is open to the sky, and it is entered by two doors, one in front and the other in the rear. Of this sort there is no example at Rome, there is, however, an octastyle specimen of it at Athens, the temple of Jupiter Olympius’.

In accordance with recent excavations (Panella 1985, 1990) and previously mentioned studies, it is reasonable to assume the temple was decastyle (with twenty-two columns at the sides), of Corinthian style, dipteral (two rows of columns in all facades), systyle (columns two diameters apart), and amphiprostyle (free standing columns in the pronaos). The temple has no podium, unlike the rest of Roman sacred architecture, but stands above a crepidoma of seven steps (stylobate included).

It is difficult to be absolutely sure about the exact module of the temple. There are some discrepancies about the dimension of the columns. Barattolo, using
different sources that cited measured material evidence, considers that 6¼ Roman feet (1.87 m) is the most probable module. But he assumed that there were only twenty columns to the sides, and now it is known there were twenty-two (Panella 1985, 1990). As interpreted in Figure 1, if the temple is assumed to be systyle, the diameter of the columns would be 1.74 m (about 6 Roman feet), similar to that of the Olympeion of Athens.

2.2 Completion by Antoninus Pius (138–161 A.D.)

Considering the short time between Hadrian’s death and the completion of the temple, it can be assumed that Antoninus Pius had only completed the original project. What is in any case clear is that the construction of the temple influenced architectural design and construction under his mandate, like for example, the operation of transforming the pseudo-dipteral type of the Temple of Artemis in Sardis into a temple to Artemis and Faustina (Barattolo 1978).

But even more importantly, Antoninus Pius built the Temple of Hadrian in Rome (dedicated in 145 A.D.). It had eight by thirteen columns on a podium of 4 m circa made of block of peperino, similar to materials and dimensions to the one in the temple of Venus and Rome. The same material was used for the walls of the cella, which has also a brick wall to the interior, all clad in marble slabs. The cella was roofed by a coffered barrel vault and a series of pilasters ran along the internal walls. This building could have been a small scale copy of the temple of Venus and Rome (Fig. 6).

2.3 Restoration by Maxentius (306–312 A.D.)

The present internal configuration of the temple, including the stucco coffered barrel vault and apse has been attributed to restorations by Maxentius prompted by damages by fire in 283 A.D. and this was confirmed by the discovery of stamped bricks by Nibby (Barattolo 1978).

However, these vaults constitute a fundamental stylistic change from the typical timber ceiling of the classical Greek temples, and it is more in line with the aesthetic innovations of Hadrian, characterised by oriental motifs as was expressed in many of his imperial foundations. Therefore, as it will be discussed later, these significant restoration works cannot be regarded as profound changes to the original scheme.

2.4 Decay and collapse

After Maxentius intervention, however, the building was not used for long. Between 314–335 A.D. St. Sylvester founded a church dedicated to Sts. Peter and Paul just outside the temple. Serious decay started later following the ban of pagan cult, particularly after Gratian’s Decree in 382 A.D. that confiscated all properties of pagan cult. Between 626–629 A.D. the bronze tiles were removed by Honorus I in order to roof the old S. Peter’s.

In 844–847 A.D., the Saracens profanated and demolished the church. But it was the great earthquake of 847 A.D. that probably caused the collapse of the already damaged vaults of the roofless temple and the building slowly became an authentic building ‘quarry’, providing not only stone, but also lime to other buildings in Rome (Lorenzatti 1990).

The church and monastery of Santa Maria Nova, later Santa Francesca Romana, was built next to the temple, but the cellae were never occupied, probably due to the fact that the ruins were unsafe. The new buildings were partially built using materials from the temple.

The columns were extensively reused in building the new St. Peter and St. John in Lateran. Between 1464–1471, Paul II ordered the removal of the massive peperino and travertine blocks of the foundations in order to be used in the building of Palazzo Venezia.

Extensive restorations were carried out during the French occupation (1814–1816), including the
removal of part of the monastery adjacent to the cella of Rome (Fig. 7).

The restoration of the temple was carried out in 1935 by Antonio Muñoz (Muñoz 1935) but, as with some more recent works, the consolidation of the decayed masonry has actually impaired the interpretation of the main phases through the study of the masonry (Fig. 8).

3 STRUCTURAL SCHEME

3.1 Construction system

The vault is the main characteristic of this temple, as it was typical in imperial Roman construction of large buildings (Giovannoni 1925). The study of the vaulting structure can give useful insight into the connections between the two interesting and quite distinct phases of Roman Architecture during the times of Hadrian and Maxentius.

The height of the temple was determined by the vault spanning the walls. The building was a masterpiece of the architectural integration of trabeated orders and arcuated structures. In order to understand the effect of this new structural and aesthetical vocabulary on Roman architecture, it is important to clarify the origin of the vaults.

Hadrian continued the earlier developments of major-scale projects in concrete (opus caementitium) in Domitian’s and Trajan’s architecture. It had predominantly two uses: to fill the core of the two leaf brick, tufa or stone walls and vaults and to provide strip or raft foundations. Concrete would set over the years, improving its strength with time, conveying a monolithic character to the vault.

By the time this temple was built, there were already two centuries of Roman experience in building concrete vaults. Following the practice of the period, a semicircular barrel vault was formed in concrete (termed ‘camera’ by Vitruvius). The barrel vault would be generated by a continuous sequence of arches along a longitudinal axe. A complete centering of curved wooden moulds was necessary to achieve the form in Roman concrete.

The lime-based concrete in Hadrian’s time was of the highest quality and concrete construction achieved its highest, as can be verified in the construction of the massive platform of the temple of Venus and Rome (reaching 9 m high to the East), in the Pantheon and in Villa Adriana at Tivoli. This was due to the good preparation of the mortar including the highest quality lime putty and the use of high quality aggregates and additives like pozzolana, which would improve the lightness and strength of the mix.

Coffers were consistently used in Hadrian’s period in order to reduce the overall weight of the vault, as occurred in the Pantheon.
Concrete has however a low strength in tension. The possibilities of ribs in improving the strength of vaults were already being explored at the time (cf. Villa dei Sette Bassi). It is not clear if the vault was built, like the Pantheon with a series of brick ribs, but it seems possible, judging from the similarities presented in a small fragment at the springing line of the vault (Fig. 9), that an early form of ribs was used. Similar to those forming the coffers in the Pantheon (Loerke 1990), the bricks form a corbelled and not a voussoir arrangement, i.e. they are not laid radially, but nearly horizontally.

These ribs can function as construction or even thermal joints and improve the efficiency of the formwork, as the builders wanted to achieve continuity by providing an uninterrupted construction from the wall to the vault. During in-service the ribs can reinforce the concrete, functioning like bracing rings as they can be at a state of mainly compressive forces. This is also visually incorporated to the diamond-shape pattern at the vault of the apse, reproducing a motif from the Temple of Zeus in Baalbeck (Giovannoni 1925).

The vaulting system however had been significantly developed in Maxentius’ time. The arches and ribs were formed normally with bipedali or stilati, of good execution, arranged in a double ring. However, the concrete identified with Maxentius’ period presents a rougher appearance due to tufa, marble, travertine, brick, basalt and pozzolana inclusions. Brickwork also appears to be less homogeneous as the joints are generally quite thick and clay intrusions and additions of crashed brick/tufa and pozzolana changed the colour of the mortar to a brown-grey. For this reason, the masonry tends to be thicker (Fig. 10).

3.2 Structural scheme of the temple

As a result of the construction system described above, the building was a solid structure composed by a robust vaulted double cella and an external colonnade. It was consistently supported by a deep concrete platform laid in layers, which provided a strong base. Voids were left to receive the peperino dry strip foundation underneath the building walls. Travertine, a material more resistant to compression, was used where concentrated loads were applied, like under the columns.

The cella was covered by a barrel vault with coffers (2 m), a clear strategy to reduce the overall weight of the vault spanning more than 21 m, as it was also used in the Pantheon. The vault is articulated into thirteen horizontal rows of coffers divided vertically by ten ribs. This configuration would not help the vault by reducing the diagonal thrust, but would be an integral part of the vaults’ dead weight. In the case of the Pantheon, the scale of the coffers (8.72 m) expresses the scale of the overall structure.

Probably the vaults were built above a centering in which the shape of the coffers was prepared. A hypothetical reconstruction of the vaults is based on
semi-circular profile assumptions. Stability was guaranteed by supporting the vault on thick walls (2.6 m) and increasing the depth at the haunches.

The peristyle could have been covered by small barrel vaults similarly to the Pantheon’s exedra (Fig. 11) or the Doric peristyle at Villa Adriana. The area between the two cellae has also a similar configuration to the intermediate volume in the Pantheon, including the presence of staircases to the roof.

Barattolo (1973) has also noted the presence of some remains of a horizontal leveling marble element 0.16 m thick at the bottom of the cellae walls. It could be justified by the existence of a similar structural strategy to that of the Flavian Basilica at the Palatine (Fig. 12), or, most probably, simply the remains of a marble base moulding.

4 STRUCTURAL ANALYSIS

4.1 In-service behaviour

The vaults dominated the structural behaviour of the cellae and the lateral thrust they were exerting was crucial for the size of the perimeter walls. The behaviour of the ultimate configuration of the vaults is influenced by the presence of the transverse enclosures (front, apse). The analysis however will also have to consider various hypotheses on the evolution of the scheme. Parameters like the thickness of the walls or the variable depth of the shell were crucial for the design and due to their magnitude they could deviate the structural behaviour of these elements from a plane stress scheme. It was therefore considered to investigate these issues by simulating the cella initially with a 3D Finite Element (FE) model.

A 3D CAD drawing was prepared and then exported to a FE pre-processor to generate a model that was resolved with the FE package Abaqus. Due to symmetry, only half of the cella was simulated. The immediate lateral colonnade was also included, comprising the light barrel vault supported upon a wall added to the wall of the cella.

‘Brick’ type elements were used to model the main load-bearing elements and full continuity between vault and the walls was assumed as in this stage the goal is to interpret the stress flow and hypotheses on the main phases. The constituent Roman concrete (opus caementiticium) was modelled as isotropic and homogeneous material. Due to lack of in-situ data on its mechanical properties, reasonable assumptions were made based on tests for modern concrete for dams, made of relatively large aggregates. Thus, the modulus of elasticity $E = 10 \text{kN/mm}^2$ (considering also decay), the compressive strength $f_c = 9.7 \text{N/mm}^2$ and the tensile strength $f_t = 1.8 \text{N/mm}^2$ (Withey 1946).

With these assumptions, the strength of the final scheme of the temple appears to be very high (Fig. 13)
as deflections are very low and concentrate at the middle of the vault (max. 2 mm). The lateral displacements, although similarly low, show the cella acts almost monolithic and exerts some thrust on the weaker outer colonnade (Fig. 14). Overall, the stresses are well below strength indicating that failure should be initiated by either a serious material degradation or loss of equilibrium.

The capacity of the original layout of the cella (as designed by Hadrian) to carry a vaulted masonry roof is fundamental in the question of the origin of the barrel vault. The cella was examined as isolated from the colonnade and the additional wall was removed as well. A limit state analysis of the vault (Heyman 1968) shows that a semicircular barrel vault of a constant thickness of 0.96 m is just sufficient to contain the thrust line, exerting a thrust of 150 kN/m. The substantial depth of the haunches however has reduced significantly the lateral displacements expected along the springings (Fig. 15), making thus a barrel vault feasible as sufficient support is provided against the lateral thrusts.

Both the gable front wall and apse function as diaphragms, while difference in their stiffness shifts the deformations closer to the front end. Although bending moments do develop in the hoop direction, the thickness of the spandrels has reduced the effect of tensile forces on the material. As most of the weight of the vault however is concentrated on the spandrel, it is causing a rotation locally as it is applied with an eccentricity (Fig. 14). This area corresponds to the height of the surviving springing of the vaults and also coincides with the expected fracture line of this type of vaults (Giovannoni, 1972), here evaluated at 60° from the apex.

As with most vaults, the support conditions can heavily affect the high safety of this form. A construction joint or weak connection could have formed along the edge of the gable wall since the bond there could not be as solid as at the springing. This could have ultimately increased the longitudinal bending of the vault.

Thickness of the shell is another interesting parameter as it can define the degree to which the remains of ribs and decoration seen today correspond to any structural necessity and therefore evaluate the extent of Maxentius restoration. A FE model with uniform thickness shell elements of the cella only was used and has been validated with the 3D FE model (Fig. 16). A parametric study was carried out varying conservatively the thickness of only the shell by 30%, accounting for either the coffers or eventual strengthening by Maxentius. The effect on the maximum deflection was minimal, indicating that the form chosen allows the thrust line to be safely contained and moments to be reduced.

4.2 Failure of the Vaults

A non-linear FE analysis of the vault, permitting redistribution of the loads due to tensile or compressive failure, demonstrated its high reserves against an
increase of its dead load (due for example to rubble from repairs accumulating on the extrados or repairs). The actual ruinous state should be therefore attributed to imposed actions like alterations of the scheme or degradation of critical areas.

Considering the substantial volume of the masonry, failure of the foundations is a possibility. If this were an inherent problem of the site, a major reconstruction would have been necessary, that could have been partially addressed during Maxentius' intervention. No such problems have been reported afterwards and unfortunately no reliable data are available on the conditions of soil and foundations.

It is probable that structural degradation has initiated at the relatively weak construction joint along the gable wall, where also high bending moments develop close to the apex (Fig. 17). Erosion of the area following the removal of the roof covering in 626 A.D. could have triggered a progressive collapse of the vault and this can be traced today by the complete disappearance of any remains of these walls. The disintegration of the temple became irreversible after the earthquake in 847 A.D. and the degradation of the fabric of the ancient city in the Middle Ages.

5 DISCUSSION

Regarding the origin of the vault, the structural and constructional analysis indicated that Maxentius' intervention has been probably over-valued. The analysis showed the high reserves in the vault's strength even at Hadrian's considered probable configuration. The 283 A.D. fire could have probably damaged the timber roof structure above the vaults and the plaster decoration and thin stone cladding, specially the great amount of iron, lead and bronze cramps and plugs used for the fixings. It is sensible to think that the repair of this damage implied the reconstruction of sections of the existing masonry. This could justify the presence of stamped bricks from Maxentius period.

Barattolo (1978) considers that the original temple was divided in three naves, more like the classic Greek temples than the Roman ones. This seems unlikely, judging from the proportion between the aisles and the nave. As Barattolo also notes, if the roof was covered with trusses, it seems strange to place the internal columns in the present location, when they could have been alternatively placed in such a way that the span could be reduced. This could be achieved just by following classic Greek temple arrangements (Fig. 18). He also considers the discrepancies with the pseudodipteral canon as a matter of site restrictions, but it seems unlikely that a particular canon was followed if the site was not big enough to achieve it.

In addition, a timber roof truss spanning more than 21 m could not have been feasible at the time. The famous anecdote recorded in Cassius Dio (IV, 1-5), in which Apollodorus of Damascus was quoted to say that if the Goddess wanted to leave the cella she would have hit her head, is an interesting indication, showing that the construction was not following the Greek temple convention internally.

There are also important practical issues in the selection of the structural system. Hadrian was conscious of the fire risk, as fire destroyed previously part of the city, and in this sense it would be logical to think that he wanted to build a fireproof building.

Equally important however is the fact that Hadrian has vigorously introduced and consistently promoted the use of vaulted structures through his major foundations. Certainly, the technology and vocabulary became well established in his period and the structural and aesthetic affinities with the later Hadrianeum built by his successor Antoninus Pius are too strong to be overlooked.

The link between Hadrian and late Roman architecture (as favoured by Maxentius) can be found in the interest on vaulted structures and the dynamic equilibrium provided by counteraction from vaulting.
systems or early rampant vaults. Ribs have already been known at Hadrian’s times but their use in vaulting would not make full profit of the construction benefits (as the vaults of the temple indicate) until the next century (Giuliani 1990).

This project highlights the role of the construction system of the vaults in generating the design of the building. This is reminiscent of the effort of the Gothic masons later in stipulating the thrust that Norman carpentry skills gave to the formation of the formworks and ultimately structural vocabulary that characterised Gothic vaulting (Acland 1972). Decoration in the Late Roman period was more organically fused with the structural system, similar to the manner a net of tierceron ribs or fan vaults would constitute both the structure and decoration in Late Gothic churches.

6 CONCLUSION

The study of the vaulting structure of the Temple of Venus and Rome gave some useful insight into quite interesting and distinct phases of Roman Architecture, during the times of Hadrian and Maxentius, while analysis of construction and structural behaviour can improve our understanding of the technology of public buildings of this scale.

The construction of the original building lasted almost eighteen years. During those years a change in the architecture styles happened, but Hadrian architectural intention and ideology was consistent and this was reflected in this great symbol of civilisation that was the temple of Venus and Rome. He liked the game of exterior-interior duality and the reinterpretation of buildings and sites, as was previously largely demonstrated by placing the ambiguous inscription outside the new Pantheon, which he even rotated by 180 degrees (Coarelli 1983).

His design was a wonderful one: unprejudiced and innovative, but replete of historical references – a built idea. He would always considerate existing buildings and his interventions acted as urban hinges strategically located in order to revitalize and unify the Urbe. We refer to the interesting article by Manieri Elia (1992) for further reading about the temple significance.

Hadrian had an ecumenical spirit. The temple was externally Hellenistic, thin and light. Despite having the appearance of a dipetal amphiprostyle temple (Greek, as opposed to the typical prostyle Roman temple), the interior has the unusual configuration of two cellae back to back. The decorative forms of the coffers, are derived from Greek architecture. There is a clear Greek influence to the interior decoration, but we can say that the spatial conception is Roman. Hadrian transformed the Greek classic temple into real ‘human’ architecture in the sense that it became internally more of a space for the humans than just a shelter for the goddesses’ statues.

As De Fine Licht notes (1966), Hadrian introduced an important innovation in his time, by applying vaulting to types of public building previously built with traditional ceilings. Hadrian demonstrated to be a very good architect who took the dominant classical architecture of his age and made it to evolve. He put his innovative spirit at the centre of his interventions, but, at the same time, he was interested in bestowing to Rome the appearance of a wealthy traditional Hellenistic city.

The building was dedicated by Hadrian to the Aeternitas of Rome, and it seems adequate that a durable construction system, well developed at the time, was adopted in accordance: concrete vaults.

It is very difficult to be absolutely conclusive with respect to this building. Probably this is part of its fascination. According to Barattolo (1973), the wall of the temple could not cope with a vault, but the analysis demonstrated that it could. Due to successive campaigns of restoration over the centuries, a correct interpretation of the different periods from the study of the masonry is difficult at the moment. Only an exhaustive and detailed analysis of the materials,
particularly the mortars could provide a correct date for the different parts of the structure. The intention of this work is to initiate a more in depth research, which could only be concluded by an exhaustive close examination of the building, especially via critical measurements and masonry and mortar analysis. We hope that this would be possible to undertake in a close future.

REFERENCES


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