



Fig. 1. Kızıl Kilise at Sivrihisar, distant view, from the east (author)

THE RED CHURCH AT SİVRİHİSAR (CAPPADOCIA): ASPECTS OF STRUCTURE AND CONSTRUCTION

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The Red Church (or Kızıl Kilise) at Sivrihisar has been known to scholars since the beginning of the 20th century.¹ Situated in a high mountain valley above Karbala (Gelveri or Güzelyurt) in western Cappadocia, the distinctive red stone, quarried locally, gives the popular name to the church (Figs. 1-2). Long associated with Gregory of Nazianzos and his estate at Arianzos, the building actually dates from the sixth century – more than a century after his death. It was known to the 19th-century Greeks of the area as St. Panteleimon – that

¹ F. Hild and M. Restle, *Kappadokien*, Tabula Imperii Byzantini 2 (Vienna, 1981), 150-51; H. Rott,

is, not associated with Gregory, whose relics were elsewhere. Nevertheless, the Red Church is usually discussed as an example of a memorial church, allegedly containing his tomb. Oddly, beyond generalized discussions of morphology, the architectural features of the surviving building have received considerably less attention than its supposed origin or function.² The best preserved of the Byzantine masonry churches of central Anatolia, the Red Church is unique in the survival of its dome – perhaps the earliest surviving example of a dome rising above a tall, windowed drum. In the following short paper, I will examine the structural system of the building focusing on the unique solutions developed by its masons to address the outward thrusts of the dome and barrel vaults. I will also touch upon several unusual details of design and construction preserved in the building’s fabric. On stylistic grounds the church is usually dated to the mid-sixth century, and this is supported by C-14 analysis of wood taken from the dome.³



Fig. 2. Same, view from the north (author)

² Sema Doğan, *Kappadokia Bolgesi Sivrihisar'daki Kızıl Kilise* (Istanbul 2008); N. K. Μουτσόπουλος, *Η Κόκκινη Εκκλησία (Kızıl Kilise) κοντά στο Sivri Hisar της Καππαδοκίας* (Thessalonike, 2007).

³ I thank Pierre Couprie for sharing this information with me.

Constructed on a Latin cross plan, the Red Church has a nave span of about 5.6 m. Overall the interior (minus the apse) has square proportions, measuring 12.5 m in length and width internally (Fig. 3). There is a single side aisle to the north of the nave, although none to the south, where a portal opens into the transept. As with the arches in the building, the apse is horseshoe-shaped on the interior. A narthex fronted the building to the west, now mostly destroyed, with doorways opening into the nave and aisle. Although most scholars have dated the narthex later because it was not bonded to the main block of the building, I believe it was contemporary. Probably originally open in form and covered by a wooden roof, the lack of bonding was undoubtedly to allow for differential settlement, as the rest of the building was vaulted throughout and considerably heavier, and it would have required stronger foundations.

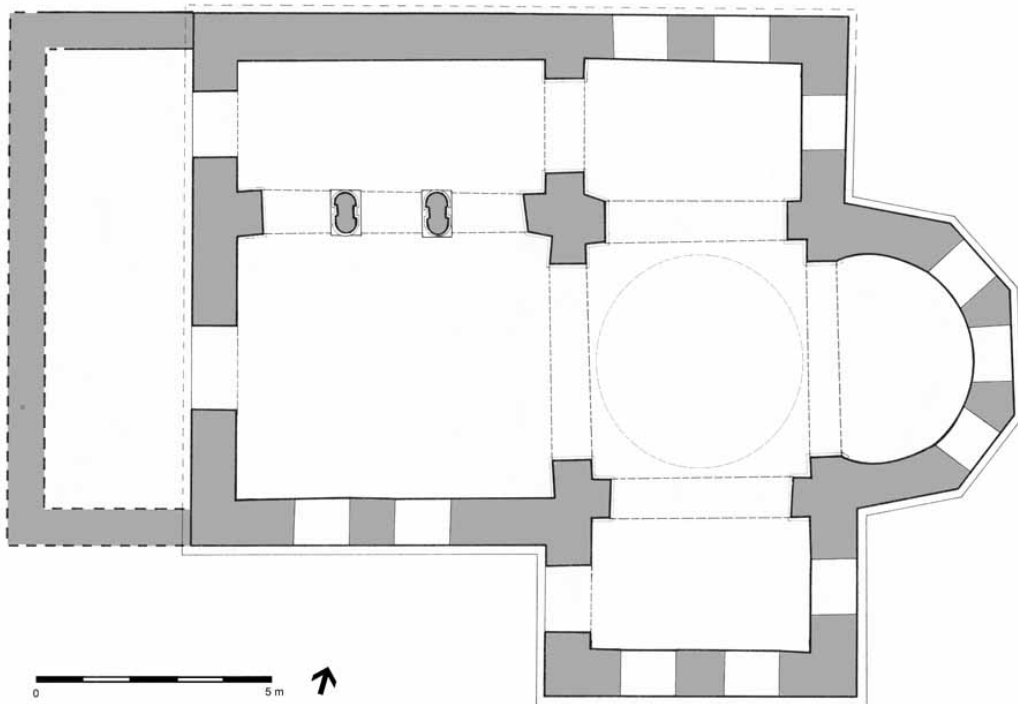


Fig. 3. Same, plan (author, redrawn after Restle)

Writing in 1909, Hans Rott attempted to connect the church to Gregory of Nazianzos, one of the great Fathers of the Orthodox Church. While he was aware that the church must postdate Gregory (who lived ca. 329-90), he argued that the building was constructed to serve as his mausoleum.⁴ Most scholars dismiss this suggestion.⁵ All the same, it remains unclear where Gregory was buried. In the mid-tenth century, Constantine Porphyrogenetos had his relics translated to the Church of the Holy Apostles in Constantinople, but the contemporary texts do not relate whence they were translated. Local Greeks believed the relics to have been in the parish church in Karbala, and these were subsequently taken to Nea Karvali in 1924 – but that’s another story.⁶ Rott had argued on the basis of its design, with an extra side aisle, that the Red Church was a memorial church.⁷ The side aisle may have been originally separated from the nave by closure panels, as the cuttings in the piers indicate. Thus isolated, the aisle was very likely the setting for a special burial or venerated tomb. Both Rott and Gertrude Bell viewed the twin-nave plan in central Anatolian churches as memorial or funerary in function.⁸ The poorly preserved cruciform church at Çukurkent seems to have had a similar lateral aisle, as did the small church at Çavdarlık, both recorded by Gertrude Bell.⁹ At the Kızıl Kilise, the suggestion of a special function is encouraged by the presence of a spring, which Rott called a *hagiasma*, located immediately to the south of the church.¹⁰ In addition the southern walls of the building are covered with carved crosses.

There are several noteworthy details in the construction of the building. First is the distinctive red basalt, quarried nearby, that gives its name to the church. The exterior masonry is carefully cut, with little detail, but with stones fitted tightly together, sometimes

⁴ Rott, *Kleinasiatische Denkmäler*, 282.

⁵ Hild and Restle, *Kappadokien*, p. 150: “sicher nicht.”

⁶ R. Ousterhout, “Messages in the Landscape: Searching for Gregory Nazianzenos in Cappadocia (with two Excursions to the Çanlı Kilise),” In *Images of the Byzantine World: Visions, Messages and Meanings, Studies Presented to Leslie Brubaker*, ed. A. Lymberopoulou (Ashgate, 2011), 147-69; J. McGuckin, *Saint Gregory of Nazianzus: An Intellectual Biography* (Crestwood, NY, 2001), 400.

⁷ Rott, *Kleinasiatische Denkmäler*, 276-82.

⁸ Ramsay and Bell, *Thousand and One Churches*, 390-96, esp. skepticism p. 390; Rott, *Kleinasiatische Denkmäler*, esp. pp. 128, 287.

⁹ Ramsay and Bell, 389-96.

¹⁰ Rott, *Kleinasiatische Denkmäler*, 281.

in an almost jigsaw-like manner, as seen in a detail of the south façade (Fig. 4). The interior surfaces are a mix of ashlar masonry and mortared rubble. Around doors, windows, and at the main supports, the fine ashlar is similar to that on the exterior. Elsewhere the walls are a rougher ashlar, particularly rough at the level of the foundations, below the windows. Traces of painted plaster survive throughout the building, indicating the inner surfaces were entirely covered originally, and thus the rough ashlar would not have been visible.



Fig. 4. Same, south façade, transept, detail of masonry construction (author)

More curious is the change from ashlar to mortared rubble in the vaulting (Fig. 5). In the nave this begins three courses above the springing, elsewhere three to five courses above, but in all where the curvature of the vault extended beyond what could be supported without centering. This also corresponds to the height of the walls on the exterior. The conch of the apse was also constructed of mortared rubble. At the Red Church, the rubble vaults were laid directly on the centering, without facing, in several courses. On the joints between the courses of rubble are visible on the exterior (Fig. 6). None of the rubble vaults survive intact, and clearly, these were the weakest points in the construction.



Fig. 5. Same, interior of the nave, looking south (author)



Fig. 6. Same, detail of exterior from the southwest at the corner of the nave and transept (author)

Curiously the extradoi of the vaults appear to have risen higher than the gables that terminate the facades (see Fig. 2). This puzzled me for a long time, but in older photos and still below the roof over the dome, the cornice is surmounted by a dentil course. This survives in a few places (visible in Fig. 6, center), but there were more *in situ* when Gertrude Bell photographed the church in 1907. As her drawing shows, this would have doubled the height of the cornice. If the dentil course extended over the gables, it would have provided the additional height necessary to face the vaults.¹¹



Fig. 7. Same, side aisle, looking east (author)

The vault over the side aisle has an unusual profile, actually closer to a quadrant vault than to a barrel vault, as it is usually represented (Fig. 7). Seen from the exterior it is clear that the inner springing is considerably higher than the outer springing, and that the profile is flattened and sloping, as is evident where it once joined the transept (see fig. 2). This vault

¹¹ Ramsay and Bell, *Thousand and One Churches*, fig. 310.

played an important role is stabilizing the outward thrust from the high vault at its springing, and this must have motivated its odd profile.

There is no symmetrical aisle and vault to brace the nave vault on the opposite side. At the corners of the south wall, however, brackets extend across the corners to reinforce the bond between the unbuttressed south wall and those to either side (visible in Fig. 5). Placed at the springing of the vault, it is unclear how effective they would have been.



Fig. 8. Same, view into dome (author).

Of the vaults of the Red Church, only the dome itself was constructed of ashlar, and it is the only vault that remains intact. It rises above a tall octagonal drum, with squinches to make the transition to the square crossing bay (Fig. 8). The dome rises directly from the drum, without a transition from octagon to circle. The squinches are actually expanded corner conches, circular at their base, projecting beyond the cornice. Large windows appear in the axial segments of the drum, while small square windows appear above the squinches, covered by pi-shaped lintels immediately below the springing of the dome. The latter are

unusual – I know of nothing similar, although we see a similar lack of transition to dome in some of the chapels at Binbirkilise, or the octagon at Sivasa, now destroyed.¹² While the squinches were built of ashlar, it is unclear how they were finished on the exterior (see Figs. 2 and 6). They were already deteriorated a century ago, when Rott and Bell visited.

Perhaps the most unusual feature of the dome is the bracing at the base of the drum. Immediately beneath the interior cornice was a single course of wood, which originally extended around the four sides of the crossing. Several pieces were still in place when Gertrude Bell photographed the church in 1907, and one still survives today (see Fig. 8). The vacant channel was filled by new beams in the recent restoration, undertaken to stabilize the dome. Curiously, a similar channel appears at exactly the same level on the exterior, one stone course below the windows, and this also must have contained wooden bracing extending around four sides of the building (see Figs. 2 and 6). Although the reinforcement was no doubt effective while the wood was intact, once it had deteriorated or fallen away, it destabilized the dome at a critical point by thinning the base from both the interior and the exterior. Probably this accounts for the deterioration of the squinches, whose exterior rested on the wood beams at the corners. This was one of the chief concerns that led to recent conservation measures, which replaced the wooden supports, inside and out, renewed the missing masonry immediately around this area, and replaced the roof tiles.

While we know of wooden reinforcement in many Byzantine churches, both tie beams across arches and reinforcement within the thickness of the walls, I have come across nothing similar to this, with the beams exposed inside and out. Moreover, I have not been able to detect any wooden reinforcement anywhere else in the building – no tie beams in the windows or arches, no beams within the wall thickness. Actually, nothing in the dome or vaulting really fits within the picture of regional architectural developments. The same applies to the rubble vaults. Where vaulting has been introduced into the early churches of central Anatolia, it is uniformly of ashlar, as for example at Binbirkilise. Similarly throughout Anatolia, the apse conch is invariably vaulted in ashlar. While there may have

¹² Rott, *Kleinasiatische Denkmäler*, fig. 91.

been rubble vaults in the region that have disappeared completely, I have not found any trace of them. Either we are looking at a formal and structural experiment or the church represents an import from another region.

The last suggestion may be reinforced by an examination of the external detailing. Compared to other masonry churches of the region, the Red Church appears stark: no pilasters or other articulation on either the interior or exterior; sculptural detail is absent; capitals and cornices have simple profiles. Compare this for example to the Eski Cami at Çardak, replete with an accentuated dado, pilasters, and window frames.¹³ Similarly, the squinches do not find easy comparison: those in the tower of the south church at Alahan are somewhat similar but taller and framed by colonnettes and brackets; those at Hah in the Tur 'Abdin are perhaps closer.¹⁴ In the Caucasus, trumpet squinches are almost universal. The dentil courses and horseshoe arches are common throughout central Anatolia, but this is just about the only feature that finds an easy comparison. Armen Kazaryan has commented that the church would not be out of place in the Caucasus, and I'm wondering if this might be supported on technical grounds.¹⁵

One final detail is worth noting. While almost all the arches in the church are horseshoe in shape, most of them have incised horizontal lines on the impost blocks (see fig. 4). These lines mark the actual springing of the arches – that is, where the semicircle begins. Sometimes there is a double line at this point. The purpose of these is not immediately obvious, although it is certainly not decorative. I suspect it might have something to do with the stereotomy of the blocks – that is, to calculate the geometry of the voussoirs when they were carved, before they were hoisted into place. These would be somewhat similar to the lines noted on the floor of the church of St. Sergius at Resafa, which were remnants of

¹³ See Restle, *Studien*, II: figs. 41-44.

¹⁴ For illustrations, see M. Gough, ed., *Alahan: an Early Christian Monastery in Southern Turkey* (Toronto, 1985), pl. 33; G. Bell, *Churches and Monasteries of the Tur 'Abdin*, with an introduction and notes by M. M. Mango (London, 1982), pl. 140.

¹⁵ Армен Казарян, Церковная архитектура стран Закавказья VII века: Формирование и развитие традиции (A. Kazaryan, *Church architecture of the 7th century in Transcaucasian countries: Formation and development of the tradition*), 4 vols., in Russian with English summary (Moscow, 2012), IV: 216.

determining the arches of the nave.¹⁶ I've looked unsuccessfully for similar markings in other early churches, but most are decorated in this area and preserve nothing similar. Unfortunately this is the sort of detail that doesn't show up in photographs. In sum, a close look at the Red Church indicates that it is unusual in many ways, and not just in its survival. It also reinforces that we still have much to learn about building practices in early Byzantine Anatolia.

¹⁶ Discussed in R. Ousterhout, *Master Builders of Byzantium* (Princeton, 1999), 64, and fig. 35.