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ST. SION OF ARATES ALONG THE MARTUNI STREAM IN VAYOTS‘ DZOR

Key words: *Armenian church, Cultural Heritage, Armenian architecture, St. Sion, Vayots‘ Dzor, architectural survey, architectural composition, site techniques.*

The study posits a reading of the ancient part of the Arates Monastery. The complex was the subject of a study and survey conducted from 2015 to 2020 by the Department of Architecture at the University of Florence, as part of the MAECI Making Silk Road mission[1]. The study yielded a three-dimensional model and a territorial contextualisation.

The analysis suggests that the territory in question may have been organised and managed from the 4th to the 7th centuries, a period defined by scholars as formative with respect to a particular type of settlement characterised by an apsidal hall and portico[2]. The study provides a rationale for the potential inclusion of the church of St. Sion within this typology, thereby establishing a link between the area of Vayots‘ Dzor and the region of Loṛi, situated in the far north of Armenia, where numerous examples of this architectural composition are observed.[3] The architectural structure

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1 Graphic elaborations and photographs presented herein have been executed by the authors of this study.

2 **P. Cuneo,** *Architettura armena dal quarto al diciannovesimo secolo*, Roma 1988, pp. 102-105; **M**. **Hasratian,** *Early Christian Armenian Architecture*, Moscow: Incombook, 2010; pp. 48-85.

3 **M**. **Hasratian,** *Histoire de l’architecture arméniènne des origines à nos jours*, Yerevan, 2010 ; pp. 9-13, 45-86; **M**. **Hasratyan,** « Les èglises a nef unique avec portique de l'armenie paleochretienne », *Atti del primo simposio internazionale di arte Armena (Venezia, 1975)*, Venezia, S. Lazzaro, 1978; pp. 227-236.

of the monastery was built during a long period of time, and the different building technologies delineate a rearrangement activity in various historical periods up to the Middle Ages, denoting an original layout clearly visible thanks to the foundation crepidoma of the church of St. Sion, the earliest building corpus. The ancient monastery of Arates is located in a valley of the Martuni River, a tributary of the Arpa that forms the Vayots‘ Dzor region of southern Armenia (fig. 1)*. Renowned for its scriptorium, the monastery has withstood earthquakes and volcanic eruptions that have previously devastated the area, with the effects of the 9th-century eruptions still visible in the form of eruption fronts that extend as far as Yeghegis. Local residents have reported that there was a road to the high plateau of Lake Sevan that reached the village of Martuni, the sake of the stream that flows on the slopes of Arates.

The monastery's territorial context is of particular interest, as evidenced by the presence of an ancient stone bridge downstream from the monastery that connects the two banks of the stream, as well as the ruins of structures to the north that suggest the existence of a fortified structure (figs. 2, 3). Proceeding further north, along the route that presently leads into the adjacent woodlands, a substantial stone bears the inscription of a floral cross in vivid red and white, denoting the entrance to the monastic territory (fig. 4). Further research has revealed additional finds on the slope facing Arates, and in direct visual relation to it; these appear to be evidence of a second monastery destroyed by the local population. The historical occurrence remains ambiguous; however, the presence of doorways, architrave tympanums, and tombstones indicates the site’s historical architectural significance. The abundance of compelling evidence suggests that Arates has experienced prolonged periods of activity across several centuries. The primary nucleus of the site consists of a hall church, situated on crepidoma, directly supported by a covered room. This is positioned on a lower terrace between the first church and the final structure, designated St Astuatsatsin, which completes the monastery’s architectural sequence.

It is noteworthy that the settlement diachronicity follows an accretion from north to south, characterised by three primary terraced planes. The arrangement of churches and chapels was situated at the forefront of an area equipped with structures that have since been engulfed by the forest, suggesting the potential location of monastic residences. Given the increasing population, it is plausible that these structures were constructed to welcome the expanding monastic community, in addition to the surrounding caves. However, further research is required to ascertain

* For the images see the insert.

the full scope of the site, which appears to be considerably more extensive and significant than initially apparent.

In the most ancient portion of the Arates structure, which consists principally of the hall-like body of the church of St. Sion, one can discern a phase that can be traced back to the so-called formative period, as reported in the work of Paolo Cuneo (1986). A thematic reading of the architectural structure has identified a proportional rule that organised the construction phase and defined the morphology of the building body (fig. 5)[4].

The geometric structure appears to reveal a deliberate construction and design will to dimension precise and successive steps that, with simple alignments, allow for the control of the construction and fidelity to the project. The study, conducted on the Arates site, encompassed an environmental reconnaissance that delineated the nature of the settlement in its entirety. It also sought to investigate the structure of the ancient portion of the Church of St. Sion, dating from the 4th to 6th centuries, but never precisely identified in its original form.

The thematic observations made in order to better understand the genesis of the early church of St. Sion have been divided into four major themes:

A – Crepidine; B - Geometric relations; C - The masonry technique; D - Observations

A - The crepidoma.

This is a direct foundation system, whereby a plane is created that rests on top of the natural rock and is regularised by means of successive horizontal bedding, generally tapered according to three planes, from which the masonry is raised. This technical podium is advantageous in avoiding excavation on basaltic outcropping rock, which is renowned for its tenacity and difficulty in regularisation over large areas. This technique has been employed in various late antique sites and in most Armenian sites, with a few exceptions, including the three-ship church at the entrance to the settlement in the city of Yeghegis.

The foundation area, thus delineated, exhibits a square pattern divided into ten equal scans of 105 cm. This delineation identifies the gross of the crepidoma, which is gradually reduced through two internal tapering processes, each approximately 11 cm in width, to ensure the foot of the wall is supported on a well-bedded and horizontal plane, as previously mentioned (fig. 7). The basement plane, composed

[4] In the oldest portion of the structure of Arates, consisting mainly of the hall body of the church of St. Sion, a phase should be traced back to the period of the so-called Formative period as reported in Cuneo's work.

of meticulously arranged cobblestones, is revealed beneath, serving as a foundation for the groudfloor obtained and as a drainage system. This expedient ensures the effective drainage of water, thereby preventing the foundation plane from slipping.

The outer edge of the foundation exceeds the outer line of the wall according to the perimeter plinth, thereby effectively forming a true-to-life iconography of the structure to be planted. The structure is defined by a 10x10 graduated square, which delineates the maximum width and length of the structure to be built (fig. 6)[5]. This is the finding of the proportional study of the structure in plan, and it is possible to recognise this operation according to classical or late antique usage. The height of the structure is adjusted according to a 1:1 proportion of the width of the hall, equal to 5 modules (fig. 8)[6]. To illustrate this concept, one may envision two cubes positioned adjacent to each other in accordance with the length of the hall, accompanied by three transverse cubes with the larger one situated centrally and two smaller ones of 3x3 dimensions in place of 5x5 on the lateral sides. It is important to note that these dimensional relations guarantee the stability of the construction, and the proportions of length, width and height, which can often be traced back to Pythagorean triplets, are practically static calculations. The foundation structure, situated at the level of the first terrace, exhibits a 'T' profile, with primitive chapels – or the space dedicated to them – situated on either side of the church hall in the apsidal part. This configuration forms a compact east front, extending beyond the edge of the church wall for its entire width on both the north and south fronts.

B - Geometric relationships

Regarding the structure thus 'designed', a further recognition can be made of a palindromic and non-symmetrical geometric structure, which suggests the use of two groups of workers, mirroring each other and performing the usual operations simultaneously. Consequently, control was not self-referential, but reciprocal, and the construction progressed in all its components with continuous alignment control. The alignment was therefore constantly checked by the two builder teams, as is the evolution of the height. This approach served to mitigate the likelihood of errors being compensated for towards the centre of the structure, particularly in the vicinity of the door, window, and vault brain. An operation of this nature facilitated the pre-fabrication of stone elements, with a single central element undergoing modification.

5 The geometric protocol appears to unveil a simple orientation of the modules. It facilitates the control of the construction process and ensures fidelity to the project.

6 It is evident that the geometry is congruent for a proportion of the elevations. The height is constructed in accordance with a 1:1 proportion of the width of the church.

The information started at the quarry, and the cutting of the ashlars on site was consistently carried out.[7] It can thus be assumed that the extraction of materials from the quarry and the processing of the sack liner slabs or ashlars were carried out by a different team, most likely comprising specialised stonemasons. These individuals ensure that the laying work was executed with greater efficiency, avoiding the accumulation of material and achieving a more economical use of resources. The layout presented here presupposes an awareness of wall sections. The space shows a modular rhythm[8], which can be expressed as a sequence of 3 - 4 - 3, where the Pythagorean tern, completed by the 5, is discernible in the diagonal measurement. The module of width 3 was allocated for the chapels, while the module of width 4 was designated for the church hall. The configuration of the walls was determined by scans of one-third of the fundamental module, thus resulting in a length of 35 centimetres. For the external perimeter, the wall segment is 70 centimetres, equivalent to two-thirds of the module (figs. 6, 8). It is evident that the focus here is not on mere measurements, but rather on modules, and consequently, each operation and building element within a module is inherently proportionate to the entire structure. It is evident that the workers did not perform arithmetic calculations; instead, they had been coordinated by a magister who determined the proportional geometric protocol and organised the composition.

C - The masonry technique

Three different construction technology realities can be distinguished (fig. 9)[9]. The first of these is composed of well-squared stone ashlars, which occupy the entire section of the wall. The second technology is composed of a kind of basement along the entire perimeter. This is found in the lower part of the building where all the openings are located: the main one, the one on the south side and the three of the chapels. The second technique is referred to as the sack technique and consists of a core and an ashlar facing. The core consists of course but neatly bedded aggregates and a small amount of binder, which should be better analysed in its components. The sectional portions of this masonry can be summarised as follows: 1/3 ashlar inner liner, 1/3 core, and 1/3 ashlar outer liner. The third technique involves the use

7 **U. Menicali,** *I materiali dell'edilizia storica*, Roma: Nuova Italia scientifica, 1992; pp. 37 ss.

8 **M. Zerbini,** "Il rilievo grafico per il restauro degli edifici antichi: osservazioni metrologiche e tracciati di cantiere nell'architettura medievale armena", *Restauro Archeologico*, vol. 2, 2024, pp. 340-345.

9 Three distinct technological realities are identified. The first of these is composed of cut stones, the second consists of filled cavity walls covered with cut stones, as like *opus cementitium*, and the third is a partially filled cavity wall covered with slab stones.

of a core and liner, with the core occupying three-quarters of the total wall section and the liner consisting of slabs approximately 9 cm thick. A notable feature is evident in the north-west chapels, and at the extremity of the church hall, in proximity to the impost of the arch. The presence of three distinct technological types indicates a sequential order of construction, thereby precluding the possibility of contemporaneous execution of the various phases. The diversity of site work and material supply on site suggests the occurrence of at least three distinct reorganisation activities at different times. It is noteworthy, however, that the masonry equipment show formal homogeneity, as if the various techniques employed at different times nevertheless yielded a formal outcome that could be considered within the Opera Quadra[10] of the classical tradition. A particular element of masonry directs research towards a more thorough investigation of the dynamics of technical radiation.[11] This, in turn, enables the delineation of the architectural-technological evolution of the Armenian area.

D – Observations

The walls delineating the chapels on the north side exhibit an augmentation of half a module, a feature that is also manifest in the north-west chapel situated further from the church entrance. It is noteworthy that only two wall section anomalies remain out of the geometric proportioning described above, which serves to confirm the diachronicity of the construction site. It is evident that the chapels have all been remodelled and modified both in plan and elevation. The first of the two chapels on the north side is well positioned within the foundation perimeter represented by the crepidine, which is why one can easily think of a reorganization of the same probably synchronous with the construction of the second which is located in front of the first; this one, however, is completely outside the base platform, so much so that the last tapering that runs along the outside of the church wall and continues under the apse of the chapel is visible (fig. 7).

In both aforementioned chapels the apse is anchored to the walls according to a narrowing towards the apse basin whose impost is underlined by a moulding composed of a strip, a torus and a small, reversed groove. This stylistic annotation is totally absent both in the small chapel located at the far north and in the church. The

[10] **G**. **Lugli**, *La tecnica edilizia romana*, vol. 2, ed. Giovanni Bardi, 1957, pp. 169-182, **G. Carbonara**, *Atlante del restauro*, Torino, UTET, 2004, tomo II; pp. 19-81.

[11] **J. Strzygowski**, *Die Baukunst der Armenien und Europa*, Wien 1918, pp. 108-118, 421-427.

chapel located to the south flanking the apse of the church has a window that opens inside the covered room between the two churches, revealing a later reorganization.[12]

The access located in the southern part of the main hall stands out from the internal floor and has steps in the thickness of the wall that reach the lower level of the crepidoma (figs. 10[13], 11[14]).

On this front, originally external, we see a series of blind arches, which at the top identify a plane underlined by a frame-bracket that does not seem to have any structural function. The succession of blind arches proceeds from the front of the southern chapel and reaches the opposite front which however intercepts the arch, cutting it. In geometrically reconstructing the light of the last span, one is surprised to note that this would have exceeded the line of the facade of the church, to which it directly abuts (fig 12)[15].

Reading the structure

The first entry concerns a series of erratic stone slabs located in the immediate vicinity of the site. In addition to the stones of the *gavit',* well documented and studied in the last decades of the last century, there are interesting stone elements that report on a mirror a white and red painted grid, and a series of columns with octagonal section that are not currently placed in the surviving structure.

The traces of the side portico can be seen both in the layout of the southern façade of the church of Saint Sion, and in the internal traces to the wall that now closes the area between the two churches.

The details of reuse today placed on the north front of the church to central plant of St Astuatsatsin, and the traces of the tax of the barrel vault, or of the arcades that were to characterize the ancient portico gallery. The portico then leaned for all the southern front of the church of Saint Sion, and aligned to the south chapel, with which it constituted a single front. The porch was set at a lower level of the church

[12] See **S. Mnacakanjan**, *Звартноц, памятник армянского зодчества VI-VII веков* [Zvart'nots', a Monument of Armenian 7th-8th Centuries Architecture], Moskow, 1971.

[13] The anomalies of the side chapels remain visible to this day, with the side chapels overlooking the interior of the north chapel of the second phase. Furthermore, another anomaly is present within the covered room between the two churches, which still exhibits the single light window of the south chapel.

[14] The reused details are now located on the north front of the central-plan church of Saint Mary Mother of God. In addition, the presence of barrel vaulting is indicated by the traces that are evident on the portico.

[15] The presence of the side portico is evident in the layout of the south façade of the St. Sion church, as well as in the traces within the wall that currently delineates the area between the two churches, thereby also enclosing the final arch.

floor and probably pushed beyond the limit of the west facade of the church itself. It cannot be excluded that the portico area affected the three perspectives, going to with the two little chapels, on north and south.

According with the studies of Hasratian[16], the above proposes a compositional derivation of the church of Saint Sion, as part of that experimental group of churches with a single apse and portico of the ancient period[17], and qualifies it as one of the first buildings constructed as a result of the cultural irradiation that also informs the area south of Sevan, making Saint Sion one of the oldest architectural nuclei of Vayots‘ Dzor. The lateral portico that joins the "T" body of the church of Saint Sion could therefore be an example of compositional experimentation of the formative period. The cultural connection with the Loṛi region, recognized by Hasratian, as a place, the Tashir, of an architectural school and of the same period, should be better investigated (figs. 13, 14)[18].

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ԱԼԵՍՍԱՆԴՐԱ ՎԵՋՋԻ

ԱՐԱՏԵՍԻ ՍՈՒՐԲ ՍԻՈՆԸ ՎԱՅՈՑ ՁՈՐՈՒՄ՝ ՄԱՐՏՈՒՆՈՒ ԳԵՏԱՓԻՆ

Բանալի բառեր՝ *Հայկական եկեղեցի, մշակութային ժառանգություն, հայկական ճարտարապետություն, Սուրբ Սիոն, Վայոց ձոր, ճարտարապետական հետազոտություն, ճարտարապետական կազմ, շինարարական տեխնիկա:*

Հոդվածում հետազոտվում է Արատեսի վանքի հնագույն հատվածը: Համալիրն ուսումնասիրվել է 2015-ից մինչև 2020 թվականը Ֆլորենցիայի համալսարանի ճարտարապետության ամբիոնի կողմից՝ MAECI Making Silk Road առաքելության

[16] **M. Hasratian**, « Les églises à nef unique avec portique de Tachir et les monuments similaires du Haut Moyen Age de l'Arménie », *Revue des études arméniennes*, t. 12, 1977, pp. 215- 242.

[17] **M. Zerbini**, *Chiese armene della prima cristianità (IV-VII secolo): Sapienza e Forma*, PhD Thesis. University of Florence, Department of Architecture, 2023.

[18] St. Sion church is indicative of the formative period of single-apsidal churches with a portico. This can be attributed to the cultural influence that originated in the northern Loṛi region. The image on the left has been created by the authors, while the image on the right is a reference to Marta Zerbini’s Phd thesis.

շրջանակներում: Ուսումնասիրության տվյալների հիման վրա մշակվել է եկեղեցու եռաչափ մոդելը, և զետեղվել տարածքի համատեքստում:

Ուսումնասիրությունը փաստում է, որ խնդրո առարկա տարածքը պետք է որ ձևավորված լիներ և օգտագործվեր 4-7-րդ դարերի միջև: Այդ շրջանում ի հայտ են եկել որոշակի տեսակի՝ սյունասրահով և ապսիդային սրահով բնակավայրեր: Աշխատության մեջ բացատրվում է, թե ինչու է հնարավոր Ս. Սիոնի եկեղեցին դասել այս տիպի շինությունների թվին, այսպիսով կապ հաստատելով Վայոց ձորի տարածքի և Հայաստանի հյուսիսում գտնվող Լոռու շրջանի միջև, որտեղ կան այսօրինակ ճարտարապետական կառույցների բազմաթիվ օրինակներ: Վանքի ճարտարապետության առանձնահատկությունները ձևավորվել են դարերի ընթացքում. տարբեր շինարարական տեխնոլոգիաների առկայությունը վկայում է տարբեր պատմական ժամանակաշրջաններում, ընդհուպ մինչև միջնադար, տարածքը վերակազմակերպելու հետ կապված գործունեության մասին, իսկ նախնական հատակագիծը հստակ տեսանելի է Ս. Սիոնի եկեղեցու՝ առաջին շինության հիմքի շնորհիվ:

ЧЕЧИЛИЯ МАРИЯ РОБЕРТА ЛУСКИ
АЛЕССАНДРА ВЕЦЦИ

ЦЕРКОВЬ СВ. СИОНА МОНАСТЫРЯ АРАТЕС В ВАЙОЦ ДЗОРЕ НА БЕРЕГУ РЕКИ МАРТУНИ

Ключевые слова: Армянская церковь, культурное наследие, армянская архитектура, Святой Сион, Вайоц Дзор, архитектурное исследование, архитектурная структура, строительная техника.

В статье анализируется древнейшая часть монастыря Аратес. Комплекс исследовался с 2015 по 2020 годы кафедрой архитектуры университета Флоренции, в рамках миссии MAECI Making Silk Road. На основе полученных данных была создана трехмерная модель церкви, и проведена ее контекстуализация на данной территории.

Результаты исследования свидетельствуют о том, что эта территория сформировалась и использовалась с 4-го по 7 век. В этот период возникает особый вид построек с абсидным залом и портиком. В статье объясняется, почему церковь св. Сиона может быть включена в число таких строений: тем самым намечается связь между территорией Вайоц Дзора и областью Лори на севере

Армении, где имеется множество зданий подобного типа. Архитектурная структура монастыря постепенно складывалась на протяжении веков; различие строительных техник свидетельствуют о деятельности по реорганизации пространства в разные исторические эпохи, вплоть до средневековья; первоначальный же план ясно представлен в фундаменте церкви Св. Сиона – первого строения комплекса.