

# The Armenian-Italian Joint Expedition to Dvin Report of 2023 Activities

Hamlet Petrosyan, Michele Nucciotti, Elisa Pruno, Tatyana Vardanesova, Francesca Cheli, Leonardo Squilloni, Hamazasp Abrahamyan, Lyuba Kirakosyan, Miriam Leonetti, Lisa dall'Olio

**Abstract** This report aims to show the results of the third excavation campaign at Dvin/Dabil (Armenia), conducted by the Italian-Armenian research group in Autumn 2023. The excavations involved three areas in distinct sectors of the city: the southern portion of the Lower Fortress, where the 2021 square was deepened and enlarged; the so-called 'Market' area, where the 2021 excavations were expanded and a micro-stratigraphic trench was opened; and the excavations of the Area of the Future Building of the Dvin Museum. Additionally, there is a starting research about the analysis of pottery carried out between 2022 and the last year excavation. We presented also the first results concerning faunal remains research.

**Keywords** Dvin/Dabil. Stratigraphic methodology. Eurasia. Excavation. Light archaeology. Medieval archaeology.

**Summary** 1 Introduction. – 2 Excavation at the Dvin Market. – 2.1 Archaeological Description. – 2.2 Findings. – 2.3 Conclusions. – 3 Area 2000. – 3.1 Introduction. – 3.2 Stratigraphic Description. – 3.3 Conclusions. – 4 Light Archaeology Survey of the Dvin Market. – 5 Area 1000 and the Stratification of the Lower Fortress: A Peek through the Peephole. – 5.1 Introduction. – 5.1.1 Cons and Pros of a Micro-Stratigraphic Approach. – 5.1.2 Harris Matrix Segmentation and New Macro-Periodization for Areas 1000 and 2000. – 5.2 Area 1000: Stratigraphic Description. – 5.3 The Wall SU 1090: Technical and Chronological Discussion. – 5.4 A Stratigraphy of Transformations in the Lower Fortress of Dvin: Area 1000 at the End of the 2023 Season. – 6 Material and Artefacts from Area 1000 and Area 2000. – 6.1 Artefacts. – 6.2 Area 1000: Materials and Artefacts. – 6.3 Area 1000: Faunal Remains. – 6.4 Area 2000: Materials and Artefacts. – 6.5 History Museum of Yerevan Survey and Documentation. – 7 Excavations of the Area of the Future Building of the Dvin Museum. – 7.1 Archaeological Description. – 7.2 Finds. – 8 Conclusions.



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## 1 Introduction

The joint Armenian-Italian archaeological expedition to Dvin was carried out in 2023 by the Institute of Archaeology and Ethnography of the National Academy of Sciences of the Republic of Armenia (IAE NAS RA) and the University of Florence, with the financial support of the Italian Ministry of Foreign Affairs and the ERC Project ArmEn (Armenia Entangled), conducted archaeological research at the site of Dvin. During the spring, excavation activities were performed in the area of the future building of the Dvin Museum, where a trench was opened in 2022. In the same period, pottery recording and classification were carried out. During the fall season (29 September-4 November), excavations were concentrated in three sites: the Dvin Market (§§ 2-4), the southern area of the 'Lower Fortress' (§ 5), and the site of the future building of the Dvin Museum (§ 6), 120 m south-east of the central quarter [fig. 1].

The Staff of the Expedition

- Armenian side. Director: Hamlet Petrosyan. Archaeologists: Tatyana Vardanesova, Hamazasp Abrahamyan. Architect: Lyuba Kirakosyan.
- Italian side. Director: Michele Nucciotti. ArmEn P.I.: Zaroui Pogossian. Archaeologists: Elisa Pruno (Codirector), Lapo Somigli, Francesca Cheli, Leonardo Squilloni, Miriam Leonetti, Hasmik Hovhannisyan. Students: Lisa dall'Olio, Tommaso Montecchi, Leonardo Quercioli.

## 2 Excavation at the Dvin Market

Hamlet Petrosyan, Tatyana Vardanesova,  
Hamazasp Abrahamyan, Lyuba Kirakosyan

In the fall of 2023, excavation and cleaning works were conducted at the Dvin ancient site, located southeast of Hnaberd village in the Artashat community of the Ararat region, with basic funding from NAS RA. The excavations covered an area of approximately 170 m<sup>2</sup> and focused on the Lower Fortress and the 'Market' (Shuka) area.

In the market area, the cleaning and excavation efforts continued in the southeastern part of the site.



Figure 1 Dvin's 2023 excavation sites

## 2.1 Archaeological Description

A horseshoe-shaped mound extending from the western, southern, and eastern sides of the 'Market' area was one of the study's primary issues. The slab floor is located near the centre of the excavation site. On its western and eastern flanks, there are foundation remnants and column fragments that show signs of secondary stone processing.

During the 2021-2 excavations in different parts of the mound bordering the Market (A1, B1, C1, D1, D5, D6 sq.), various situations mentioned in the survey summarizing the previous excavations, and previously left out, were observed (Ghafadaryan 1982, 106). In the southern part of the mound, along the continuation of the semi-circular tower, the remains of the brick walls of two rooms and the second semicircular tower were discovered. This second tower was located at a distance of 15.5 m from the first one and was marked in the 1959 measurement (History Museum of Armenia, Archive, N 1214: Petrosyan et al. 2023, 203, fig. 15).

In the fall season of 2023, continuing the previously studied southern height of the mound, the excavations were moved to the eastern part. Judging by the 1959 layout of the Market, this part of the excavation site had not been excavated at all. As it turned out in 2023, the soil waste from all the previous excavations had accumulated in this area. Moreover, the wasteland was piled up, and the space between them was later filled with the household waste of the village.

The 2023 fall excavations in the Market area were dedicated to cleaning the excavation waste from 1955-61 and separating archaeological artefacts from it. As a result of the cleaning works, the level of excavation depth in squares A10, B10, and C10 was brought up to the level of the second semicircular tower. Hopefully, the actual archaeological layers will begin to be dug further down this year.



Figure 2 Market's measurements and 2023 area of work

## 2.2 Findings

During the excavations, the most archaeological material was found in the A10 and B10 squares [fig. 2]. It is mainly represented by pottery and remarkable fragments of architectural decoration. All the material can be categorized into the following groups:

- Glazed pottery.
- Faience.
- Simple pottery.
- Fragments of architectural decoration.

The main part of the glazed pottery consists of green and greenish-yellow glazed pottery typical of Dvin from the late twelfth and early thirteenth centuries [fig. 3]. Out of the entire mass of fragments, only three fragments belong to the ninth century. Fragments of green glazed plates match hemispherical vessels. The manufacturing technology is also characteristic: reddish-yellow shell, white slipware, engraving (graffito), and transparent glaze.

As a result, thin, scratch-like, and restrained geometric patterns are visible as black lines on a green background. Pottery with a combination of green and yellow glazes is also quite common [fig. 4]. In this case, the floral and geometric patterns were obtained by a

combination of removing the slipware in large layers and thin drilling. This type of pottery dates from the end of the twelfth to the early thirteenth century, representing the early mass production of Dvin. Examples of similar pottery are also found in Vayots Dzor, Etchmiadzin, and other medieval contexts (Kalantarian 2009, pl. XXIX).

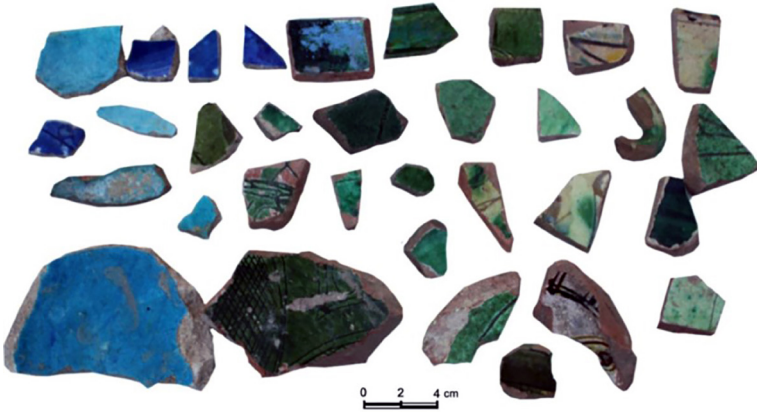


Figure 3 Glazed fragments recovered from the Market area

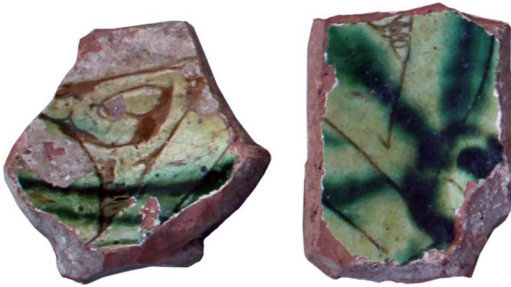
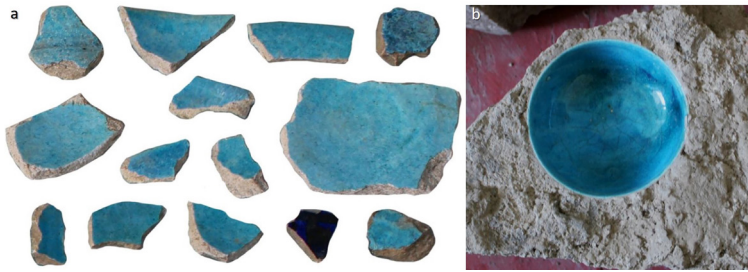


Figure 4  
Fragments of glazed pottery

The next group consists of terracotta vessels. The archaeological material includes several fragments of turquoise and dark blue transparent glazed faience vessels [fig. 5a] and one fragment of glazed faience imported from Iran with dark blue and black ornaments. Describing the 1956 excavations, K. Ghafadaryan notes that a small faience bowl with a dark blue transparent glaze, embedded in mortar, was found in site 4, indicating luxury items reused in some market structures (1982, 40). The researcher dated the vessel from the end of the twelfth century to the beginning of the thirteenth century. It should be noted that the previous excavations at the Lower Fortress, (unfortunately never completed), provided magnificent examples of such a design [fig. 5b].



**Figure 5** On the left, turquoise terracotta from the excavation site; on the right, blue bowl, Dvin Archaeological Site, Lower Fortress

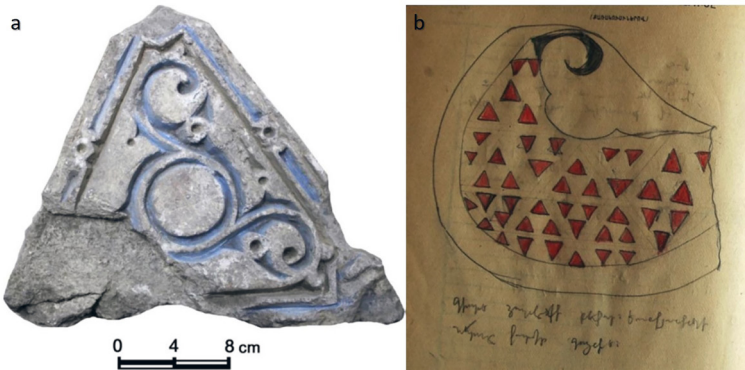
Plain (unglazed) pottery is also highly fragmentary, consisting of bottoms, handles, and various vessel bodies. Two fragments of large flat lids attract attention. One fragment of a lid is painted with slipware circles, in the middle of which there are large dots, while the second one is decorated with stamped rosettes. This pottery dates back to the end of the twelfth and the beginning of the thirteenth century [fig. 6]. Among the archaeological material are several clay cylinders that were used in the pottery production process.



**Figure 6**  
Pottery fragments  
from the Market area

Although the shreds of architectural decoration are highly fragmented, they are remarkable for their amazing variety. In one case, they are shaped fragments of bricks embedded in mortar [fig. 7a]. In the second case, they are specially prepared shaped bricks intended for wall decoration. A fragment of wall cladding in the form of a triangular ornament made of three bricks was also found [fig. 7b]. Blue paint can be seen on the fragment of one of the cut and plastered bricks found during the excavations. In addition to the brick, a raised rosette of concrete mortar was also found, made from a concrete mixture with the addition of gypsum [fig. 7b]. K. Ghafadaryan describes architectural decorative details made with a similar technique, which were coloured blue, red, and yellow (Ghafadaryan 1982, fig. 78) [fig. 8a]. One of the wall panels found in Site 4 was cast from plaster. The vegetable ivy-type carved composition by a master is painted in blue colour (143). It is noteworthy that in the diary of E. Musheghyan, a member of the expedition, there is also an image of

a similar fragment, but with red decoration [fig. 8b]. It is well known that in Middle Eastern architecture, tinted plaster, shaped brick, marble, and plaster were used as decorative materials for exterior and interior wall decoration.



Its first stage (starting from about the eighth century) is plaster carving in the interior of the buildings, followed by pictorial cladding with burnt bricks (ninth century, mainly on the outer walls of the buildings). Since the twelfth century, decorative carvings on terracotta have been used, and from the thirteenth century these carved panels began to be covered with blue glaze, etc. We believe that Dvin's magnificent collection of wall decorations has great research potential in this regard. And more importantly, the findings of the 'market' may shed new light on the function and artistic decoration of this extensive architectural structure.

## 2.3 Conclusions

The 2023 fall excavations in the area of the Market at Dvin mainly focused on a cleaning aspect. The soil excavated, dating back to the 1950-60s, once filled the unexcavated part of the monument, and the expedition had to re-excavate these wastes and separate the archaeological findings from them. Micro-stratigraphic assessment carried out in the western part (Area 2000) of the market revealed the complex structure of that area, ranging from the stone bases of the columns to traces of reconstructions from different periods. These results indicate the necessity of placing similar sondages in other parts of the structure to obtain an even more detailed picture of the changes over time.

## 3 Area 2000

Francesca Cheli

### 3.1 Introduction

During the 2023 excavation in order to better understand the extent of the cobblestone wall SU (Stratigraphic Unit) 2018 and the structure of cobblestone SU 2038, uncovered in 2022, it was decided to enlarge the excavation sondage 1 m towards north and 1 m towards east (current dimensions 4 × 4 m) [fig. 17].<sup>1</sup>

The archaeological excavation strategy was to remove the surface layers already identified until reaching the wall SU 2018, the cobblestones layer SU 2038 (where present) or layers not intercepted last year.

### 3.2 Stratigraphic Description

On the northern side, between SU 2018 and SU 2038 under the topsoil and the surface layers identified in 2022 (SUs 2016, 2025 and 2030), the layer made with crushed dark tuff stones placed quite horizontally (SU 2031) on the cobblestones of SU 2038, already found last excavation year, was reached [fig. 9]. In agreement with Prof.

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<sup>1</sup> Initially, the excavation was only widened at the north-east corner by approximately 1 m and involved the area where layer SU 2038 and the wall SU 2018 were located (1.50 m on the northern side and 2 m on the E side from the stake to the north-east). At a later stage, based on the findings, it was decided to extend the entire north and east sides by 1 m. The extension is therefore L-shaped.



Petrosyan, it was decided to leave them *in situ*, together with the cobblestones of SU 2038, as evidence of the construction technique. Below this layer, SU 2038 continues beyond the northern section, while they seem to stop towards east.



Figure 9 Dark tuff stones of SU 2031 found in the 2023 north extension

Towards the west, SU 2031 is confirmed leaning on the wall SU 2018 which, in its extension towards the north, reduces its width from 85 to 30 cm ca. In addition, near the new limit of the northern section, some cobbles of SU 2018 seem to be covered by what appears to be an alignment of mud brick, in a very poor state of preservation (SU 2052). The layer, rather than corresponding to a mud brick elevation of the structure SU 2018 as hypothesized in 2022 (Petrosyan et al. 2023, 213), seems to be a reconstruction or extension of it on the northern side. This hypothesis is supported by the fact that, after approximately 2 m, the cobbles of SU 2018, at least on the eastern side, seem to be interrupted and mud bricks are visible in the same alignment. Currently, this interpretation remains a hypothesis as the two structures (SU 2018 and SU 2052) are partially covered by the stones of SU 2031.

On the western side of SU 2018 during the 2023 extension a new stratigraphic deposit came to light. At the north-western corner, approximately 5 cm below the floor level, a mud brick wall with a NE-SW orientation was uncovered: SU 2051, made of mud bricks measuring 30 × 30 × 6 cm; this structure extends beneath both the western

and northern limits of the sondage.<sup>2</sup> It was partially covered by small compact clay layers with pieces of mud bricks (SUs 2050, 2053 and 2064).<sup>3</sup> Below these, the small portion of 2023 extension between the wall SU 20218 and the mud brick wall SU 2051 showed distinct characteristics: on the western side there were flat and 'smoothed', rather compact and fine-grained layers, while the eastern one showed evidence of collapsed mud bricks. The two portions alternated with each other, overlapping in small portions. This stratigraphic sequence was identified in 2022 with the SU 2034 mud bricks collapse. In 2023, the discovery of the SU 2051 mud brick wall and the lack of direct physical relationships between it and the SU 2018 cobblestone wall, has led to greater attention being paid to the sequence of collapses which could therefore be referred to different structures, trying to understand their origin although, due to the small size of the portion, it was not possible to certainly identify the directions.<sup>4</sup> The first of this collapse was SU 2065=2034, a silty, brown, fine-grained layer characterized by the high quantity of pieces of mud bricks. They are quite pure, light brown in colour and very compact with small holes due to the air; they are 5-6 cm high. Near the wall SU 2018, the collapse SU 2065=2034 contains some mortar lumps of medium dimensions, grey and with some black pieces of charcoal like the mortar of SU 2018, but stronger. These mortar lumps are mixed with the pieces of mud bricks.

On the western side, SU 2065=2034 leaned on a silty, greyish-brown, fine-grained layer (SU 2068). It had a quite horizontal and compact interface with small dimension stone chippings inside. This one, partially covered another collapse of mud bricks with both N-S and E-W direction (SU 2066). SU 2066 is a silty, quite soft, light brown layer with occasional small pieces of charcoal, fragments of tuff e and stone chippings. The layer has a descending trend towards the E where it has the greatest depth (ca 50 cm). Mud bricks are very compact, light brown, with negative traces of the vegetable inclusions used in the mixture. The presence of small holes, perhaps due to the decomposition of vegetable fibres or air bubbles during manufacture, can be seen; inside there are very small stone chippings, mortar lumps and fragments of orange tuff. The height of the bricks is between 5.5 and 6.5 cm [fig. 10].

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**2** In particular, SU 2051 appears to be at the same level as the ground floor on the western side where the latter is lower, while toward the northern side it is covered by about 5 cm of topsoil.

**3** SU 2050 is a compact, light brown-whitish layer with mud bricks; SU 2053 is a crumbly, light brown-greyish layer and SU 2064 is a compact, grey, horizontal layer. All the layers are located in the N-W corner of the excavation.

**4** In 2023, in order to reconstruct the stratigraphic sequence, it was decided to identify SU 2034, dug last year, with the first of these collapses, SU 2065.

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On the western side, SU 2066 leaned on another with horizontal interface (SU 2069). SU 2069 is a sandy-clay, fine-grained, yellowish layer descending towards east. Inside there are rare stone chippings and tuff of small dimension and rare charcoal.

SU 2069 is still partially *in situ* and covers a clayish, compact brown layer with pieces of mud bricks (SU 2082) which is partially covered by another collapse of brown mud bricks (SU 2070) which leans on the wall SU 2018. At the end of the excavation the mud brick wall SU 2051 is visible for 7 courses (overall height of about 42 cm) and shows an alternation of courses consisting of lighter-coloured bricks to darker-coloured ones [fig. 11]. It seems to cover SU 2082, a clayey, fine-grain, compact layer with mud bricks, still *in situ*.



Figure 10 North-western corner: example of flat and ‘smoothed’ layer on the western side (SU 2068) and the collapse of mud bricks on the eastern side (SU 2066)



Figure 11 The mud bricks wall SU 2051 at the end of the excavation

The Eastern side of the trench extension (1 × 4 m) had, from the beginning, a small higher portion (triangular in shape with sides of approximately 1 × 1 m) near the south-east corner and a depression, around 15 cm, immediately north of this. The rest of the eastern side (3 m) was rather horizontal.

Due to the stratigraphic sequence excavated in 2022, the archaeological excavation strategy was to remove the surface layers already identified until reaching the cobblestones layer SU 2038. The topsoil removed was a grey medium-size grain layer with stone chippings, rare stones and frequent pieces of orange and yellow fired bricks, mostly on the bottom part. Inside it was found also modern metal.

On the eastern side, under the topsoil, a small stockpile of yellow and orange fired bricks (variable height between 4 and 4.7 cm) with a clayey-sandy matrix, quite compact, coarse-grained and dark brown/grey in colour (SU 2054) was unearthed. The layer appears to be the result of accumulated material following a depression (SU 2084) visible in the ground even before the excavation and possibly due to recent activities [fig. 12].



Figura 12 The stockpile SU 2054

On the higher south-eastern corner, under this topsoil, a small portion of the layer with fragments of orange tuff (SU 2002, dug last year in the excavation area) was brought to light. SU 2002 covered a friable layer, with a sandy silt matrix, light brown in colour with occasional lumps of white mortar (SU 2049). Under this, SU 2015 (dug last year in the excavation area) covered a very friable sandy silt layer, greyish brown in colour, with small lumps of mortar, charcoal, fragments of yellowish clay and rare fragments of tuff (SU 2055). This latter covered a light brown-whitish layer with fragments of orange tuff, rare lumps of mortar and pieces of mud bricks (SU 2056). It has a compact interface where mud bricks are more concentrated and friable towards south. For the compositional features and the discovery elevation, it has been identified as SU 2032 excavated last year (2056=2032).

Under SU 2056=2032 an articulate situation was brought to light in the S/E corner. It covered a compact grey layer with small stones

(SU 2059) and a coarse-grained layer with pieces of mud bricks (SU 2060, for compositional features identified as SU 2042 dug last year); near the river stones SU 2038, SU 2056=2032 was leaned on a layer of breaking up of mortar (SU 2058, destruction of 2062) made up of mortar, debris and stones [fig. 13].



Figure 13 Situation under SU 2056=2032

The archaeological deposit brought to light in the eastern extension, although still under study, proved to be quite interesting. Two rather tenacious mortar conglomerates (SU 2062 and SU 2063) were found close to the SU 2038 cobblestones, not in contact with each other. SU 2063, located further north than the other, has a rather rectangular shape, with, perhaps, remains of plaster on the south side [fig. 14].

SU 2062, although it maintains a rather regular shape, is slightly rotated with respect to the alignment of the cobblestones. The two conglomerates are covered by the highest cobblestones level of SU 2038 but appear to rest on/cover the underlying levels of the same. At this stage of the research therefore, cobblestones layer SU 2038 and mortar layers SU 2062 and SU 2063 have been considered linked, although their function has yet to be understood.<sup>5</sup>

The removal of SU 2059 and SU 2060 exposed a small, crumbly, light-brown layer rich in basalt and tuff stones and stone chippings on the southern side of SU 2062 (SU 2067) and a very strong,

<sup>5</sup> Between SU 2062 and 2063 a brown, crumbly, fine-grained layer with lumps of mortar and stone chippings (SU 2073) was unearthed under topsoil.

light brown-yellowish clayey layer, near the S/E corner of the area (SU 2061). Inside SU 2061 there were frequent stone chippings and fragments of pressed mud bricks.



**Figure 14** On the left, mortar layer SU 2062 and 2063 on the eastern side of the cobblestones of 2038 during the excavation; on the right, detail of plaster on SU 2063

After the removal of SU 2061, the final level of 2022 was reached. SU 2044, a light brown, coarse-grained, sandy-clay layer with stone chippings in the central south portion, and, under this, SU 2043 and SU 2045 compact, clayey, light-brown layers were removed.<sup>6</sup>

SU 2043 leaned on a very compact, grey layer characterized by the frequent presence of stones and stone chippings (also tuff) and small lumps of white mortar (SU 2057). SU 2057 was quite thick and extended throughout the eastern extension below the topsoil.<sup>7</sup> Inside the layer SU 2057 a broken cobblestone and a sherd of pottery with incised linear decoration were found [fig. 15].



**Figure 15** SU 2057 during the excavation. On the left side, the broken cobblestone; on the right side, a sherd of pottery with incised decoration

**6** It must be noted that SU 2043, which extended from the central area to the eastern extension, showed, in this easternmost portion, some areas of friable grey mortar. This year, compared to last year's final plan, it was decided to consider as SU 2045, due to the features described and verified, only the southernmost portion characterized by the greater presence of pieces of mud bricks. Inside SU 2045 a fragment of an interlocking tile was found.

**7** Near the N/E corner it was partially covered by a brown, crumbly, coarse-grained layer with stones and stone chippings (SU 2071). This layer seems to be covered by the 'first' level of the cobblestones SU 2038 and covers the 'second' one.

SU 2043 covered, on the southern side of the area, a collapse of mud bricks, SU 2072. It is a brown, quite crumbly layer with occasional tuff stone chippings and medium size pieces of mortar inside. It is more compact and lighter in colour near the mud bricks. Mud bricks height is around 6-8 cm (only one preserved the thickness) and they have variable colour and compactness: some of them are dark brown, crumbly and with frequent traces of vegetable fibres and stones chippings inside; others are light brown, homogeneous mixture and compact. It is probably the collapse of the mud bricks' structure still *in situ* SU 2080. Inside one of the mud bricks of SU 2072 a small coin (around 20 × 20 mm ca and very thin, around 1 mm) was found [fig. 16]. The find was handed over to the History Museum of Armenia. After cleaning it was possible to identify the coin. It is an Abbasid Caliphate *fals*, possibly minted in Barda'a at the time of Yazid ibn Usayd (or Asid), governor (*ostikan*) of Arminiya (ca 750-80).<sup>8</sup>

Placed inside a mud brick in collapse, this coin cannot be used to obtain a precise dating of the layer, but it provides us an important *terminus post quem*.<sup>9</sup>

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**8** We extend our thanks to Hasmik Hovhannisyan and Armine Zohrabyan for identifying the coin. Yazid ibn Usayd (or Asid) ibn Zafir al-Sulami was a governor of Arminiya serving the early Abbasid Caliphate. The settlement of Arab contingents in Armenia had a military as well as a political purpose for the pursuit of the war against Byzantium and the Khazars. As a member of Sulaym tribe, which participated decisively in Arab-Byzantine wars, Yazid was settled in the western Armenian borderlands with the Byzantine Empire (Ter-Ghevondyan 1976, 29-30). According to al-Baladhuri and Al-Tabari, his mother was the daughter of the Christian patrician of Siwnik' (Kennedy 1990, 70; Al-Balādhuri 2022, 214) so "Yazid inherited a prominent position in the Qaysi army of the last Umayyad caliph and among the semi-autonomous princes of Armenia", and his father had been a companion in arms of Marwan ibn Muhammad ibn Marwan in the Caucasus area, before he became caliph (Kennedy 2016, 57-8). Yazid took back the city of Karin which had been captured by Constantine V. He was appointed three times to the governorship of Arminiya (752-4, 759-70, and 775-80) and played a central role during the conflict with the Khazar Khaganate (Ter-Ghevondyan 1976, 30). Moreover, Yazid joined the ranks of the counsellors of the Abbasid caliph Abu Ja'far al-Mansur becoming a trusted advisor (Kennedy 2016, 57-8). Around 758-60, Al-Mansur ordered Yazid, the Arab governor of Armenia, to attempt to marry one of the Khazar kagan's daughters. The goal was to establish long-lasting peace with the kagan and the Khazar soldiers, thus helping Armenia to survive against the Khazaria's strength. Baghatur, the Khazar kagan, accepted Yazid's offer, and the bride was escorted south to the Muslim town of Bardha'a (Partaw) by ten thousand elite Khazars. After only two years and four months of marriage, the khatun died. The Khazars interpreted her death as a result of a deliberate plot hatched by the Muslim and took revenge. The Khazars launched devastating raids in South of Caucasus in 762-4: in 762 passed Derbent and headed south killing Muslims in Armenia; in 764 occupied Albanian territories, principalities in eastern Georgia, Tiflis and destroyed parts of Armenia (Brook 2006, 114-15; Czeglédy 1960, 75-81).

**9** We can hypothesize that the coin was in the clay used to make the mud brick or that the brick came from reused material. The practice of reusing previous construction materials is already attested in Dvin, for example in the central district (Kalanaryan 1996, 42, 49, 83).



Figure 16 SU 2072 and a detail of the coin found

**Coin description (by Armine Zohrabyan and Hasmik Hovannisyan)**

Abbasid Caliphate Yazid ibn Usayd (or Asid) (ca 750-80), governor (ստիկան) of Arminiya Fals,  $\text{Æ}$ , 1.30 g, 20.0 mm, h 4 Mint of Barda'a (?), AH ??6/AD 77?

After restoration:



At the end of the excavation the stratigraphic situation is the following [figs 17-18]:

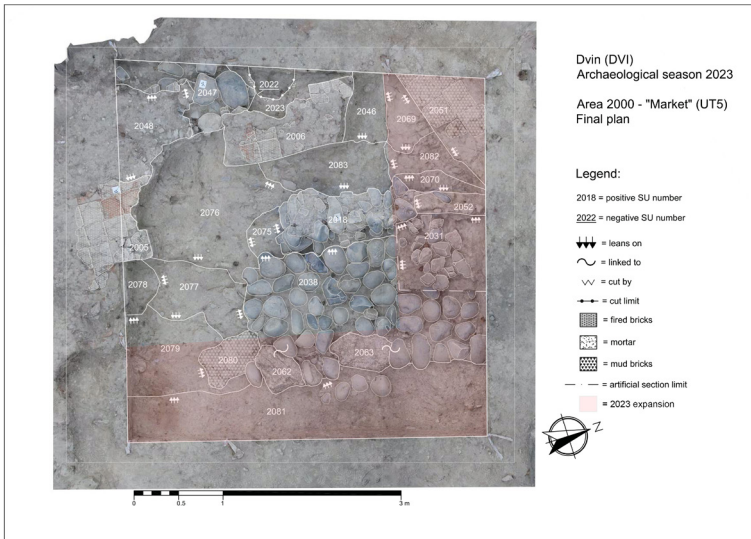


Figure 17 Area 2000. Final plan at the end of the 2023 expedition



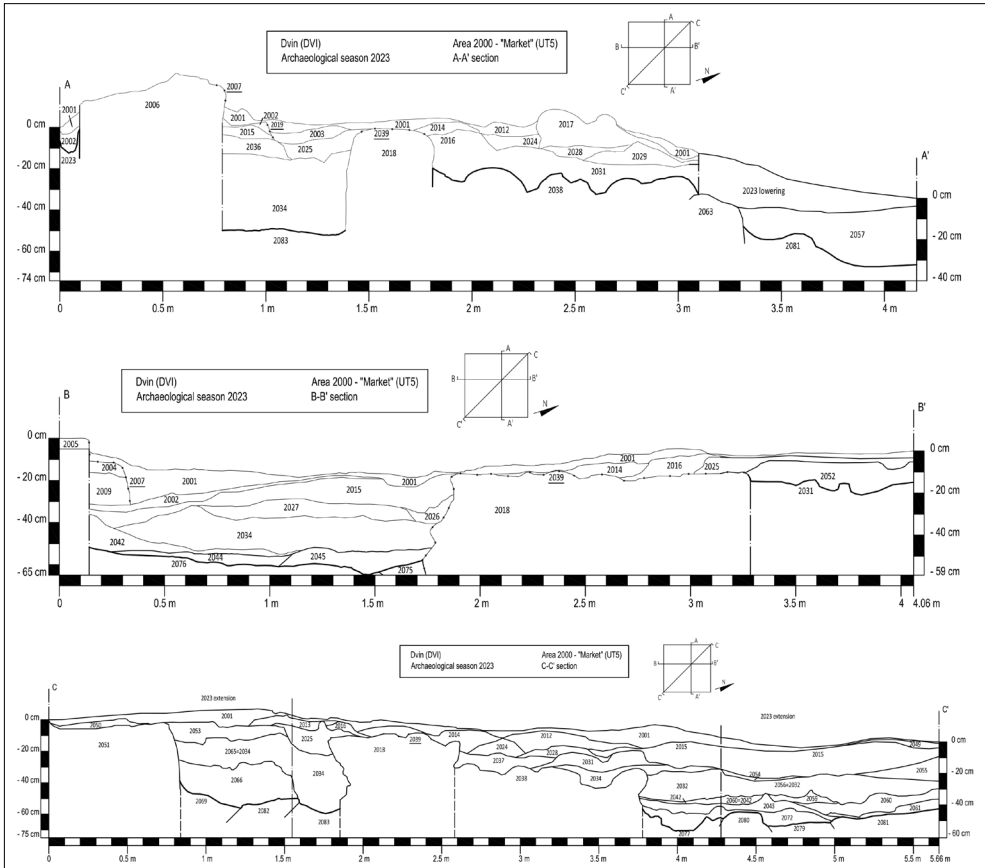


Figure 18 Area 2000. Cumulative sections after 2023 archaeological activities

### 3.3 Conclusions

At this stage of the micro-stratigraphic assessment excavation of area 2000 [fig. 19], 7 activities<sup>10</sup> could be hypothesized:

- A2093: it is the oldest one to which belongs the wall SU 1818, the cobblestones layer SU 2038 and the conglomerate SUs 2062-2063.
- A2094: to this activity belong the mud bricks constructions: SU 2051, the reconstruction of the wall SU 1818 (SU 2052)

<sup>10</sup> See § 5.1.2 for the definition of “Activity”.

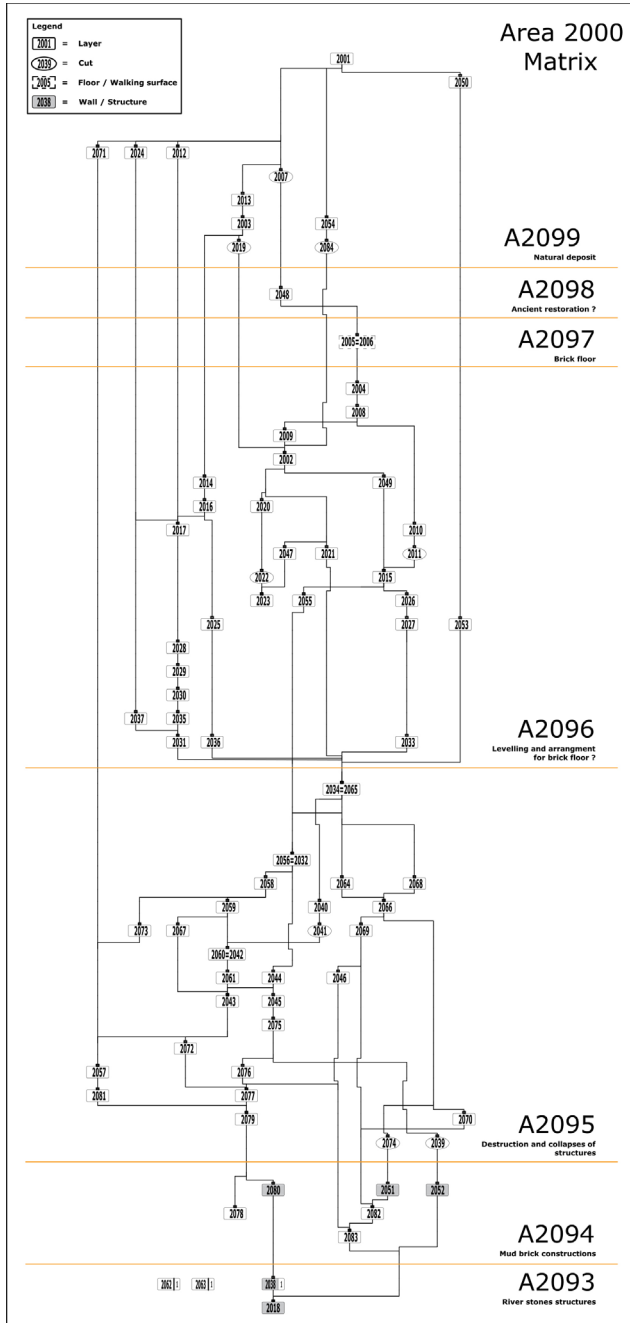


Figure 19 Area 2000. Matrix after 2023 archaeological activities

and the remains of the mud bricks wall on the southern side (SU 2080).

- A2095: this activity refers to the destruction of the structure SU 2018 (SU 2039) and all the collapse found during the excavation (e.g. SUs 2072, 2066, 2065, 2034, etc.). It is not possible at this moment to identify sub-phases.
- A2096: to this activity belongs the layers after the collapses that were used to create an horizontal level for the creation of the fired bricks floor (e.g. SUs 2004, 2009, 2008, 2015, etc.).
- A2097: this activity refers to the construction of the fired bricks floor (SU 2005 and 2006).
- A2098: this activity refers to a probable ancient restoration of the fired bricks floor (SU 2048).
- A2099: this activity refers to recent layers and topsoil.

#### 4 Light Archaeology Survey of the Dvin Market

Francesca Cheli

In 2023 a light archaeology survey on the structures preserved in the 'Market' area was started [fig. 20]. The aim was to describe these structures and, where possible, the used tools. Particular attention, in this sense, was given to the large slab tuff flooring present in the south-eastern portion of the area. The work is ongoing.

**A** - Refers to the large slab flooring on the south-eastern side in the 'Market' area. It is made up of, squared and smoothed dark tuff ashlar. Rare presence of orange tuff ashlar. The central portion is missing, and, at a lower level of the floor, there is a layer of white mortar mixed with stones and brick fragments.

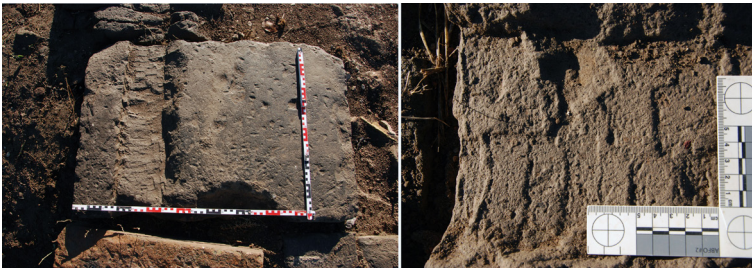
On the ashlar of the south side, the floor has a continuous groove about 14 cm wide, while on the north side only two ashlar are grooved, and the adjacent one is only roughly outlined. The groove has a rectangular section. Around it there are ashlar not in place with traces of grooves (at least 5), one of which has a T-shaped groove. On the north side, traces of two bases (possibly columns) are noticeable, but they are slightly misaligned.

**A.1** - dark tuff ashlar on the north side of the slab flooring (67.5 × 100 cm) [fig. 21]. It has a groove approximately 15 cm wide and approximately 2-3 cm deep. It continues on the ashlar A.2, but is interrupted to the west due to the presence of a quadrangular base.

The groove is made with a flat blade (chisel): ↔ 1.3-2 cm; √ 1-4 mm. The cut on the northern side shows two dimensions (↔ 1.3-2.16 cm) and it is not clear if it is another tool or two overlapping traces.



**Figure 20** Photo of the Market area taken by drone. Letters indicate the structure analysed, numbers the ashlars of the large floor studied



**Figure 21** On the left side, the tuff ashlar A.1; on the right side, a detailed of the flat chisel marks

**A.2** - dark tuff ashlar on the north side of the slab flooring, on the eastern side of A.1 (111 × 70 cm). It has a groove approximately 14-15 cm wide and approximately 2-3 cm deep. It is shallower on the E side (< 1 cm). The groove is made with a flat blade (chisel) and tool marks are more clearly readable on the north side: ↔ 1.2-1.3 cm; √ about 5 mm.

**A.3** - dark tuff ashlar on the north side of the slab flooring, on the eastern side of A.2. The groove is roughly outlined (length 10 cm, width 15 cm). The groove is made with a flat blade (chisel) and tool mark is not clearly visible: ↔ 1-1.1 cm.

**A.4** - dark tuff ashlar on the north side of the slab flooring, on the eastern side of A.3 [fig. 22]. It does not show traces of grooves but has a non-through, polygonal hole (22 × 17 cm). Hole depth: 5-5.5 cm. The walls of the cut show marks of a point tool: ↔ 5mm.

**A.5** - dark tuff ashlar (63 × 72 cm) on the western side, not in place, with two perpendicular grooves (width 14-15 cm, depth 3-4 cm) [fig. 23]. At the intersection point, there is a square (14 × 15 cm) through hole. Tool mark is not clearly readable,

but on one side of the groove linear marks given at 45° are visible. It could be a point tool: ↔ 2 mm.  
The distance between the traces is about 1 cm.



**Figure 22** On the left side, the tuff ashlar A.4; on the right side, a detailed photo of the point tool marks



**Figure 23** On the left side, the tuff ashlar A.5; on the right side, a detailed photo of the tool marks

**A.6** - orange tuff ashlar on the southern side (64 × 74 cm) [fig. 24]. It has a groove approximately 14-14.5 cm wide and approximately 3.5-4 cm deep.

The groove seems to be made with a flat blade (chisel): ↔ 8-10 mm; only a tool mark on the bottom is ↔ 1.74 cm. Tool marks are parallel to the long side.

**A.7** - dark tuff ashlar on the southern side (68 × 122 cm). It has a groove approximately 13.5-14 cm wide and approximately 4-5 cm deep.

The groove is made with a flat blade (chisel): ↔ 0.9-1 cm.

Traces of a pointed tool can also be seen: ↔ 2 mm; √ 5 mm.

**B** - Refers to the fired orange bricks floor on the western side of the 'Market' area (Petrosyan et al. 2023, 211, fig. 26).

Bricks dimensions: 23 × 23 × 4-4.5 cm.

Remains of the same floor are found within excavation area 2000 (SUs 2005-2006).



**Figure 24** On the left side, the tuff ashlar A.6; on the right side, a detailed photo of the tool marks

**C** - Refers to the mud bricks wall on the western side of the 'Market' area, within excavation area 2000 (SU 2051) [fig. 11].

The wall is visible for at least 2 courses in width and 7 in height. Its orientation is East-West. Mud bricks dimensions: 30 × 30 × 6 cm.

## **5 Area 1000 and the Stratification of the Lower Fortress: A Peek through the Peephole**

Michele Nucciotti, Leonardo Squilloni, Miriam Leonetti

### **5.1 Introduction**

The micro-stratigraphic study conducted by the University of Florence team within the framework of the Armenian-Italian expedition to Dvin is enabling a detailed assessment of the formation processes of archaeological stratification in two sectors of the site, the Market area (cf. area 2000) and the Lower Fortress (area 1000). It is certainly worth questioning how two excavations of such limited extent can contribute to the historical-archaeological reconstruction of the events of an urban site the size of Dvin, or what their level of representativeness and 'capacity for innovation' might be in the broader context of studies on medieval Armenia. For obvious reasons, a comprehensive response must be deferred until the end of the investigation, at least for this first phase of the project expected in 2026. However, in light of the findings thus far, I would like to attempt a preliminary assessment at the conclusion of the third campaign of investigation (2023), as some results and many perspectives now appear, at least to the author, sufficiently delineated.

### 5.1.1 Cons and Pros of a Micro-Stratigraphic Approach

First, the limitations. Both quantitatively and topographically, the limits of area 1000 are evident. It represents about 0.001% of the entire archaeological site (based on current knowledge) and within it, no building is observable in its entirety in plan. Hence, it is necessary to exercise particular caution in generalizing any results of the excavation because, ultimately, the perspective offered by area 1000 resembles that of a peephole: quantitatively limited and optically distorted, highlighting and almost absolutizing what is in the foreground, thereby altering the proportions relative to the general context. However, what can be observed is extremely detailed. High resolution. And this is perhaps the greatest asset of the adopted sampling strategy. This point should not be underestimated and, indeed, should be highlighted. In what sense and how? First and foremost, by assigning value to the stratigraphic method itself, based on the principles of the “site formation process” outlined by Edward Harris in 1973 (1979)<sup>11</sup> and practically implemented primarily by Philip Barker (1977). Generally, it has not been adopted at Dvin in previous decades of archaeological research on the site, and when it has been, it was never at this level of detail. A stratigraphic approach which, despite the difficulties posed by the characteristics of the architectures present on the site (largely made of perishable materials and observable in highly degraded situations within the ‘historicized’ excavation areas), has been moreover extended to the non-destructive archaeological study of structural-architectural evidence, with an approach of architectural archaeology and light archaeology (Brogiolo, Cagnana 2012; Nucciotti, Vannini 2019), previously used for Armenian-Italian research in Vayots Dzor (Nucciotti et al. 2015), and which has allowed, from this year, the creation of an atlas of building techniques used between the fifth and thirteenth centuries in the entire archaeological area of Dvin (Leonetti 2024). From a methodological point of view, then, the intersection between the stratigraphic analysis of the deposit in areas 1000 and 2000, integrated with the atlas of building techniques, allows for greater contextualization of the structures uncovered in the excavation and helps providing a reference absolute chronological framework (see § 5.3), initiating a strategy to correct the ‘peephole effect’. In a similar perspective, the contextual study of all artefacts associated with the micro-stratigraphy (without selection) will allow for a deeper understanding and seriation of the

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**11** This method has had a significant impact on the Italian archaeological scientific community, as evidenced by the first non-English edition of Harris’s work in 1983, and was particularly welcomed by Historical Archaeologists working on the Medieval Period.

lesser-known ceramic productions, primarily those unglazed items related to kitchen and storage functions. A result that, although obtained from a limited ‘peephole’, will provide knowledge that can be reflected on the scale of the entire site and beyond it, with the final elaboration expected in 2026.

#### 5.1.2 Harris Matrix Segmentation and New Macro-Periodization for Areas 1000 and 2000

Based on the findings from the 2022 excavation season proposed in the previous report (Petrosyan et al. 2023), primarily concerning the relative chronological framework, it was decided, starting from this report, to modify the notation system of the macro-periodization of the Harris Matrix. Until last year, the Harris Matrix had been segmented into “phases” (Petrosyan et al. 2023, figs 41-2), progressing from the most recent (Phase 1) to the oldest (Phase 6, for area 1000). Reflecting on the implications of this nomenclature, three critical points emerged, which prompted the adoption of a new nomenclature based on “Activities”, starting from 2023 and replacing the previous ‘phases’ [fig. 33].

The first critical point observed relates to the ambiguity of the term ‘phase’, which generally refers to an overall phasing of the site, not yet available, and which could create confusion between the macro-periodization of the different excavation areas, simply because ‘Phase 2’ or ‘Phase 3’ of areas 1000 and 2000 would not necessarily refer to the same absolute chronology. The second critical point, partly related to the first, is that since the micro-stratigraphic excavation samples are of limited extent, using the term ‘phase’ risked implying too broad a generalization of the research results. Finally, as a corollary to both critical points, the inverse numbering of a ‘Phase 1’ more recent than a ‘Phase 2’ (or 3 or 4) was counterintuitive, as it is usually expected that ‘Phase 1’ is the oldest in a series of site transformations. For all these reasons, a more low-key segmentation of the Harris Matrix into “Activities” has been adopted, grouping coeval and/or coexisting SUs, numbered in reverse order starting, for area 1000 from A1099 (the most recent), and from A2099 for area 2000. This way, an intuitive sequence is maintained in the chronological progression of stratified horizons (e.g. A1080 predates A1090) while avoiding nomenclature that might imply an overall phasing of the archaeological site.

M.N.



## 5.2 Area 1000: Stratigraphic Description

The 2023 excavation season started with the removal of the geotextile, and deep cleaning of the section and the layers already uncovered in 2022. Because of the presence of three walls (SUs 1074,<sup>12</sup> 1090, 1115), the area has been investigated in three different sub-areas [fig. 31]:

- The southern portion: south of walls SUs 1090 and 1115.
- The northwestern portion: between walls SUs 1115 and 1074 and the W and N sections.
- The northeastern portion: between walls SUs 1090 and 1074 and the E and N sections.

While the walls SUs 1074 and 1090 were already identified in 2022, SU 1115 and its destruction cut SU 1114 were recognized after the removal of SU 1080 (collapse layer in the northern corner of the area, later than SU 1074) and SU 1109 (small accumulation of clay soil on SU 1115). SU 1014 is made of rammed earth, and it has roughly the same SW-NE orientation as SU 1090, slightly more W-E.

In the southern portion, the first layer to be removed was SU 1095, the filling of the SW-NE oriented cut SU 1099. The cut had a concave profile, more vertical on the northern side. No clear clues on its function have been uncovered. It divided a compact and slightly N-S inclined surface clay layer (SUs 1071-1100). This could be a walking surface arranged on the below destruction layers.

Under SU 1071=1100, the remains of a mud-bricks floor (SU 1104 and SU 1129) have been uncovered. Its state of conservation was bad both due to ancient destruction (SU 1120 and SU 1108) and due to the degradation of the bricks (SU 1105 and SU 1121). Some of them, placed horizontally, were still partially visible, but none of them preserved the entire limits. The bricks' mixture contained straw. The floor was laid on a level compact clay preparation (SU 1106) with a slight N-S inclination.

Below this situation, the destruction (SUs 1133 and 1135) of a mud-bricks structure and the structure itself have been uncovered in the southwestern portion of the area. The preserved structure was formed by a sub-rectangular-shaped arrangement of mudbricks (SU 1136) with a semicircular end (SU 1137) on the eastern side [fig. 25]. The latter framed a small, shallow oval-shaped cut (SU 1148), in which nothing was found except a pebble, taking on a form that suggests its possible use as a tool for smoothing. The mudbricks of

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<sup>12</sup> The mud bricks wall SU 1074 has been maintained in situ even if it is later than other excavated layers (SU 1128 and SU 1110) to preserve it and to facilitate its continuation in the northern section once we open that area.

the ring around this pit were horizontally placed, while SU 1136 was made of half-bricks arranged vertically in parallel rows. The upper S-N profile of the structure showed a depression in the central part, possibly the remains of a channel to allow the flow of fluids or liquids toward the pit. The bricks, with a hard and refined mixture, were bound together with hardened clay. So far, the interpretation of the structure remains uncertain. The main idea is that it could be a structure consisting of a rectangular portion with an attached small pit surrounded by bricks, used for some type of production, although no traces (raw materials or production waste) of it have been recovered. In this case, it might seem unusual that, despite the structure being of modest size, the bricks were placed directly on the underlying layers of ashes (SUs 1107 and 1124) without any preparation. Conversely, it has to be noted that structures formed by vertically placed mudbricks have been noted and reported on top of the fired-bricks floor of what Ghafadaryan identified as a mosque, in the central quarter.<sup>13</sup> The other hypothesis, which anyway shows a number of criticalities and is less probable, suggests that it could be a collapsed brick wall in a single block (SU 1136), partially broken apart (SUs 1133 and 1135).<sup>14</sup>

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**13** Maybe, Ghafadaryan refers to these walls when he says that small rooms with mud-brick walls were built on the floor of the mosque in the twelfth or thirteenth century (1952, 46). Archive pictures of the walls are published online (cf. the repository at <https://treasury.am/hy>, picture no. 1499 and 1599). Also fired bricks were usually vertically displayed, as in the not-identifiable structure of picture no. 2284 in the same repository.

**14** According to the orientation of the bricks, the eventual wall should be located to the south of the collapse, perhaps beyond the excavated section where no traces have been found within the excavation area. In this case, it remains difficult to explain why the potential wall would be composed of bricks arranged with their headers facing towards the external side (a construction type not present in the works published on Dvin), and the presence of the pit with bricks arranged in a ring around it (is it a coincidence or the result of an excavation beneath the overlying cut 1095?).



Figure 25 Mud bricks structure (SUs 1136 and 1137) in the southern part of the area

As already mentioned, this evidence lay on ash layers, most likely to be interpreted as destruction layers of a phase related to a period subsequent to the primary use of the walls SUs 1090 and 1114 (?), partially excavated at the end of the 2022 season.<sup>15</sup> The upper ones showed a formation from south to north with a slightly horizontal upper surface (SUs 1124, 1150, 1159, and 1169), and an extension limited to a narrow strip along the southern section of the excavation. This is due to the conformation of the underlying layers, which instead show a noticeable inclination from north (walls 1094 and 1115) to south. The situation is particularly interesting starting from SU 1091=1149, a layer composed of grey to white ash mixed with a soft and incoherent light brown soil. This layer abutted against the southern face of the walls SUs 1090 and 1115. Many materials - fragments of pottery, including small glazed or luster fragments and cooking pots, metal, and animal bones - have been recovered. The high fragmentation of the pieces, which persists even in the underlying layers, is indicative of the fact that these layers refer to post-use and destruction deposition. Indeed, no clear traces of fire, but only ash, have been detected. The only exception is SU 1176, a quadrangular-shaped accumulation of fire traces (with grey ash framed by a dark brown/black ash

<sup>15</sup> Petrosyan et al. 2023, 226; during the 2023 excavation, it was decided to investigate the destruction layers south of the walls in more detail. Thus SU 1091, excavated in a small section close to wall SU 1090 last year, was divided into many more layers during the 2023 excavation.

line). Conversely to other ash accumulation (SUs 1174 and 1177-1178), in SU 1176 – and SU 1179 – there were no materials. The high concentration of ash in the soil seems to suggest that a fire was lit. All the ash concentrations laid on a soft, light brown, and very incoherent soil (SU 1175), that seems to be a layer over which they have been deposited. It was characterized by the presence of small mortar lumps and fragments of charcoal, and the pottery found inside was abundant. Two other ash layers were noteworthy: SUs 1174 (later than SU 1175) and SU 1181 (earlier than 1175). They were composed of grey and compact ash and had a maximum thickness of about 10 cm, while all the other ash layers were very shallow.

Coming to the end of the southern portion, it is possible to say that all the excavated layers of 2023 are later than the destructions of the walls SUs 1090 and 1115. These are represented by the N-S inclined layers (SUs 1180, 1175, 1091=1149) below or above which there are concentrations of ash, often the result of intentional deposition.

In the northern portion of the area, as already mentioned, the excavation was carried out in two different sub-areas, due to the presence of the wall SU 1074, uncovered in 2022. The excavation of the deposit in the northeastern portion of the square allowed to clarify the technology of the wall SU 1090 and its relation with the wall SU 1074. Indeed, while in 2022 such relation was still unclear, because of the pit SU 1072 cut on their intersection, the stratigraphic analysis of the archaeological deposit allowed in 2023 to understand that the wall SU 1074 is later than SU 1090. Moreover, since the excavation activities in this portion of the square reached the foundation of SU 1090, this latter can now be better described (see further § 5.3).<sup>16</sup>

Four stratigraphic units, referred to the construction process, can be distinguished in the wall SU 1090: MSU 1090, the wall elevation made by rammed earth, which lay on MSU 1146 (accumulation of fragments of mud bricks on the eastern portion of the wall), MSU 1184 (very compact grey clay masonry portion) and MSU 1185, the basement (still not completely visible) composed of 7 broken stones. These have a rectangular shape and are arranged horizontally. All the layers excavated are later than the basement of the wall MSU 1185 (see § 5.3).

The first layers to be removed in this portion, covered by the walking surface SUs 1085-1086, were SUs 1097 and 1087, both

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**16** During the excavation, the upper part of the wall SU 1090 was excavated as part of the layers abutting it. In fact, as visible from the eastern section and the excavation photos, the top of the preserved wall was higher and already visible at the level of layer SU 1066. Having noticed this, it was possible to revise the interpretation and relative chronology of some layers: SU 1066 is a collapse layer, similar and coeval to SU 1080 on the other side of the wall SU 1074; SUs 1085-1086 were reinterpreted as walking surfaces from the room bordered by walls SUs 1074 and 1090.

accumulation deposits rich in fragments of fired and mud bricks, lumps of mortar, fragments of gypsum, and charcoal. A small post hole was identified in SU 1087, close to the wall SU 1074.

In turn, these layers covered a horizontal walking surface (SU 1119 and his levelling SU 1117), where a small structure was installed. The latter (formed by SU 1010=1116) was a kind of platform that rose from the ground of about 15 cm [fig. 36]. It was made of hard and compact clay and displayed a horizontal upper surface. In the middle of it, there was a concave N-S oriented cut (SU 1113). Straw remains arranged in a linear pattern from north to south have been found both in the filling (SU 1111) of this cut and over the remains of the platform/structure. Furthermore, in SU 1116 a mother-of-pearl waste was recovered. The presence of the straws and the mother-of-pearl fragment, even if only one, may suggest a productive function of the structure, a hypothesis that needs to be verified with additional data.

The wall SU 1074 was founded on the above mentioned structure, without any foundation cut. It preserves only one line of mud bricks and a soil preparation under them. On the western side of the wall, at the same height of SU 1110=1116, the layer SU 1128 was also covered by SU 1074. The construction of SU 1074 is therefore later than SUs 1110=1116 and 1128. A detailed analysis of the materials will provide data for a clearer absolute chronology of this sequence. In any case the available data, indirectly, also allow to state that wall 1074 is later than walls SUs 1090 and 1115. Furthermore, it means also that the inner division of the space to the north of SUs 1090 and 1115 was not in place before the making of SU 1074.

Going deeper, SU 1119 (clayish layer with small stones) covered a previous walking surface (SU 1141) on which three structures made of raw mud bricks were placed [fig. 26]:

- SU 1142: two perpendicular lines of gray mud bricks forming a rectangular structure with SU 1090. The structure is empty in the middle and the western portion is covered by SU 1074, so is not visible. At the first sight, it seemed to be a structure with a containing function.<sup>17</sup>
- SU 1143: alignment of mud bricks with a slightly north-south orientation, perpendicular to SU 1090. The bricks are aligned but do not form a straight line. The structure is about 1 m long, between the wall SU 1090 and the northern section.
- SU 1145: remains of a mud brick structure abutting on the northern face of SU 1090. It preserves only two rows of two mudbricks each, one over the other.

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**17** Similar structures can be identified in the rooms of the twelfth-thirteenth century of the southern part of the lower fortress (cf. Kalantaryan 1996, pl. 19.1 and pl. 47) and on the western slope of the citadel (cf. the 1950 plan edited in Ghafadaryan 1982, 73).

The scarce visibility due to the limited size of the area between SU 1090 and the north section does not allow to have a clear idea of the situation. At least, it is possible to state that at a certain point, the space was reorganized, with the creation of a horizontal floor and the construction of modest structures, whose function has to be clarified.



Figure 26 Mud bricks structures (SUs 1142, 1143, and 1145), north of SU 1090

Before this reorganization, there was one other walking surface (SU 1152), covered by SU 1141. SU 1152 was a clayish layer, very compact on the upper surface and softer in its thickness, where crushed stones and tuff dust were present. On its surface, in the corner between the northern section and SU 1074, a fireplace/hearth (SU 1151) was preserved [fig. 27]. It had a defined semicircular shape where grey and black ashes were mixed. SU 1152 covered two collapsed mud bricks' layers (SUs 1157-1158) and, over them, four mud bricks horizontally well-arranged as a sort of floor remains (SU 1156). The collapses displayed two different orientations: from west to east SU 1157 (the later one), and from east to west SU 1158. Beyond orientation, the distinguishing feature between the two layers is the greater presence of plaster in SU 1157.



Figure 27 Walking surface SU 1152 and the hearth SU 1151

In this portion of the excavation, SU 1158 was the last one removed. The collapses covered a probable floor (SU 1171) and a deposit layer over it (SU 1166) featured by the presence of orange and white soil patches. The remains of a mud bricks wall (SU 1186) were uncovered under layer SU 1158. SU 1186 is perpendicular to SU 1090 and is made of two rows, which preserve respectively four (the eastern one) and one (the western one) bricks. These layers will be investigated in 2024, to clarify if SU 1171 can be a floor related to the first phase of use of the wall SU 1090.

L.S.

In the northwestern portion of the area, the excavation started with the removal of the collapse layer SU 1080, which covered SU 1074 and its disruption SU 1083. This layer covered SU 1122, which is probably a rise in the terrain, made by mud and fired bricks fragments, mortar, crushed stone, and particularly straw with an orientation from north to south (very similar to the straw found east of SU 1122, in SU 1110=1116).

SU 1122 covered a large pit (SU 1126) filled with fired and mud bricks in fragments mixed to a light-colour friable matrix with faunal remains, which extends westwards continuing beyond the excavation limit (SU 1127=1130). This pit cuts through SU 1123, a horizontal, very compact clay surface, partially visible along the western

section, composed of gray and brown soil with lumps of mortar, pebbles, and decaying mud bricks [fig. 28].

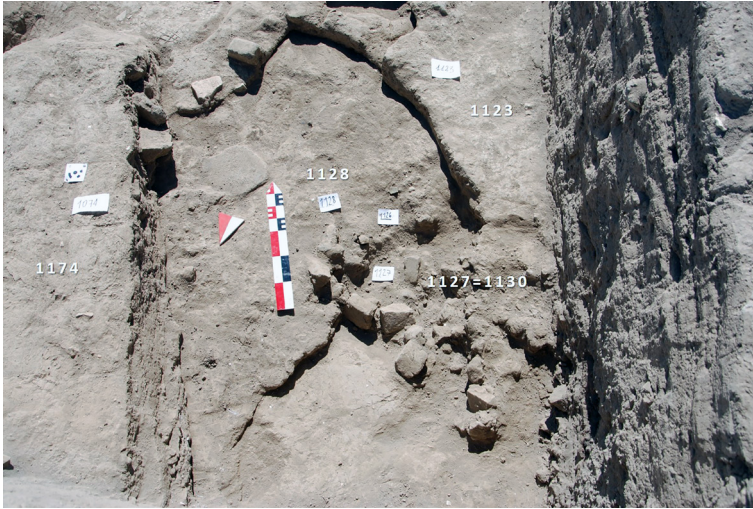


Figure 28 Floor SU 1123, cut 1126, and its filling SU 1127=1130

All these SUs mark up a precise stratigraphic horizon, that is related to the last phase of use of the 1074 wall, after the construction of the wall itself. Indeed, below this situation, another phase was uncovered.

This latter consists of the walking surface SU 1128, over which the wall SU 1074 and the structure SU 1131, which abuts on SU 1074, are founded [fig. 29]. SU 1131 was formed by compact clay soil and fragments of mud bricks and showed a broken pattern with an E-W oriented section and a NE-SW oriented one. The structure was found not intact, but in disrepair, and in the eastern portion it has been partially cut by the pit SU 1072. No hypotheses about its function have been elaborated for now.





Figure 29 Structure SU 1131 on the walking surface SU 1128 and the wall SU 1074

SU 1128 covered another walking surface (SU 1132), a 5-6 cm thick layer made up of clay soil, with a horizontal orientation (it resulted visible only in some portions of the area because it was partially removed by the cut SU 1147). SU 1032 laid on two layers, SUs 1140 and 1153.

SU 1140 is a sandy-clayish layer very thin, featured by white soil patches, most likely melted plaster, and charcoal. It covered SU 1153, a layer composed of medium-large building material (fired and raw bricks), arranged in a fairly regular manner, which can be interpreted as a crawl space for the SU 1132 floor.

Evaluating the heights and what has been observed in the field, limited to the position and the remains of the deposits in the NW corner of the area, partially destroyed by the cut SU 1126, it is conceivable that the use of the floor SU 1132 was related to a second phase of use of the *tonir* (SU 1189) discovered there.

Indeed, in the western section, close to the northwestern corner of the area, a *tonir* has been found [fig. 30]. The *tonir* was positioned by cutting (SU 1164) the layer SU 1155, which was therefore the first plane of use of the *tonir*. The space between the *tonir* and its cut (10 cm ca) was filled by a fine ash layer featured by the presence of very small pebbles (SU 1188). Three quadrangular broken fired bricks (SU 1163) framed the cut. Over these bricks, there was an accumulation of fine ash (SU 1162), resulting from the use of the *tonir*. The ash was also spread on the layer SU 1155. In the end, one other layer composed of black charcoal and quadrangular fired bricks (SU 1160), most likely to be connected with the intentional defunctionalization of the *tonir*,

has been uncovered. To summarize, the *tonir* was used at least in two different phases: the first one in connection to the walking surface SU 1155, and the second one to be confirmed with a larger excavation around the *tonir*, in connection to the floor SU 1132.



Figure 30 Tonir SU 1189 and stratigraphic column

The last layer excavated was SU 1155, which covered SU 1161, to be excavated in 2024. SU 1161 covers a structure (SU 1154) located in the southern area, north of the wall SU 1115, which precedes the entire stratigraphic column described so far and is covered by some layers of disruption (SUs 1167-1168, 1165).

M.L.

### 5.3 The Wall SU 1090: Technical and Chronological Discussion

The architecture of Dvin is characterized by a variety of construction materials and significant aesthetic heterogeneity. Consequently, an in-depth investigation of the site's masonry walls was necessary, encompassing findings from the excavations conducted by Ghafadaryan (1952; 1982) and Ghafadaryan (1996; 2008), as well as from the new excavations initiated in 2021. This analysis focuses on the identification of the Building Technique (BT) of each wall and the discernible Masonry Types (MT), as defined in Mannoni 2005.

The term 'Building Technique' refers to the composition of the masonry wall in terms of the materials used, including the presence or absence of a foundation and binding agent.

MT, on the other hand, has been identified for each building technique based on the material, the method of construction, the treatment of stones or the composition of bricks, and their dimensions.

The MSU 1090 wall, featured in the Dvin wall atlas, constitutes a wall segment running in a northeast-southwest direction and is situated in the northern section of Area 1000.

Among the seven building techniques identified at Dvin (Leonetti 2024), wall MSU 1090 falls under building technique BT 4, characterized by a stone foundation and a superstructure made of rammed earth (*pisé*).<sup>18</sup>

The foundation of the structure (SU 1185), uncovered during the 2023 excavation campaign, is composed of stone bonded with clay mortar, while the elevation is made of rammed earth pressed within formworks, although no traces of their dimensions are currently visible.

While it was not possible to assign a wall type to the elevation as it lacks traces and therefore measurements of the formwork, the stone foundation has been classified as MT B, based on the materials used, with subtype 4 designation (MT B4).

It comprises split sandstone and limestone blocks, typically rectangular in shape, arranged in horizontal courses (of which only one is visible), ranging in length from 24 cm to 35 cm.

The joints of the foundation exhibit considerable width and irregularity, measuring between 1.8 cm and 4.8 cm, filled with a clay-sandy binder recessed within the joints.

Through stratigraphic revision (see § 5.2), it has been determined that the elevation is visible to a height of 60 cm in the portion of Area 1000 currently under excavation, whereas in the eastern section of the excavation, it is visible at a greater height.

The wall SU 1090 represents the only observable example of this construction technique at Dvin.

Other examples of this construction technique are no longer visible, but they have been reported by Kalantarian in his excavation reports and in the published accounts of the structures in the southwest portion of the Central District of Dvin (2008).

Currently, only scant remains of the foundations of these structures are visible, while there is no trace of the elevated portion.

The identification of a building technique and a MT has allowed for a better chronological framework, which, combined with the stratigraphic analysis, has facilitated the dating of the wall MSU 1090.

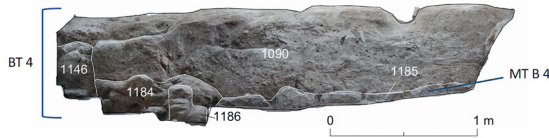
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<sup>18</sup> For a definition of *pisé*, cf. Hermann 1999, 48-9.

From the archaeological evidence, the Building Technique type is present in Dvin between the eighth (structures in the southwest part of the central district) and the twelfth (structures of the Lower Fortress) centuries, while the MT of the foundation dates between the eleventh and thirteenth centuries.

According to data from micro-stratigraphy, the construction of MSU 1090 may have taken place in the eleventh century ( $\pm 50$  years; see § 5.4) with a continuity of use of the wall evidenced by various floor levels, identified during excavation, leaning against the wall, until the twelfth-thirteenth centuries.

**Table 1** Building technique 4: Stone (Base) and Rammed Earth (Elevation)



**DESCRIPTION:**

The foundation (SU 1185) is made of stone with clay binder, and the upper structure is constructed using rammed earth pressed into formwork (*pisé*). Apart from wall SU 1090 in Area 1000, only the stone foundations of this masonry technique are currently visible, while the earth structures can only be inferred from excavation photographs or descriptions in excavation reports.

**FOUNDATION:** Present

**Core technique:** Not visible

**Composition of foundation:**

Lithic and clay

**Masonry types:** MT B3, B3.1, B4, B5, B6, B8

**ELEVATION:** Present

**Core technique:** In layers between formwork

**Composition of elevation:**

Clay-sandy matrix

**Masonry type:** Not attributable because the dimensions of the layers are not discernible.

**Sample Origin:** Area 1000 SU 1090

**Presence of building technique:**

Area 1000, SU 1090; AC 1, B 1, FU 5; B 2; AC 2, B 3, FU 2, E South and FU 5, E North; AC 5 (southwest portion); B 6, B 9, B 10.

**Dating of masonry technique:**

Between the eighth and twelfth centuries AD.

**Bibliographical references:**

Dvin Report 2023; Kalantarian 1996, 80-1; 2008, 96; Ghafadaryan 1982, 57-8 and 103-5.

M.L.

## 5.4 A Stratigraphy of Transformations in the Lower Fortress of Dvin: Area 1000 at the End of the 2023 Season

The 2023 excavation season in Area 1000 revealed a complex sequence of use, reuse, abandonment, transformation, and repurposing of the spaces within the site's area. A comparison between the Harris Matrix [fig. 33], the end-of-excavation plan [fig. 31], and the cumulative section of the deposits investigated so far [fig. 32] further illustrates how the formation times of the deposits do not coincide with horizontal planes. Consequently, at the same level, stratifications related to chronologies that are significantly distant from each other, at least from the perspective of relative chronology, can coexist (as indeed they do). This demonstrates how adopting a micro-stratigraphic strategy can assist the Armenian-Italian team in advancing their understanding of the site, highlighting aspects of its material history (as well as its productive, social, and political history) that have not been analysed at this level of detail until now.

The aim of this concluding paragraph of the 2023 excavation report for Area 1000 is to illustrate how the stratigraphic data collected so far can be used to describe the sequence of transformations that occurred in the Lower Fortress sector of Dvin. It also aims to anticipate the logical-chronological reference system into which the results of ceramic, production-archaeology, and zooarchaeological studies will be integrated. Collectively, these studies will form the interpretive backbone concerning material sources.

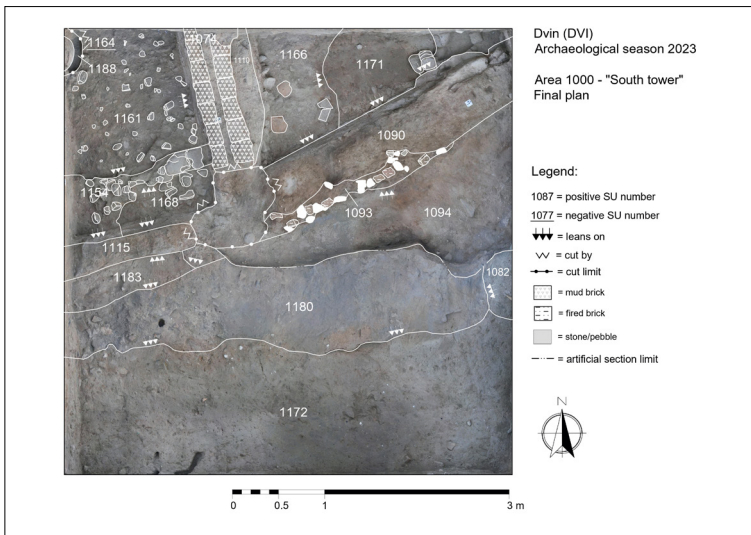


Figure 31 Area 1000 2023 end-of-excavation plan

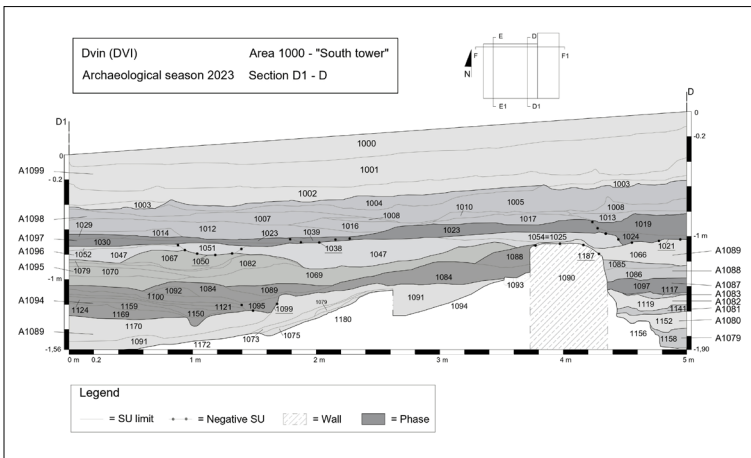


Figure 32 Area 1000 D-D1 cumulative section after 2023 archaeological activities

Contrary to the illustration of the excavation, in this paragraph, I will invert the order of presentation of the evidence, proceeding from stratigraphic horizon A1080 to the most recently investigated activity this year, A1092.

A1080 [fig. 34] shows one of the oldest configurations identified in Area 1000. It is characterized by a use floor abutting walls SUs 1090-1115, which were already present for some time. It is not yet possible to establish exactly when they were constructed, although, based on the technological analyses of 1090 (see § 5.3), I would currently hypothesize a construction date around the eleventh century ( $\pm 50$  years). Following events that will be further clarified by the excavation of the SU of A1079 and A1078 in 2024, A1080 presents a *facies* associated with a domestic setting, with an earthen use floor (SU 1155 and SU 1152) featuring a hearth (SU 1151) and a *tonir* (SU 1189, inserted with cut SU 1164). This suggests a likely residential function.

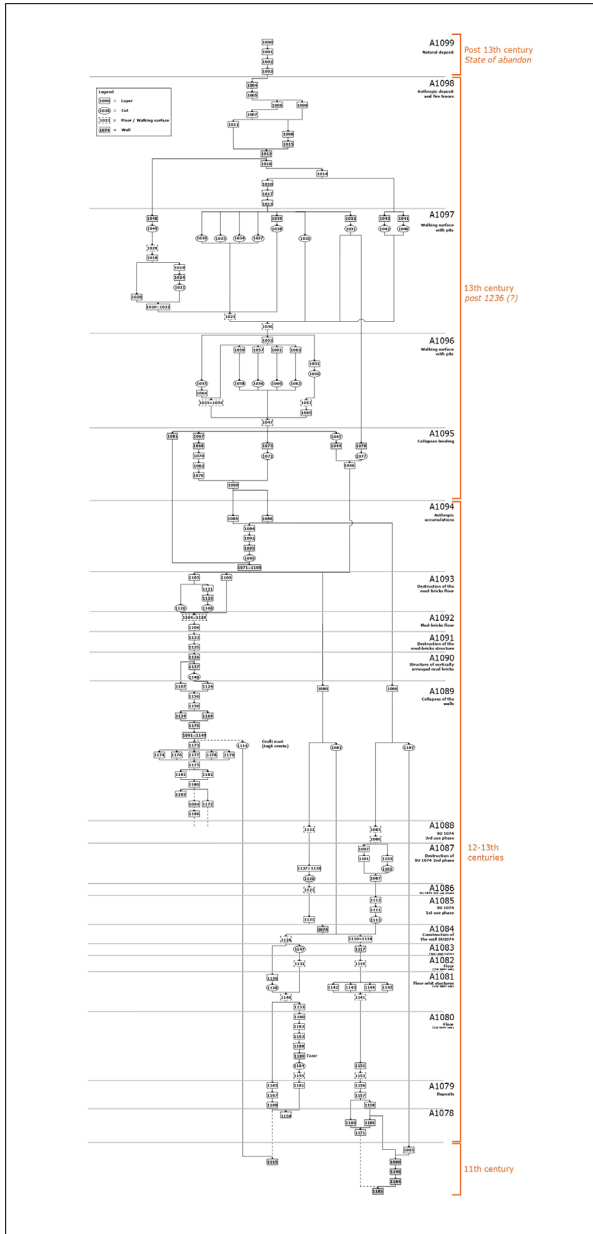


Figure 33 Area 1000 matrix after 2023 archaeological activities

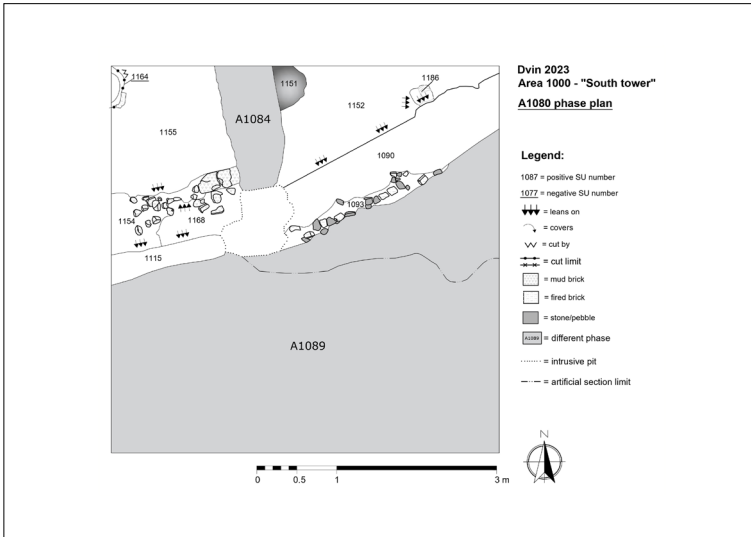


Figure 34 Area 1000, Activity A1080

The use of *tonir* SU 1189 continues for some time and appears still in use during A1082, before its deactivation and destruction in A1083. A1081 [fig. 35] shows a reorganization of the area north of walls SUs 1090-1115. As mentioned, the *tonir* is still present; however, modifications to the previous configuration are also evident. A new carefully constructed earthen use floor (SU 1140) is created over a preparation layer (SU 1153) composed of residual fragments of construction elements arranged to form a horizontal level. The presence of construction waste materials likely indicates the use of debris from ruined buildings for supply purposes. To the east, small rectangular basins or silos with walls made of fragmented mud bricks are built against the northern side of wall SU 1090. The previously open 'domestic' space becomes congested with other structures and probably additional functions. Whether this space served as a storage area, a stable, or, partially transformed, a section of the domestic area of A1080 for productive purposes cannot be determined at this time. However, the transformation of the space and its use, with the elimination of the hearth, is evident.



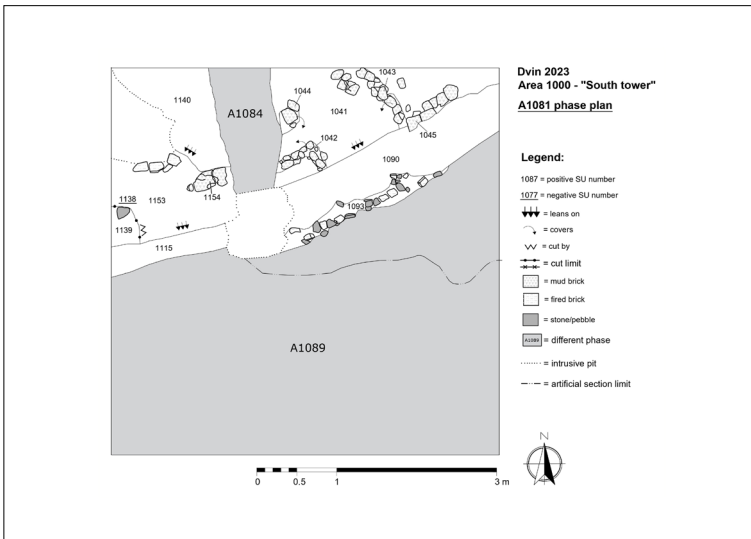


Figure 35 Area 1000, Activity A1081

Following this horizon, the main transformation occurs during A1084 [fig. 36], when the area north of walls SUs 1115-1090 (at this point surely considered ancient by those using them) is divided into two portions by the perpendicular wall SU 1074. This wall is constructed over the walking surface constituted by SUs 1128-1110 and SU 1117, which previously (A1083) levelled the structures exposed in A1081 and ended the use of *tonir* SU 1189. Moreover, the construction of wall SU 1074, made of new and unbroken bricks, could be linked to the transformation of the area for productive purposes. Throughout activities A1083 and A1084, an oblong basin cut into the floor (SU 1113) is created, from which strong concentrations of straw or vegetal fibres, also found on the surface of SU 1110, were recovered. This might be the remains of some type of mats made of plant fibres, suggesting, in association with mother-of-pearl fragments found in SU 1116, the possible installation of a manufacturing workshop. Without overemphasizing the specialization of this activity, which is also compatible with a domestic setting, it is evidence of productive activity indicating a further transformation of use in this part of Area 1000 during A1084 (possibly related, to the west of wall SU 1074, to the remains of a small structure evidenced by SU 1131).

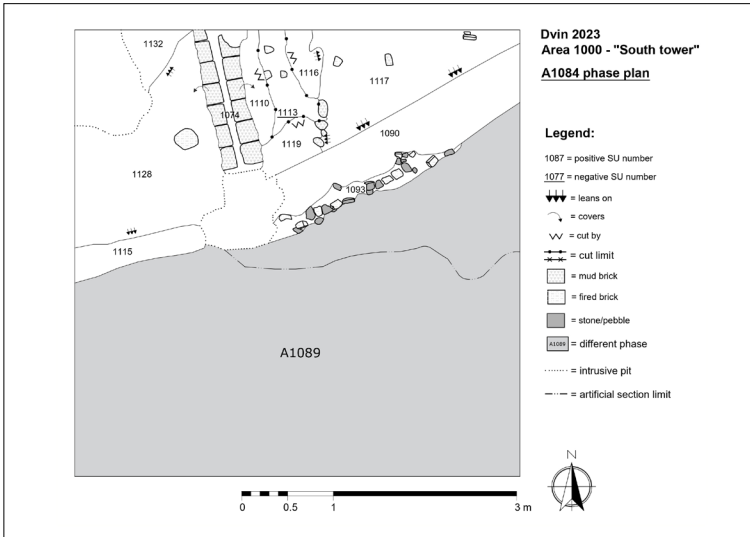


Figure 36 Area 1000, Activity A1084

The wall SU 1074 continued to exist until Activity A1089, as evidenced by the accumulations and walking surfaces abutting the structure until that period. However, it is unclear if the wall had suffered deterioration starting from Activity A1086. During that period, a new floor (SU 1123) was laid west of the wall, characterized by the presence of reused materials from a ruin (mortar lumps and fragmentary mud bricks), covering the structures of SU 1131, which were evidently no longer in use. Notably, a cobalt blue glass rod, indicative of glass production, was found in SU 1123, although it is not possible to directly relate this to SU 1131, despite the topography suggesting a potential connection. East of the wall SU 1074, the deposit SU 1111 appears to form, marking the end of the use of the small manufacturing facility chronologically linked to Activity A1084 (see § 5.2). The change in usage patterns is clear from the subsequent Activity A1087 [fig. 37], when a pit (SU 1126) was opened in the walking surface SU 1123, whose fill (SU 1127=1130) contained faunal remains but no ceramic materials. This possibly indicates a further moment of restoration or re-purposing, likely a restoration building-yard, resulting in a raised walking surface. On the east side of wall SU 1074, accumulations SU 1087 and SU 1097, a dumping of residual materials including gypsum and charcoal, are noted, precluding the new re-organization evident in Activity A1088, where new walking surfaces are established both west and east of SU 1074 [fig. 38].

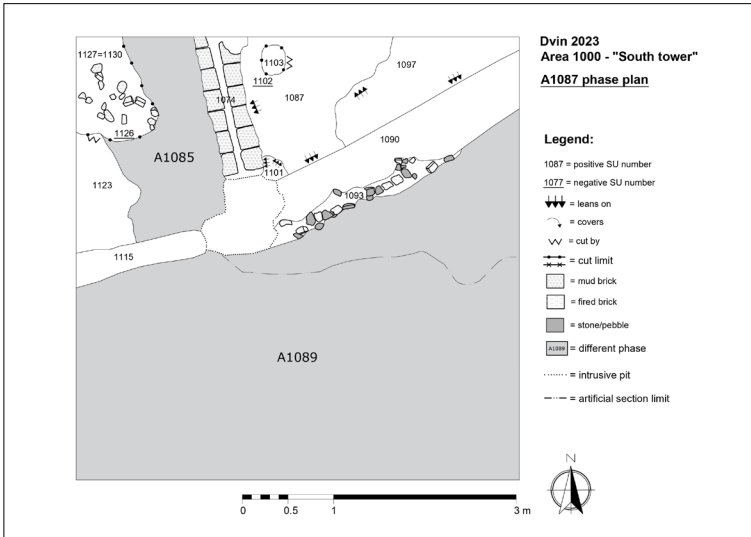


Figure 37 Area 1000, Activity A1087

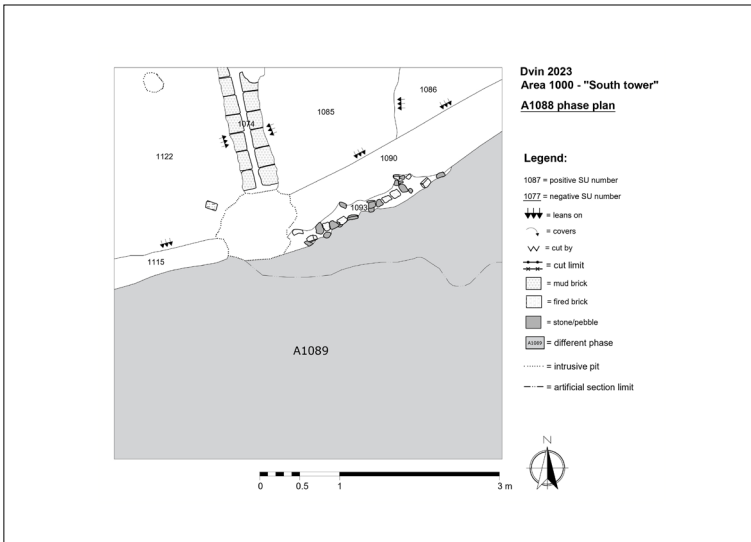


Figure 38 Area 1000, Activity A1088

All activities described so far are visible only in the northern portion of Area 1000, that is, north of the ancient structure delimited by walls SUs 1115-1090. The moment, crystallized in the subsequent Activity

A1089, completely changes the scenario of this (small) part of the Lower Fortress [fig. 39]. A series of collapses affecting all structures (SUs 1083, 1114, 1187) indicate a dramatic event, either natural (earthquake?) or anthropogenic (destruction by or with fire), which literally disintegrated the urban environment that was never re-established in this area.

However, over the ruins of the ancient structures, the oldest of which might have been constructed as early as the eleventh century, stable forms of settlement reappear, as evidenced by the establishment during Activity A1090 [fig. 40] of a production facility, featuring a flooring and channelling made of vertically set mud bricks, connected to an oval basin (SUs 1136-1137, 1148).

It is certain that from these two moments onwards (A1089 and A1090), Area 1000 retains the material memory of an 'open-air' portion of the city. It is important to remember that this re-configuration took place considerably earlier (in relative chronology) than the re-purposing of this area as a seasonal encampment site in the Mongol period (cf. Petrosyan et al. 2023, 232, phase 3/A1096). This indicates that the transformation and de-structuring of the urban environment of the Lower Fortress of Dvin, at least in Area 1000, was mainly caused by the collapses during the A1089 period which, despite in need of being precisely placed in absolute chronology, pre-dates by several decades the Mongol destructions of post-1236.

M.N.

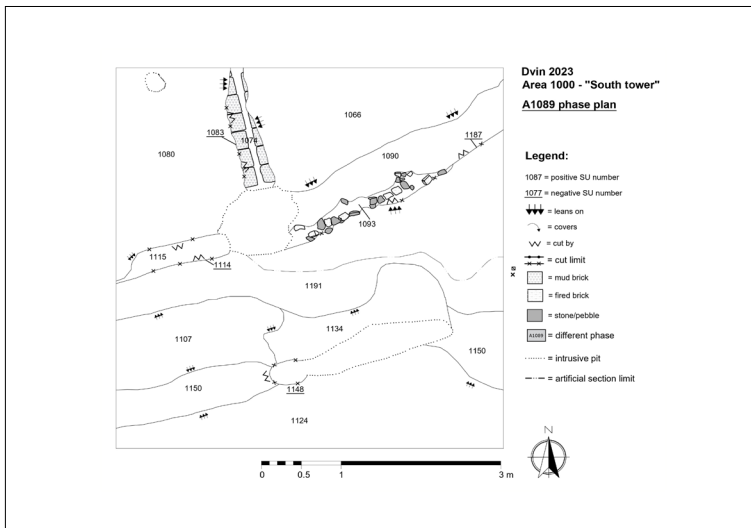


Figure 39 Area 1000, Activity A1089

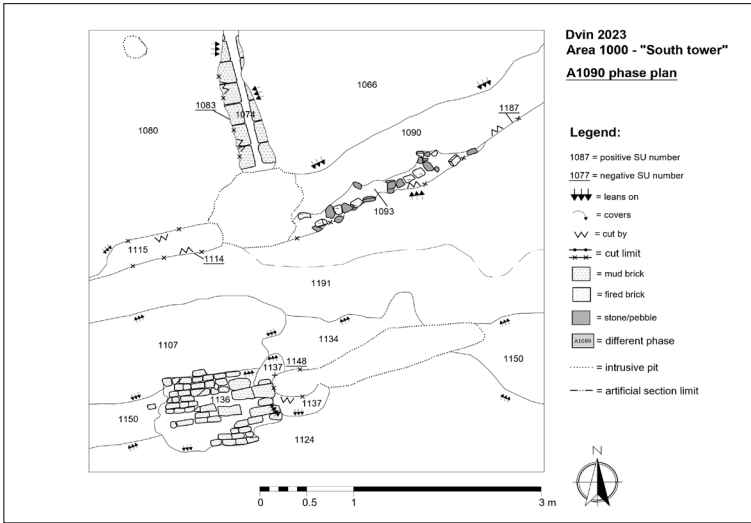


Figure 40 Area 1000, Activity A1090

## 6 Material and Artefacts from Area 1000 and Area 2000

Elisa Pruno, Lisa dall'Olio

Regarding the 2023 campaign, the work presented here involves the first qualitative analysis of the main stratigraphic units, analyzed by phases of activity, for both Area 1000 and Area 2000. Additionally, it includes the initial presentation of an ongoing study on animal bones, specifically aiming to identify the main species present in the excavated contexts and attempting to provide insights into livestock farming and diet.

### 6.1 Artefacts

As for the study on materials, the following operations were carried out during the 2023 campaign:

- Processing of the 2023 data, referring to the materials from the 2022 excavation campaign.
- Preliminary inventory of September-October 2023 excavation campaign materials.
- First photographic documentation campaign of imported artefacts found in Dvin excavation campaigns, now stored at the History Museum of Armenia in Yerevan.

The processing of data concerning artefacts from the stratigraphic units excavated in both Area 1000 and Area 2000 during the 2022 season aims to tackle several issues, the primary one being the chronological contextualization of the activities identified through stratigraphic excavation. The primary challenge in addressing the requirement for chronological contextualization stems from the absence of prior studies conducted under similar micro-stratigraphical parameters. Typically, in the available literature for Dvin, chronological references are encountered primarily for painted, glazed, or enamelled ceramics, often spanning broad periods. Comprehensive studies on unglazed ceramics, which constitute the majority of findings and fulfilled a variety of functions, have not been recently updated.<sup>19</sup> The ongoing work entails systematic seriation of all stratigraphic units, preserving chronologies established with glazed ceramics while also integrating all unglazed ones. This process involves analysing the initial appearances, presences, and subsequent disappearances of different types on a seriation or semi-seriation basis. At the conclusion of these operations, we might be able to propose contextual chronological elements and even suggest chronologies for at least some of the unglazed pottery. The workflow for the study of each context begins with the quantification of pottery using and combining three methods: sherd count, Minimum Number of Individuals (MNI) and sherd weight.<sup>20</sup> If the meaning of the counting of fragments and the weight of the different ceramic classes is clear, it is necessary to explain how the MNI count is obtained. MNI of each pottery typology is worked out from the number of different rims and bases. The higher of the two totals is added to the number of complete profiles with the addition of 1, to count all the body sherds of the same type (compensation by 1; Verdan 2011). The main objective of the MNI counting is to identify how many individual

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**19** The main objective of our work on materials is to carry out a comprehensive study on all the analysed contexts, encompassing all classes of ceramics and taking into account all the collected fragments. The most recent interventions on the excavations conducted in Dvin before 2021 are those of A. Zhamkochyan (2015; 2018). For a comprehensive view of the materials excavated at Dvin, it must be mentioned the French volume of Kalantaryan (1996). For imported ceramics in Armenia in the ninth century, cf. Pormohammadi 2015. Essential for studying medieval ceramics in Armenia are the many works of A. Babajanyan (among which 2015a; 2015b; 2018).

**20** From a general point of view the quantification allows an overall comparison between different types of archaeological contexts, in the same site and in different sites, even if excavated at different times or by different research groups (but in this case, the criteria used for quantification must be made explicit): “Statistical exploitation of the counts is successful when the sampling is representative from both a qualitative (considering all categories and forms homogeneously) and a quantitative point of view. For instance, an assemblage that is too small might not necessarily lead to a general overview of each defined pottery production. Primarily, quantification of material is applied to facilitate comparison which supports the larger historical picture; hence the use of the same counting method for each assemblage is crucial” (David, Saskia Buechner 2022, 65).

forms are at least represented by all the fragments in each single stratigraphic unit. By then converting the obtained data into percentages, it allows for the verification, both diachronically and synchronically, of the presence of the different types and classes of ceramics across all the investigated areas.

This process will enable the identification, among other things, of the primary functions associated to the stratigraphic units. For instance, a substantial percentage of kitchen ceramics may indicate areas of domestic activity, while a significant presence of storage ceramics might suggest locations associated with the storage of food commodities, and so forth [fig. 41].

This is the only way to meaningfully compare the various technological-functional classes present in the studied contexts. After obtaining the quantification of the MNI for each class and type within each stratigraphic unit, it becomes possible to start defining the percentages present. This process will facilitate identifying, among other things, the primary functions carried out in the discovery areas of the stratigraphic units. For instance, a significant proportion of kitchen ceramics may indicate domestic activity areas, while a substantial presence of storage ceramics might suggest locations associated with the storage of food commodities, and so forth. Based on the results of these analyses, the preparation of an article is underway, which will also benefit from the ongoing processing of data concerning artefacts from the 2023 campaign.

E.P.

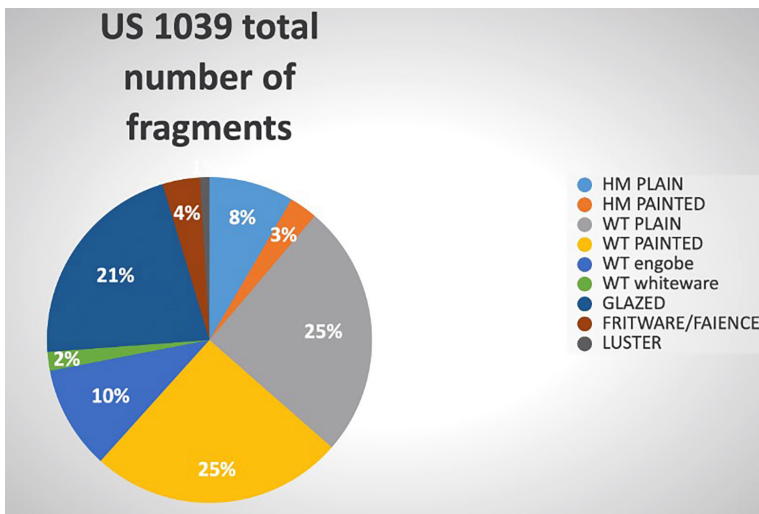


Figure 41 The example of SU 1039

## 6.2 Area 1000: Materials and Artefacts

Extensive amount of pottery and animal bones were excavated during the 2023 fieldwork, along with smaller quantities of glass and metal artefacts. Qualitative analysis of the pottery was conducted during this campaign to establish technological classes and typologies, while quantitative analyses are currently ongoing. Initially, as was done for previous campaigns, a categorization was established based on technological classes, including handmade, moulded, and wheel-thrown pottery, distinguished further by glazed or unglazed, as well as by the composition of the body, whether siliceous or clay (the latter categorized as rough, semi-coarse, or coarse), for each pertinent stratigraphic unit. This classification excluded units associated with cleaning phases or those of non-anthropogenic origin, which will be examined in a subsequent phase of the research, such as for verifying residuality indices.

Nineteen stratigraphic units were examined in Area 1000, but here eight are presented. They are related to some different Activities identified (see § 5.4): the construction of the wall SU 1074 (SU 1128, 1116, A1084), its first and second use phases (SUs 1111-1112, 1123, A1085-A1086), its destruction (SU 1097, A1087) and the collapses of the wall (SUs 1080, 1091, A1089). Since the quantitative analysis is still underway, which is essential for addressing chronological and functional inquiries systematically, it is crucial to highlight that the overall horizon facilitates contextual framing in chronologically compatible phases (as far as presently understood) extending to the twelfth-thirteenth century.

Starting from Activity A1089, concerning the S Area, it's interesting to analyse, even if only at a preliminary qualitative level, which doesn't yet include the final phase of quantification, the SU 1091, which represents a layer interpretable as a context of post-use and destruction deposition of the walls SUs 1090 and 1115. It is a very rich SU, with a high quantity of pottery sherds, and a relevant index of fragmentation (that will be precisely measured during the inventory drafting process in the upcoming season).<sup>21</sup> Generally speaking, SU 1091 comprises both glazed and unglazed artefacts. Among the unglazed ones, there are both types for cooking use and for storage, with many diagnostic fragments [fig. 42].

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**21** The fragmentation index is closely related to how contexts are formed and to their post-depositional events, as well as to the specific characteristics of different ceramic productions: for example, fragile vessels with thin walls can break into a greater number of fragments than vessels with thick walls. A fairly simple way to calculate it is to divide the weight of the ceramic fragments found by the total number of fragments (Ceci, Santangeli Valenzani 2016, 21).





Figure 42 Cooking pottery sherds from SU 1091

Among the glazed artefacts, there are also 4 Mina'i fragments and one stonepaste sherd [fig. 43a]. The discovery of Mina'i ware fragments in SU 1091 is significant. Mina'i ware is an Iranian pottery, notably developed in Kashan prior to the Mongol invasion of Persia in 1219, after which its production is generally believed to have ceased. Mina'i ware likely represented one of the most luxurious ceramic wares produced in Islamic lands during the medieval period.

In SU 1149, equivalent to 1091, qualitatively, a notable quantity of stonepaste pieces is observed, still regarded as significant materials pending further verification through archaeometric analyses.

In the Northwest Area, to define A1089, SU 1080 has been taken into account. It also presents a good number of fragments, and regarding ceramic classes, both glazed and unglazed are present. Among the glazed ones, there are no stonepaste ceramics, while among the unglazed we have cooking and storage vessels (possibly also transport artefacts) [fig. 43b].

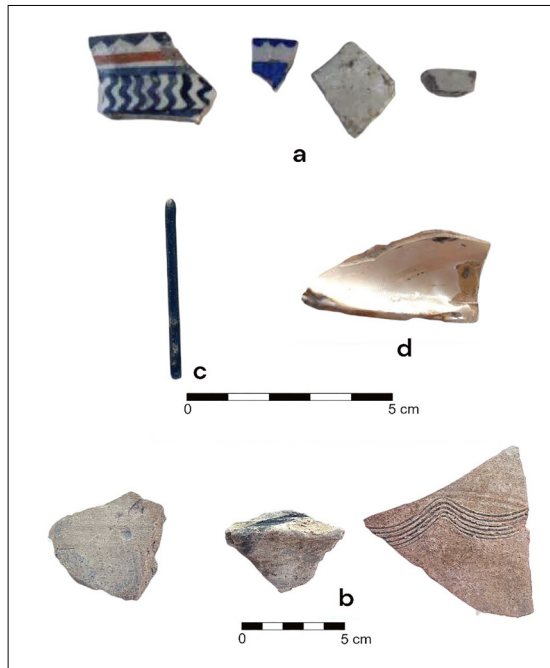
A1087 is here presented through the SU 1097 materials. Both classes are present, glazed and unglazed ones. There are fragments of green sgraffito, yellow and green sgraffito, two small fragments of stonepaste ware and, maybe, just one small piece of luster. As for the unglazed ceramics, it is mainly represented by storage materials, while there don't seem to be many fragments of kitchenware ceramics. The A1086 is represented only by SU 1097, a very small context with only five pottery fragments (one is stonepaste ware) and glass rod [fig. 43c].

The A1185 is presented through the materials from the SU 1112 and 1111. Both are small, containing not a lot of fragments. There are both glazed and unglazed sherds and it should be emphasized the presence of mother-of-pearl in SU 1111 [fig. 43d].

The presence of glass rod and mother-of-pearl fragments in A1086 and A1085 leads us to reflect on the possibility that in the vicinity of Area 1000 or nearby it, there could have been production facilities, especially related to glass or ceramic production. Moreover, excavations conducted in past years have suggested the presence of artisan workshops precisely on the western slope of the citadel and near the southern tower (Kalantarian 1996, 50-2; Ghafadaryan, Kalantaryan 2002, 51-2; Zhamkochian 2015; 2018).

Both SU 1116 and SU 1128 are connected to the construction of SU 1074 (A1084). SU 1128 is quite interesting, with glazed and unglazed pottery, two fragments of stonepaste ware, some glazed pottery sherds and a group of very dark (and burnt?) fragments of unglazed pottery. Instead, SU 1116 is quite poor in ceramic fragments, and all of them, except one, are unglazed.

E.P.



**Figure 43**  
a) Mina'i sherds from SU 1091; b) Unglazed pottery from SU 1080; c) Glass rod from SU 1123; d) mother-of-pearl fragment from SU 1111

### 6.3 Area 1000: Faunal Remains

During the 2023 archaeological mission, animal bones found in Area 1000 in 2022 were catalogued. The materials date back to the late thirteenth (possibly also early fourteenth) century (A1097, A1096, and A 1095) and were uncovered in rubbish pits (SUs 1032, 1039, 1041, 1043, 1048, 1051), walking surfaces (SUs 1029-1030, 1044, 1047, 1052, 1054, 1069) and accumulations layers (SUs 1053, 1064-1065, 1068, 1081, 1082).

For species identification, several comparative anatomy manuals (Pales, Lambert 1971; Schmidt 1972; Barone 1976) and specific articles were used to distinguish between sheep and goat (Payne 1985; Halstead et al. 2002; Zeder, Lapham 2010). The data from the mandibular wear stage, useful for the determination of the age of death, were recorded according to the criteria of Payne (1973) for domestic caprines and Hambleton (2001) for cattle.

Generic age class information derived from the analysis of long bone epiphyseal fusion were collected according to the work of Bullcock and Rackham (1982) for domestic caprines and Silver (1969) for cattle. For osteometric data, the method proposed by von den Driesch (1976) was used as a reference, integrating it with the indications of Salvagno and Albarella (2017) for domestic caprines. In addition, taphonomic processes (slaughter, processing, burning, gnawing marks) and pathological evidence were recorded.

There were a total of 570 catalogued remains, of which 179 (31.4%) were determined at a taxonomic and anatomical level, 254 (44.6%) at an anatomical level and 137 (24%) for which the determination at any level was not possible due to fragmentation which does not allow for certain identification in the absence of a comparative collection.

Taxa	A1095	A1096	A1097
<i>Ovis aries</i> L. (sheep)	7	5	8
<i>Capra hircus</i> L. (goat)	6	2	3
<i>Ovis</i> vel <i>Capra</i> (sheep/goat)	33	28	28
<i>Bos taurus</i> L. (cattle)	25	13	15
<i>Equus</i> sp. (horse/donkey/hybrids)	-	1	-
<i>Sus</i> sp. (pig/wild boar)	-	1	-
<i>Canis</i> sp. (dog/wolf)	-	1	-
<i>Felis</i> sp. (domestic cat/wild cat)	-	1	-
<i>Coturnix coturnix</i> L. (common quail)	-	2	-
Total identified bones	71	54	54
Aves	-	1	-
Small vertebra	13	13	17
Small rib	23	34	29

Taxa	A1095	A1096	A1097
Large vertebra	7	8	6
Large rib	11	16	13
Not identified	68	61	71
Total unidentified bones	122	133	136

The faunal assemblage is represented almost exclusively by goats, sheep and oxen; only in A1096 there are other species present with few remains.

The frequency of species in the investigated phases shows a decrease in the presence of the ox in favour of domestic goats, and in particular sheep, between A1095 and A1096 with a distribution that remains substantially stable in A1097.

The anatomical elements of domestic caprines are all attested in the three phases, whereas for cattle this occurs only in A1095; in A1096 and A1097 the species is represented almost exclusively by terminal parts of limbs.

For A1096, the carpal bone of an equid, the scapula of a young pig, the phalanx of a canid belonging to a large dog or a wolf, the humerus of a young cat and two tarsometatarsi of common quail are also present.

The data on the age of death obtained from the mandibular wear stage for A1095 and A1097 and from the analysis of long bone epiphyseal fusion, indicate that goats and sheep were culled not before they reached six months in sub-adult and adult/senile age, while for the cattle, a veal aged less than eight months in A1097 and sub-adult/adult specimens are attested.

The traces associated with the slaughter of animals refer not only to the skinning and removal of meat, but also to the partitioning of bones to obtain smaller pieces suitable for cooking, and the division of carcasses into half-carcasses. Traces of which remain in the vertebrae, generally divided in half at all the phases investigated.

Evidence of gnawing marks by medium and large carnivores is more frequent in A1095, while evidence of burning is more frequent in later phases.

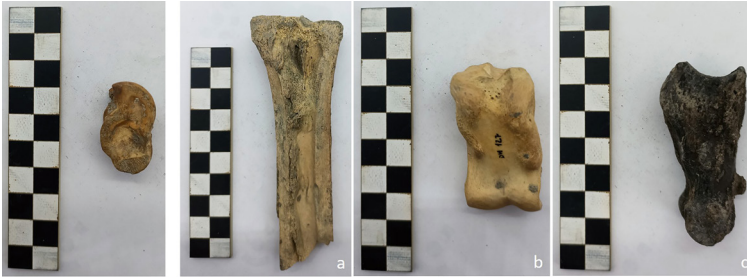
Traces of working activity have been identified on a sheep/goat astragalus from A1095 that has smoothed surface on the medial and lateral sides [fig. 44].

Pathologies were found on the bones of domestic caprines and cattle. For domestic caprines, evidence is limited to a A1095 sheep mandible showing abnormal bone growth on the mandibular branch (buccal face) possibly caused by trauma in the process of healing and to an abscess related to the loss of the second premolar on a A1097 goat mandible.

For the cattle pathologies were found on a metatarsus in A1095 and on two proximal phalanges in A1097. The metatarsus shows

degeneration of the inner tissue in the proximal-medial part of the bone [fig. 44a]. One phalanx is affected by an extensive abnormal bone growth on the palmar, axial and abaxial sides that partially reaches the proximal articular surface [fig. 44b]. The other phalanx presents a roundish bone outgrowth approximately 0.5 cm in diameter on the dorsal face [fig. 44c].

The prevalence of domestic caprines in the sample suggests an economy based mainly on goats and sheep breeding. The absence of slaughtered animals under the age of six months indicates a breeding strategy focused on the production of meat, wool and hides. However, the absence of very young animals could be linked to the consumption of these specimens in other not-investigated areas of the city.



**Figure 44** On the left, the worked sheep/goat astragalus from A1095 (lateral view); on the right, cattle's pathological bones: a) metatarsus from SU 1068; b) proximal phalanx from SU 1047; c) burnt proximal phalanx from SU 1047

Cattle seem to play a more prominent role during A1095. The quantitative decrease of remains and, above all, the clear prevalence of anatomical elements with low food interest from A1096 onwards seem to indicate a change in the dietary habits of the occupants of the area that continued into the next phase. The pathological evidence identified does not show features that can be definitely associated with work activities and could also depend on the advanced age of the specimens, but the data on the age of death indicate that cattle were generally kept alive until adulthood or senility, so it is likely that they were used as labour force. The presence of a mandibular fragment associated with a veal less than eight months old indicates that the species was probably bred at the site or in its immediate vicinity at least in A1097.

A change between A1095 and A1096 seems confirmed by the appearance of species other than domestic caprines and cattle. The small number of fragments attesting to the presence of these species is not compatible with a change in eating habits that remained centred on the consumption of domestic caprines and cattle but could

indicate a temporary abandonment of the area. Of these species, perhaps only common quail could be traced back to hunting activities because they have already been determined in earlier studies in rubbish pits dated between the seventh and twelfth century AD in other areas of Dvin (Dal' 1952). However, the remains of Area 1000 pertain to accumulation layers (SUs 1047, 1053) and not to rubbish pits that can be associated with meal remains. Their presence may not be due to human activity also because the Armenian territory falls within the reproductive area of the species, which is abandoned in winter (Svensson, Mullarney, Zetterstöm 2017, 56).

Possible indicators of activity in the area include an astragalus that has its medial and lateral sides abraded and smoothed. The presence of talus in archaeological sites is usually linked to ritual or playful practices that lead to the discovery of discrete quantities of these bone remains (Gilmour 1997; Minniti, Peyronel 2005; De Grossi Mazzorin, Minniti 2012). In prehistoric times, and particularly in Eastern Europe, astragali were sometimes interpreted as functional artefacts for the finishing of handmade pottery (Märgärit 2017).

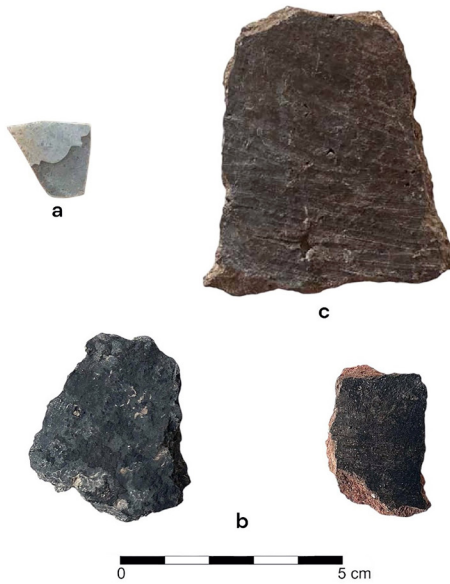
L.d.O.

#### 6.4 Area 2000: Materials and Artefacts

Unlike the findings observed last year, the 2023 campaign in Area 2000 has yielded a bigger quantity of artefacts, although it is evident that the presence of finds in this sector of the site is much smaller in absolute terms and also when compared to the quantities of materials in Area 1000. As mentioned above (see § 3.2), the discovery of a coin (SU 2072), currently undergoing restoration, is notable. Among the 13 SUs analysed, there is a clear absence of glazed pottery, while there is a significant presence, at least in this initial phase of analysis, of storage and/or transport ceramics. Additionally, several interesting glass fragments have been uncovered [fig. 45a].

Dividing the stratigraphic column by Activities, the most recent (A2096) is represented by SU 2055, with only two fragments of cooking pottery [fig. 45b], one fragment of animal bone, and one fragment of material that, although very damaged, could be plaster.

The SUs 2043-2045, 2057, 2072 and 2073 are part of A2095 (area SE) and SU 2060 was in the same Activity in the East corner. The totality of the sherds are unglazed. Concerning their functionality, most of the sherds are for storage, only few pieces are cooking ware. Of particular interest is the discovery in SU 2057 of one fragment of mat-impressed kitchen pottery (a 'stuoia') [fig. 45c], a type that has been identified in locations far from Armenia, including in Sicily, Italy (cf. Arcifa 2010).



**Figure 45**  
Glass sherd from SU 2068;  
b) cooking pot fragments from  
SU 2055; c) "A stuoia" sherd from  
SU 2057

At this point of the research, regarding Area 2000, it is possible to indicate a certain presence of storage materials and, perhaps, transport materials (difficult to distinguish given the lack of a significant number of fragments and, especially, the lack of diagnostic pieces). The glass fragments, although not large in size, are very interesting (also because some were found among last year's materials as well) and their function will need to be studied carefully.

E.P.

## 6.5 History Museum of Yerevan Survey and Documentation

Throughout the 2023 campaign, a significant effort was made to photographically document and study artefacts housed in the Museum of Armenian History in Yerevan. Our primary focus was on imported artefacts from major sites, notably Dvin, as well as Ani and others [fig. 46]. This ongoing activity, intended to be completed in future missions, primarily aims to elucidate the primary and most significant channels of commercial contact between major Armenian cities and renowned ceramic production sites, particularly those within the Islamic world. This data will assist us in assessing, by the conclusion of our excavation campaigns, whether our understanding of imported

materials has broadened or if the channels and types remain consistent. Moreover, the substantial presence of intact pieces at the museum enables a considerable enhancement of our understanding of morphologies, which are often challenging to comprehend solely through the analysis of excavation fragments.

E.P.



**Figure 46**  
Luster pottery from  
Dvin at the HMA  
in Yerevan

## 7 Excavations of the Area of the Future Building of the Dvin Museum

Hamlet Petrosyan, Tatyana Vardanesova, Hamazasp Abrahamyan, Lyuba Kirakosyan

In the spring of 2023, excavation and cleaning activities were carried out on the site of Dvin future museum and archaeological camp with funding from the Ministry of Education and Culture of the Republic of Armenia.

### 7.1 Archaeological Description

In 2022, in this area, which is located to southwest of the citadel, on the right side of the Hnaberd-Verin Artashat intercommunal road [fig. 1], preliminary excavations were conducted (Petrosyan et al. 2022). The expedition chose this area believing that during the Middle Ages the two main moats protecting the city converged here,



making the presence of cultural layers less likely. In the fall of 2022, a 10 m long and 2 m wide exploration trench was dug in the central part of the future construction area. These works reached a depth of 220 cm, revealing three main layers [fig. 47]. These works continued into 2023, expanding to cover an area of 275 m<sup>2</sup> (Area A).

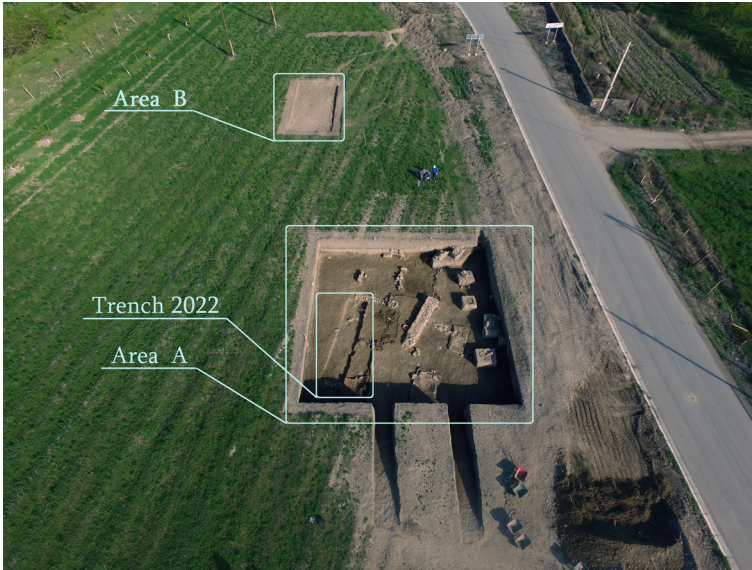


Figure 47 The total areas of excavations in 2022-23

The uppermost layer, with a thickness of 90-130 cm, consisted of a mixed layer devoid of significant archaeological contexts.

Below this, starting at a depth of 90 cm and extending 7 m across the excavation site, was a layer up to 35 cm thick, identified as a deposit of a water-bearing ditch.

The third layer, containing the main archaeological features, began at a depth of 90-130 cm and was dated to the eighth-ninth centuries. This layer was characterized by simple pottery, as well as fragments of glazed pottery from the ninth century, glass, bricks, metal objects, slag, mortar, and more. Unlike the upper layers, the third layer revealed distinct features such as brick walls, floors, sections of raw brick, poured mortar, trampled floors with ash deposits, and intact objects.

In the spring of 2023, archaeological work continued in the same site, now conducted in Area A and Area B [fig. 2]. The main section selected for further excavation in Area A, measuring 15 × 15 m, including the ditch from November 2022 (west section) [fig. 2]. This section was conventionally named Area A and was subdivided into nine

squares [fig. 48]. The second excavation site – Area B, located 11.5 m west of Area A – was divided into two squares.



Figure 48 A and B excavation areas by squares

In excavation Area A, the situation observed in 2022, particularly in the exploratory trench, was generally repeated, but the expanded dimensions of the excavation site now allow for a better understanding of the situation. The excavation has reached a depth of up to 250 cm. As a result of archaeological works, both in the exploratory trench and in excavation Area A, we have identified three main layers that correspond to each other in their main features [figs 49-50].

The first layer is in a mixed state and lacks significant archaeological contexts. It contains pottery from different periods as well as modern materials. This layer is characterized by its dark grey, sandy composition with gravel, shell fragments, and stones. The thickness of the first layer varies across different parts of the excavation site, generally ranging from 50 to 130 cm. Specifically, it is 50 to 70 cm thick on the north side, 70 to 90 cm on the south side, 50 cm on the east side, and 120 to 130 cm on the west side. This layer shares similar characteristics with the first layer observed in the exploratory trench.

The second layer is situated on the southern side of excavation site A (A 3, A 4, A 5, A 8, A 9). It extends 4.4 m in width on the eastern side and 10 m on the western side. This layer appears black with abundant gravel and sand. It contains a large quantity of pottery from various

periods, predominantly glazed and plain pottery dating to the ninth century. Additionally, there are glass fragments and animal bones, most of which show signs of burning. This layer shares characteristics with those observed in the previous year's exploration.



Figure 49 The third main layer of the excavation site



Figure 50  
Measurement of the main layer  
of the excavation site

Another layer is identified in the trench. The cuts of the platforms entering the trench provide insight into the total width of this layer, which averages 12.5 m. This stratum is notably a water deposit and, based on initial observations, likely represents the bed of the water ditch surrounding the citadel. The thickness of this sediment gradually decreases toward the edges, while in the central area, the layer reaches up to 60 cm in thickness [fig. 51].



Figure 51 A section of water sediment black layer at a site of excavation

The third main layer is evident at various depths across different parts of the excavation site, a result partly influenced by the damage to the layer in the southern part of excavation site A, possibly due to the water supply ditch (the second layer). In the northern part of excavation site A (A 1, A 2, A 4, A 5 squares), the layer becomes visible starting from a depth of 60 cm, revealing preserved remnants of buildings. These sections feature remnants of one or two-row, single-layer dry-laid river stone walls. The first wall measures 195 cm in length, and the second measures 120 cm. There are also single-layer brick walls and, in two instances, a double course of river stone is placed atop a single course of brickwork. These walls measure 120 and 195 cm in length, and the bricks, like in other cases, are sized at  $23 \times 23 \times 5$  and  $24 \times 24 \times 5$  cm. Throughout the layer, at various depths, parts of river stone and brick walls, a *tonir*, pots, hearth, etc., were discovered with lime mortar and dry layering. A considerable amount of almost complete and fragmentary glazed and plain pottery was found in this layer. Glazed pottery dates back to the ninth

century and gradually decreases in quantity with depth. Plain pottery is similar to those found in the exploration trench from 2022. Additionally, numerous new types of pottery, all dating back to the eighth-ninth centuries, were discovered. The layer also contains a substantial amount of glass, iron fragments, coins, bones, and the upper arm of an early medieval winged cross, among other items [fig. 52].



Figure 52 On the left, vessels from Area A; on the right, cross arm of an early medieval winged cross from excavation Area A

Several archaeological situations and remains of structures have been documented. In the central part of square A 5, at a depth of 130 cm, a mixed situation with a length of 360 cm and a width of 180 cm was preserved [fig. 53]. This area contains pottery fragments mixed with river stones and brick waste, forming a solid layer without ash. At the same depth, but in the edge area of squares A 6 and A 7, an ash layer up to 5 cm thick can be observed. In square A 4, at a depth of 180 cm, a lime mortar platform was uncovered, measuring 150 × 140 cm [fig. 54]. The mortar sits on a brick base, and two semi-preserved urns were found to the south of the platform. Moving north of the lime mortar platform, in the central part of the excavation site, a stone platform for the raw brick wall was uncovered at a depth of 170 cm in square A 5, measuring 500 cm long and 90 cm wide. From this stony platform to the east, towards the edge of the excavation site (squares A 2, A 3, A 4, and A 5), an area covered with large river stones and lime mortar was opened [fig. 49]. Next to the central high part of this area, two wells with river stones were found, each with pursed lips. Another similar well was discovered on the southern edge of the adjacent river stone platform. Two additional underground wells were found to the north of the section covered with river rocks. From one of these pits (A 1), fragments of pottery and bones were recovered, while the

other (A 2) contained only various fragments of the same glass vessel. In square A 7, a 140 cm deep section of a 55 cm long brick wall with one row and 7 layers was preserved [fig. 55]. In the same square, on the western edge of the brick wall, a two-row river stone wall measuring 230 cm in length and 50 cm in width was found at a depth of 195 cm.



Figure 53 The archaeological situation in the center of Area A



Figure 54 The lime mortar platform



Figure 55 A section of brick wall

Excavations also revealed the continuation of the brick floor uncovered during the previous year's work (in square A 8). The floor is damaged, with only a section measuring 60 × 60 cm preserved. To the north of the floor, there is a two-row river stone wall, measuring 360 cm in length and 50-60 cm in width. Considering the direction of the wall, it would intersect with the wall in square A 7 if it continued. Adjacent to this wall in square A 6, from the north, is a hearth [fig. 56]. The hearth, located at a depth of 200 cm, consists of 7 bricks. It has an average width of 50 cm and is filled with ash. Fragments of pottery were found on the hearth. Additionally, there are numerous earthen sections in the layer.

Sections constructed with raw brick or clay mortar filling-plastering technology are found across the entire surface of excavation site A and at various depths. One such section is located in the area of squares A 2 and A 3, adjacent to the river stone-lined section and 150 cm deep. This fragment has a preserved height of up to 80 cm, a length of 290 cm, and a thickness of 85 cm. In square A 3, at a depth of 210 cm, another part of the earthen wall is found, measuring 310 cm in length and 50 cm in thickness. 170 cm west of the aforementioned walls, on the opposite side of the river stone section (in square A 5), another wall section is preserved. This section is 85 cm thick, 60 cm high, and 70 cm long, with its continuation extending under the stone platform. A small portion of the earthwork is preserved in the central part of the long wall in square A 9, at a depth of 160 cm. This section is about 50 cm wide and 80 cm long.

Another small fragment is found in square A 7 at a depth of 215 cm. It is attached to a fired brick arrangement in square A 7 and measures up to 30 cm wide and 20 cm high. The walls opened in the lower part of squares A 6 and A 7 are relatively well preserved. The first wall (in A 6) is located under the presented hearth, with a depth of 200 cm. It is 330 cm long, 60 cm wide, and up to 50 cm high. The second wall (in A 6 and A 7) is situated at a depth of 240 cm and opened at a height of 20 cm. It measures 200 cm in length and 60 cm in width.

Various remnants of rammed clay floors were also documented in the excavation site area, the primary one being the continuation of the floor uncovered in last year's exploration trench, measuring about 300 × 300 cm. It is located at a depth of 220 cm. Remnants of brickwork and tiled floors are also present. A similar floor was discovered in square A 7 at a depth of 210 cm, beneath the wall. This section measures about 150 cm long and 90 cm wide, consisting of 24 × 24 × 5 cm bricks and debris. Another part of the floor was preserved in square A 6 at a depth of 230 cm. This floor measures 130 × 120 cm and consists of 6 polished slabs.



Figure 56 The hearth

Excavation site B measures 10 m long and 5 m wide [fig. 48], with a depth of 150 cm. In excavation site B, the situation is similar to that of excavation site A, except for the second layer, as the sediment from the trench was not documented here. The upper layer corresponds to the first layer of excavation site A and shares the same characteristics. The thickness of this layer is 90-100 cm. Notably, a bronze



medal related to the Patriotic War was found at a depth of 90 cm. The lower layer corresponds to the main third layer of excavation site A and has an excavated thickness of 50-60 cm [fig. 57]. The main situations are located in square B 2 of the excavation site (southern part). Here, we have debris from a river stone wall, a river stone wall section measuring 140 cm in length and 45 cm in thickness at a depth of 110 cm, and a raw brick wall platform section measuring 80 × 70 cm at a depth of 140 cm.



Figure 57 The general view of excavation Area B

The other preserved part of the wall is constructed using tuff pieces and fired bricks (23 × 23 × 5 cm, 24 × 24 × 5 cm). This double-layered wall is 120 cm deep, 235 cm long, and 40 cm wide. Parallel to this wall is another wall constructed with the same dimensions of fired bricks and reused red and black full chevron tufas (two full tufas, one black, and each measuring 60 × 45 cm). This second wall is 180 cm long and 45 cm thick. Additionally, another reused tufa slab, sized 50 × 50 cm, and is located in square B 1. An interesting find is a red tuff fragment of a window sill, discovered at a depth of 120 cm [fig. 58]. It measures 60 cm in length, 30 cm in width, and 20 cm in thickness (B 2).

The layer contains fragments of both plain and glazed pottery, bones, metal objects, glass fragments, and other artefacts, all dating to the ninth century.



Figure 58 B2 square

## 7.2 Finds

During the archaeological works, a large number of mainly eighth-ninth century dated plain and glazed pottery sherds were found. Complete objects form a smaller group. In addition, fragments dating from the early and twelfth-thirteenth centuries were also discovered in the upper mixed layer of the excavations and in the sediment of the water-carrying ditch.

The glazed pottery present in the main layer dates back to the ninth century [fig. 59] and gradually decreases in quantity with depth. Plain pottery is identical to complete examples found in the exploration trench from 2022. Additionally, there are a large number of new types, all dating from the eighth-ninth centuries [fig. 52]. Furthermore, there is a substantial amount of glass, iron fragments, coins, bones, etc. in the layer. Research on the objects found in the excavation is currently ongoing.

In both A and B excavations dating to the eighth-ninth centuries, reused early medieval architectural details were discovered in the dated layers. These include the stylized tuff parapet of a window in square B 2 [fig. 16] and two hewn stones reused from black tuff, which belong to this series. Single-hewn tuff masonry stones were also recorded in various parts of the excavations. Additionally, in the

eastern part of excavation site A, the upper wing of an early medieval winged cross was found [fig. 52].



**Figure 59**  
Glazed pottery  
sherds from Site A

## 8 Conclusions

Thus, the main approach of the expedition regarding the selection of the area, which suggested that the waters flooding the citadel and the central district mixed and passed through this place, was confirmed by archaeological excavations. However, beneath the sediment layer of the canal, a rich archaeological layer dating back to the eighth-ninth century was found. Based on this discovery, the expedition proposed to introduce a new component into the project, which involves a complete excavation of the area of the future building and its incorporation (or partial presentation of parts) into the future museum as an underground glass-enclosed exhibition. The setting and material are rich, and the expectations are high. We believe that the implementation of such a project will be unique in the practice of restoring archaeological monuments in Armenia and will significantly contribute to increasing the tourist attraction of Dvin.

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