

## Information on Roofing Materials of Gelati Monastery Buildings Based on Archeological Artefacts and Historical Sources

As a result of geological, prospecting and stationary archeological works of the period of 2007-2022 within the framework of the Gelati Monastery Ensemble Rehabilitation Project, certain data were collected on roofing materials used on individual buildings of the monument.

In some cases, archeological material gives a chronological difference and is related to the construction or renovation activities of the monastery confirmed in written sources.

Roofing materials have been obtained as a result of 14 prospecting and archeological works (Fig. 1)<sup>1</sup>, 32 geological excavations (Fig. 2)<sup>2</sup>, as well as archeological studies at northern section of interior and exterior of the Academy<sup>3</sup>, and drainages at the yard of St. George Church and the monastery.

The staff of the Kutaisi-Gelati Museum-Reserve collected part of the artefacts from the exhibition of materials obtained at different times (mainly before the 1990s) on the territory of the complex. The exhibition was closed when the complex was transferred to the church and the exhibits were actually dumped in the trash behind the Gelati Academy building.

Materials about the blue glazed „Solenos-type“ tiles found in Gelati (0.38X0.26 m., the dimensions coincide with the tiles discovered during the excavation in Gelati) have been published by M. Gogsadze<sup>4</sup>.

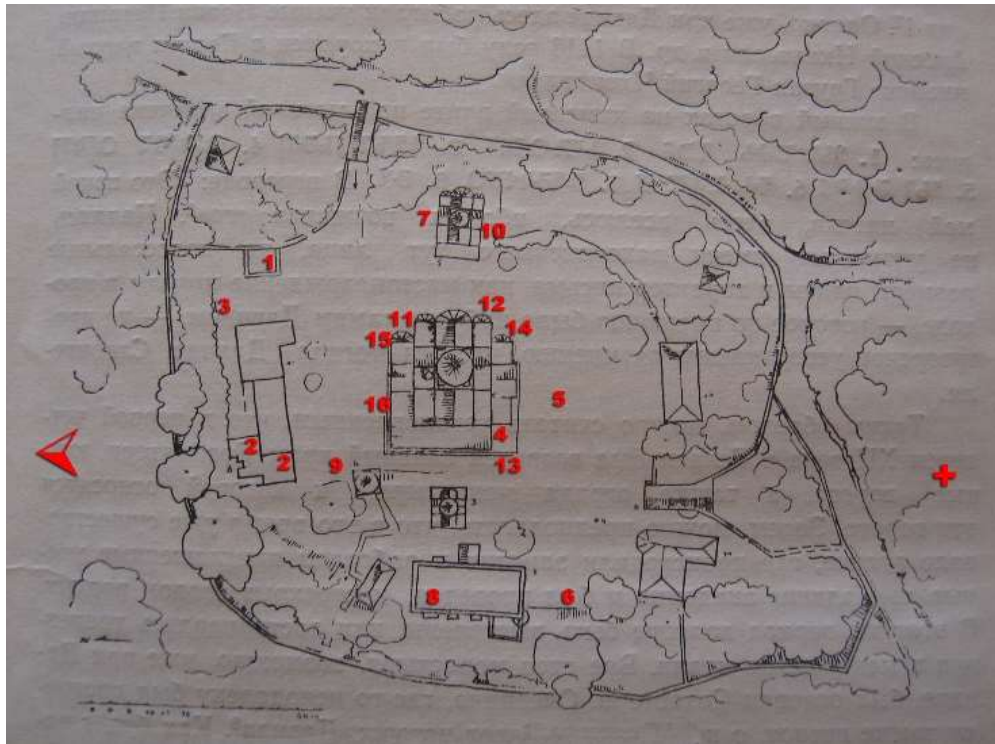


Figure 1

<sup>1</sup> Omar Lanchava, Rolan Isakadze, Report on reconnaissance and archeological works carried out on the territory of Gelati Monastery Ensemble from December 1, 2007 to January 30, 2008, handwritten, Kutaisi, 2008

<sup>2</sup> Rolan Isakadze, Archaeological survey report on geological trial pits cut on the Gelati Complex territory, handwritten, Kutaisi, 2008

<sup>3</sup> Omar Lanchava, Rolan Isakadze, Gelati academy 2008 archaeological excavation report, handwritten, Kutaisi, 2008

<sup>4</sup> M. Gogsadze, Essays on the History of the Gelati Monument, Tbilisi 1949, p.20.

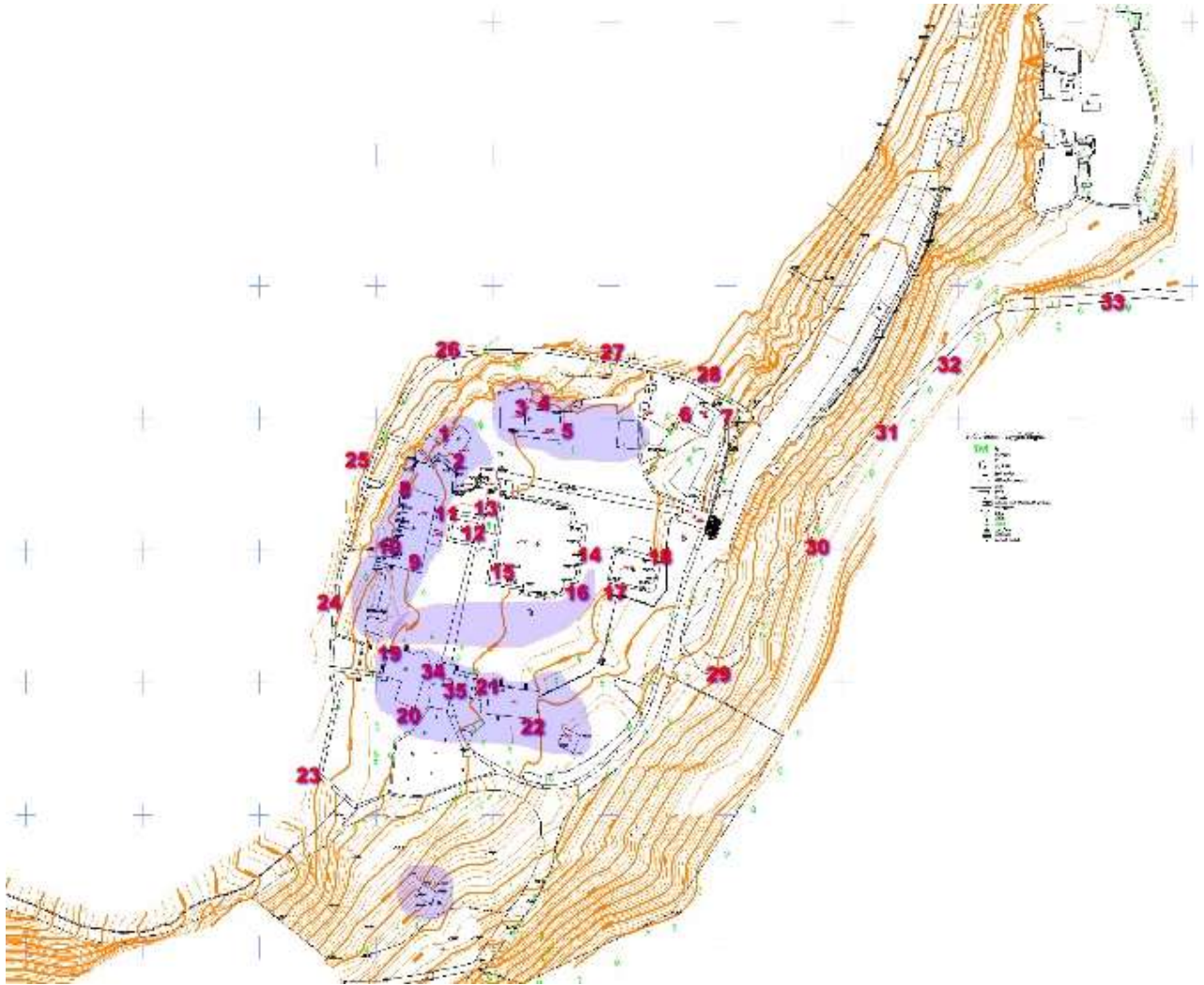


Figure 2

Big gray, dense stone slabs on the roof of the northern outbuildings of the main temple (XIII c.) are still preserved. Fragments of several stone slabs removed from the above-mentioned exhibition were also found there (Fig. 3).



Figure 3



Figure 4

It should also be noted that the use of stone slabs in this micro-region is unknown to us except in this particular case.

It is known from historical sources that:

1. According to N. Tolochanov, in the 50s of the XVII century, the main church was covered with iron,<sup>5</sup> and according to A. Ivlev with copper.<sup>6</sup>
2. According to Guldenstedt (1772) "the domes must have been covered with copper in ancient times, but now there is a shingle."<sup>7</sup>
3. According to G. Avalishvili (1819), Solomon I inherited an eternal reminder "due to covering the church dome with the arms by the thin sheets of rvali<sup>8</sup> brought from Russia and he painted it green"<sup>9</sup>
4. Based on the famous Orientalist Frähn (1782-1851), Diubua-de-Monpere stated that Empress Catherine II sent Solomon I tin sheets to cover the main temple and craftsmen, after whose death the Imereti craftsmen, with the consent of the monks, cut one of the wings of the Daruband gate to make nails.<sup>10</sup> (E. Aihwald, who lived in the Caucasus in 1825-1826, notes: "It is said that there was another door (R.I.) which was turned into rifle bullets many years ago, or may be there have not been another door in the monastery at all."<sup>11</sup>). Considering the Russian-Imereti relations in the XVIII century, it must have happened between 1772-1784. The same fact is confirmed by document # 703 of the Kutaisi Museum: "... With its own acquisitions he again cover the entire church with an iron shingles..."<sup>12</sup>
5. According to the engraving of Diubua-de-Monpere, in the 1930s the domes of the main cathedral, the churches of St. George and St. Nicholas were covered with tin (Fig. 4).
6. In 1837, the roof of the west annex of St. George's Church was tiled, the floor replaced, and the walls whitewashed.<sup>13</sup>
7. In 1840, the roofs of St. George church and the houses were covered with thin narrow plank.<sup>14</sup>
8. In 1843, the three slopes of the main temple were covered with sheets of old iron, and the cracks and holes were filled with putty.<sup>15</sup>
9. In 1845-1847 the main buildings were again covered with tin<sup>16</sup> and soon painted green.
10. In 1858 the roofs were repainted.<sup>17</sup>
11. In a photograph of the 1960s, one of the auxiliary building roofs of the ensemble is covered with the wooden shingles (Fig. 5).

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<sup>5</sup> . Description of the articles of Nikofore Tolochanov as ambassador to the Kingdom of Imereti, 1650-1652. Published by Iase Tsintsadze, Tb. 1970, p. 116.

<sup>6</sup> . Alexei Yevlev 1651-1652. Report description of the Ambassador to the Kingdom of Imereti, published by Iase Tsintsadze, Tbilisi. 1969, p. 122. .

<sup>7</sup> . Guldenstedt Travel in Georgia, published by G. Gelashvili, Tbilisi. 1962, p. 144. Shingle-thin narrow wooden plank

<sup>8</sup> . Rvali - is the same as copper.

<sup>9</sup> . G. Avalishvili, Travel from Tbilisi to Jerusalem, Tbilisi. 1967, p. 19.

<sup>10</sup> . M. Mgaloblishvili, L. Mikiashvili, Information of Gelati by Frederic Diubua-de-Monpere, `Annals, ~ Tb. 2000, p. 79-88; See also: Sh. Burjanadze, The First Period of Solomon I's Reign, Proceedings of TSU, Vol. XI, I. Tb., 1950., p. 91; R. Mepisashvili, Gelati Architectural Ensemble, Tb., 1966, p. 16..

<sup>11</sup> . Edward Aikhvald about Georgia, Tbilisi, 2005, p. 155.

<sup>12</sup> . Indicated according to M. Gogsadze. M. Gogsadze, ..... p. 21.

<sup>13</sup> . Kutaisi Central State Archive (hereinafter KCSA). p. 21, 1465, p. 189. Archival materials are indicated according to M. Kezevadze (see M. Kezevadze, Gelati Monastery during the Exarchate, Kutaisi, 2006).

<sup>14</sup> . KCSA. p 21, 1865, p. 1.,. 1675, p 22.

<sup>15</sup> . KCSA. p 21, 2018, p. 34

<sup>16</sup> . KCSA. p 21, 3065, p. 1

<sup>17</sup> . KCSA. p. 21, 5492, p. 1, 27



*Figure 5*

According to historical sources, archeological materials and studies of art experts, there are two major construction periods related to the Gelati complex:

1. The period of David the Builder, the period of Demeter and their subsequent epoch — circa 12th-14th centuries.
2. The period of Bagrat III, King of Imereti and Melchizedek Catholicos (generally XVI century).

Taking in the account the historical data and the stratigraphy of the monument, roof elements (glazed tiles) and accompanying archeological material found during the excavations fall into these two chronological frames too. The material at our disposal does not allow defining separate chronological groups for glazed tiles in other small-scale construction layers of Gelati.

The first and second groups of glazed tiles differ from each other by several signs:

1. “Ketsi”<sup>18</sup> texture: the tiles of the first group are made of pure clay thus approaching the products of the relevant periods of Kutaisi Ancient Town. The clay of the second group is coarse-grained, with large granular impurities.
2. “Calyptra”-shaped tiles resembles the tiles of the relevant periods of Kutaisi Ancient Town in shape and appearance.

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<sup>18</sup> Ketsi - A baking dish made of clay, round and deep, about five to seven centimeters deep.

3. At the narrow end of the “Calyptra”-shaped tiles, a transverse ridge (Fig. 6) stylistically repeats an almost identical detail of the tiles of the Bagrati temple. It seems that the old (XI century) tradition of making such detail is still alive.



*Figure 6*



*Figure 7*

4. Although the cross-sectional border at the wide end of the ‘Solenos’ shaped tiles is evidenced on the material of both groups, and the difference in dimensions and proportions in favor of the former is quite obvious (Fig. 7<sub>1-2</sub> and Fig. 8 compare with 9-10-11).



*Figure 8*



*Figure 9*



*Figure 10*



*Figure 11*

5. Exquisite Shape: the first group of tiles is made in a well-crafted finely shaped mold, while the second moly is carelessly made and sometimes deformed in the mold itself.
6. The thin and uniform proportions of the folded edges of the "Solenos" tile of the first group are clearly reduced in the second group.
7. The high quality Angoba (white clay) applied under the glaze is noticeable in the first group.
8. The glaze application technique and color gamma used for the first group provides a better picture than in the second one.
9. While, in the material of the first group there are almost equal amounts of "Solenos" and "calyptra" tiles, in the second group the "Solenos" is clearly predominant. A similar ratio can be seen in the materials of the early medieval period in Kutaisi Ancient Town (ca. 15<sup>th</sup> -16<sup>th</sup> centuries).

When comparing the tiles of the first chronological group found in the Gelati monastery with the tiles of Kutaisi Ancient City and the Bagrati temple (XI century), many distinctive features have also been found. The texture and glaze of the Kutaisi specimens are of better quality; the difference can be seen in the decoration of the supporting ridges of the "calyptra"; "Solenos-type" tiles do not have any complete boundary which is typical to Gelati tiles; A nipple-type hole for nails are confirmed on "Solenos" tiles (fig. 12-13-14-15-16-17).



Figure 12



Figure 13



Figure 14



Figure 15



Figure 16



Figure 17

In Gelati, both groups of tiles have been found around the main temple, in archeological and geological burials near other buildings of the complex. As well as in the excavation material (inside and outside the fence) and during the excavations at the academy building (a dark-blue glazed piece of "Solenos" of the first group (Fig. 8) was found on December 2, 2013 under the roof of the main temple narthex). A fragment and whole specimens of the second group of "Solenos" tiles (later, probably concurrently with the windows of the dome drum) are used for concealing of a window on the south façade of the triforium of the main temple (Fig. 9-10-11).

In 2003, tiles similar to the second group ones were collected in the yard of the Archangel Church north to the complex, which was cleared without archaeological supervision.

According to the book of mercy issued by King Bagrat III of Imereti on the name of Panchulidze - the bearer of the cross, he rebuilt for Gelati „the Church of the Archangel destroyed by Marwan ibn Muhammad”<sup>19</sup> which is identified by researchers with a monument in the yard of Citizen Bakuradze, north of the monastery fence, approximately 300 meters away.<sup>20</sup> Therefore, the lower chronological boundary of the second group of tiles dates back to the 20s of the XVI century and closer periods.

The range of colors and manufacturing techniques of both groups of tiles are somewhat isolated and are practically not repeated on the monuments known to us in the micro-region. This circumstance and the discovery of a pestle for glaze indicate the presence of remnant of a factory for producing two-layer glazed pottery on the territory of the complex.

The following samples belong to the first chronological group of glazed tiles in the presented illustrative material: Fig. 6; Fig. 7<sub>1-2-3-4-5-6-7</sub>; Fig. 8; Fig. 18; Fig. 19<sub>1-2</sub>; Fig. 20<sub>1-2-3</sub>; Fig. 21; Fig. 22<sub>1</sub>; Fig. 23<sub>1-2</sub>; Fig. 24<sub>1</sub>; Fig. 26<sub>7</sub>; 10-18;



Figure 18



Figure 19

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<sup>19</sup>. S. Kakabadze, Ecclesiastical Documents of Western Georgia, Vol. I. Tbilissi. 1921. p. 8-9

<sup>20</sup>. M. Gogsadze..... p. 51-52;

KCSA p. 21, 1465 p. 180, 189. Indicated according to M. Kezevadze (see M. Kezevadze, paper, pp. 26-27m.); Omar Lanchava, Roland Isakadze, Report on prospecting and archeological works carried out on the territory of Gelati Monastery Ensemble from December 1, 2007 to January 30, 2008, handwritten, Kutaisi. 2008, P. 5-8



Figure 20



Figure 21



Figure 22



Figure 23



Figure 24



Figure 25





Figure 26

Chronological group 2 samples: Fig. 9; Fig. 10; Fig. 11; Fig. 25; Fig. 26<sub>1-2-3-4-5-6; 8-9;</sub>.

During the roofing of the main temple slopes in 2016, a large amount of solid droplets of lead resulted from fire was confirmed in several places (Fig. 27-28-29). In 2021, fragments of a lead plate (metal analysis not performed) were found in a control sondage made on the north slope of the western arm (Fig. 31). A fire of that magnitude that could have produced this quantity of droplets occurred in 1510 according to historical sources. Fig. 30 shows that the droplets are stratigraphically from an earlier period than a layer fragment arranged from tiles of the second group. At this stage of the study, it is impossible to determine the functional and chronological location of the lead droplets and plate.



Figure 27



Figure 28



*Figure 29*



*Figure 30*



Figure 31



Figure 32

In 2018, when the roof of the south gate of the main temple was opened, it was discovered that there was originally a storehouse under the limestone layer of the roof, which was later (probably after 1510) filled with fragments of debris and mortar. We were able to remove two large pieces of the whole “calyptra” from this layer (Fig. 32; Dimensions: length 46 cm., Width in the wide part 39 cm., In the narrow part 23 cm; protrusion for coupling - length 5 cm., Height 14 and 12 cm., “ketsi” fold thickness 2.3 cm.). Most likely, these are ridge tiles. We do not possess any data to determine the date. All we know is that they are found in the late filling layer of the storeroom. The fold texture and glaze must belong to the first chronological group.

#### **Dimensions of Gelati tiles of the first chronological group:**

Fig. 6. Total length 38 cm., Length of the protrusion for coupling 5 cm., width 18 and 13 cm., Height 10.5 and 7.3 cm, fold thickness 1.4-1.7 cm. This pattern is used in one of the drainage channels of the monastery yard, which was completely abolished after 1510. In the area where this tile pattern was found, two silver Trebizond coins (late 13<sup>th</sup> century and first half of 14<sup>th</sup> century) were found in a layer deposited in the canal.<sup>21</sup>

#### **Dimensions of Gelati tiles of the second chronological group:**

Fig. 10. Length 36 cm, width at the top and bottom 28 cm and 22.5 cm, board height 5.5 cm, board width 2.5 cm, fold thickness 1.8 cm.

Fig. 11. Length 37 cm, width at the top and bottom 27.5 cm and 22.5 cm, board height 5 cm, width 2.5 cm., fold thickness 1.8 cm.

#### **Dimensions of Bagrati temple and Kutaisi Ancient City tiles (ca. X-XII centuries):**

Fig. 12. Length 41 cm, width 26 cm, Board height 6 cm, width 1.3 cm, 41 cm, fold thickness 2 cm, nipple-type hole for nails height 2.3 cm.

Fig. 13. Remaining length of the tile 34 c., width 10.5 cm, height 8 cm, Thickness of the fold 2 cm.

Fig. 13. Remaining length of the tile 34 cm, width 10.5 cm, height 8 cm, Thickness of the fold 2 cm.

Fig. 15. Length 39 cm, Width 11.5 cm, height 9.5 cm and 7 cm, fold thickness 2 cm.

Fig. 16. Remaining length of the tile 31.5 cm, width 11.5 cm, height 9.5 cm, fold thickness 2 cm.

Fig. 17. Remaining length 25 cm, width 12.5 cm, height 8.3 and 7.6 cm, fold thickness 2.3 cm.

As a conclusion, it should be noted that historical sources, archival and photographic materials, as well as archeological artefacts confirm the presence of various types of roofing materials on the main buildings of Gelati Monastery: various glazed tiles of the two chronological groups, dense stone slabs, copper/rvali<sup>22</sup>, lead, tin and wood shingle.<sup>23</sup>

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<sup>21</sup> . Omar Lanchava, Roland Isakadze, Report on prospecting and archeological works on the territory of Gelati Monastery Ensemble from December 1, 2007 to January 30, 2008, handwritten, Kutaisi. 2008, p. 8.

<sup>22</sup> . Rvali - copper, I. Abuladze Dictionary of Old Georgian Language, Tb. 1973, p. 347. Rvali (Psh.) - Copper, Al. Glonti, “Georgian word-speech cone”, second issue. Tb. 1984, p.452; Rvali - i.e. Copper, T. Bagrationi, Book Dictionary, Tbilisi 1979, p.107; Rvali - is generally called copper and brass, N. Chubinashvili, Georgian Dictionary with Russian Translation, Tb. 1961, p.335; Rvali (old) - is the same as bronze, Explanatory Dictionary of the Georgian Language, Tb. 1986, p.379; Rvali- this is: a mixture of copper and tin, Sul Khan-Saba Orbeliani “Sitkvis Kona” which is a dictionary, edited and prefaced by Solomon Iordanishvili, Tb. 1949. P. 282-283.

<sup>23</sup> . Shingle - thin and narrow plank, Sul Khan-Saba Orbeliani “Sitkvis Kona” which is a dictionary, edited and prefaced by Solomon Iordanishvili, Tb. 1949. p. 401.


Additional References:

1. Omar Lanchava, Roland Isakadze, Archaeological Studies in Gelati and Motsameta, Magazine `Old Art Today ~ # 1, Tbilisi. 2010, p. 14–20, abstract in English.
2. Omar Lanchava, Roland Isakadze, Davit Berdzenishvili, Merab Chumburidze, Nona Kartsidze, Excavations in Kutaisi and Gelati, Searches in Georgian Archeology №19, Tbilisi. 2010. p. 67-71, abstract in English.
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7. Roland Isakadze, Shalva Buadze, Preliminary Report of Archaeological Supervision in the Rehabilitation of Drainage System at Gelati Monastery, handwritten, kutaisi, 2019.
8. Roland Isakadze, Shalva Buadze, Preliminary Report of Archaeological Supervision in the Rehabilitation of the Drainage System of Gelati Monastery, Tb. 2020 (<https://www.heritagesites.ge/uploads/files/krebuli%203.pdf>). Abstract in English. p. 108-118.

Note

1. Archaeological research reports mentioned in the text and additional literature are kept in the archives of the National Agency for Cultural Heritage Preservation of Georgia.
2. Research completed in 2013, updated in 2022.

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