

The Armenian-Italian Joint Expedition to Dvin

Report of 2022 Activities

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Abstract This report aims to show the results of the second excavation campaign at Dvin/Dabīl (Armenia), conducted by the Italian-Armenian research group in Autumn 2022. 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; the area southeast of the central district, where an exploratory trench was dug to investigate the archaeological evidence at the site of the future building of the Dvin Museum. Additionally, the last paragraph shows the chemical analysis of pottery samples carried out between 2021 and 2022.

Keywords Medieval archaeology. Eurasia. Dvin/Dabīl. Excavation. Stratigraphic methodology. Urban topography.

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Edizioni
Ca'Foscari

Submitted 2023-05-22
Published 2023-11-22

Open access

© 2023 Petrosyan, Nucciotti, Pruno, Squilloni, Kirakosyan, Vardanesova, Cheli, Hovhannisyan, Abrahamyan, Petřík, Slaviček | 4.0



Citation Petrosyan, H.; Nucciotti, M.; Pruno, E.; Squilloni, L.; Kirakosyan, L.; Vardanesova, T.; Cheli, F.; Hovhannisyan, H.; Abrahamyan, H.; Petřík, J.; Slaviček, K. (2023). "The Armenian-Italian Joint Expedition at Dvin". *Armeniaca. International Journal of Armenian Studies*, 2, 193-246.

DOI 10.30687/arm/9372-8175/2023/01/009

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1 Introduction

Hamlet Petrosyan, Michele Nucciotti

In the current reporting year, the joint Armenian-Italian expedition to Dvin by the Institute of Archeology and Ethnography of the National Academy of Sciences of the Republic of Armenia and of the University of Florence and Italian Ministry of Foreign Affairs (also supported by Fondation Max van Berchem and ERC Project ArmEn), conducted archaeological research at the site of Dvin, one of Armenia's largest medieval cities, from 1 October to 15 November 2022.

Excavations were concentrated in three sites: the Dvin Market [fig. 1.1], whose archaeological research began in the 1950s and resumed in 2021 (Łafadaryan 1982, 106-9; Petrosyan et al. 2022), south of the Lower Fortress - in the eastern part [fig. 1.2], where the Italian team continued the micro-stratigraphic analyses in Area 1000, started in 2021 with a sondage of 5 × 5 square metres (enlarged in 2022, see below) and in the site where the foreseen future building of the Dvin Museum will be located, some 120 metres southeast of the Central District of the city, in the part of the field now used for agricultural purposes [fig. 1.3]. The latest location corresponds to the interconnection between the medieval moats bordering the Dvin citadel and the Central District, respectively.



Figure 1 Excavation sites of Dvin in 2022

1.1 The Staff of the Expedition

From the Armenian side: archaeologists Hamlet Petrosyan, Tatyana Vardanesova, Hasmik Harutyunyan, Hamazasp Abrahamyan, Ruben Hovsepyan, Nzhdeh Yeranyan, architect Lyuba Kirakosyan, intern Vanik Yepiskoposyan.

From the Italian side: archaeologists Michele Nucciotti, Elisa Pruno, Francesca Cheli, Leonardo Squilloni, Lapo Somigli, Hasmik Hovhannisyán, Miriam Leonetti, Eva Natali, Tommaso Montecchi.

2 Excavations of the Market

Hamlet Petrosyan, Tatyana Vardanesova, Lyuba Kirakosyan

The main objective of the 2022 excavations at Dvin Market was to investigate the eastward continuation of the southern wall of the remains of the walls that enclosed the structure from the west, south and east. A new site of 150 square metres (15 × 10 m) was set aside here, which includes squares C 5, C 6, C 7 and D 5, D 6, D 7 [fig. 2]. During the excavations, squares C 4 and D 4 were also included.

In order to acquire a more detailed image of the stratigraphy, a 3.0 × 3.0 m area was also separated in the northern part of the western wall of the Market (including some parts of squares A 1, A 2 and B 1, B 2).

As a result of the excavations of 2022 [fig. 3], we can already speak of at least three construction phases of the Market.



Figure 2 The plan of the Market with the marked excavated sections in 2022

2.1 The Brick Complex

The excavations of 2022 discovered a fired brick wall stretching from west to east and two vertical sections adjacent to it from the north: squares D 5, D 6 [figs 4-6]. The wall has a length of 7 m, a thickness of 0.5 m and an average height of 0.6 m (up to 5 rows of bricks).



Figure 3 General view of the Market after the 2022 excavations

The walls are lined mostly with split bricks, and only in rare cases complete examples are used [fig. 7]. It is likely that the bricks were brought here from other areas, perhaps already destroyed structures, rather than prepared specifically for this particular structure. In all cases, it was possible to validate the dimensions of the complete bricks ($23 \times 23 \times 7$ cm, $20 \times 20 \times 4$ cm, $19 \times 19 \times 7$ cm, and $18 \times 18 \times 4$ cm), which do not differ significantly from the size of the bricks used in Dvin since the tenth century, except for the brown bricks of $35 \times 34 \times 5$ cm, which have some prevalence in other monuments of Dvin, since the twelfth century.

Adjacent brick walls are 1.15 and 1.65 m long. As a result, two rooms are outlined [fig. 8]. The floor of the rooms is double clay-plastered, which means that it has been used for quite a long time. Beneath the east-west brick-row wall, at right angles, runs a section of an earlier south-facing stone-row wall (0.6 m thick, 0.45 m high and 1.0 m preserved), the northern part of which has been re-used as a base for a new brick-row section.

We should note that the structure and size of the bricks are almost identical to the rest of the wall opened in 2021 in square C 2. By comparing the plans of the previous excavations of the Market with the brick remains discovered in 2022, and considering the numerous findings of glazed pottery in this area from the twelfth-thirteenth centuries, it can be confirmed that the remains of the Market

structure were incorporated into the fired brick wall in the twelfth-thirteenth centuries, connected to the previous pavement, and the damaged parts of the pavement were also filled in with fired bricks (see comparison table [figs 9.1-2]).

Thus, it can be concluded that at the end of the twelfth and the beginning of thirteenth century, an attempt was made to incorporate the destroyed area of the former Market into the new brick walls. Hopefully, further excavations will clarify the details of this latest reconstruction.

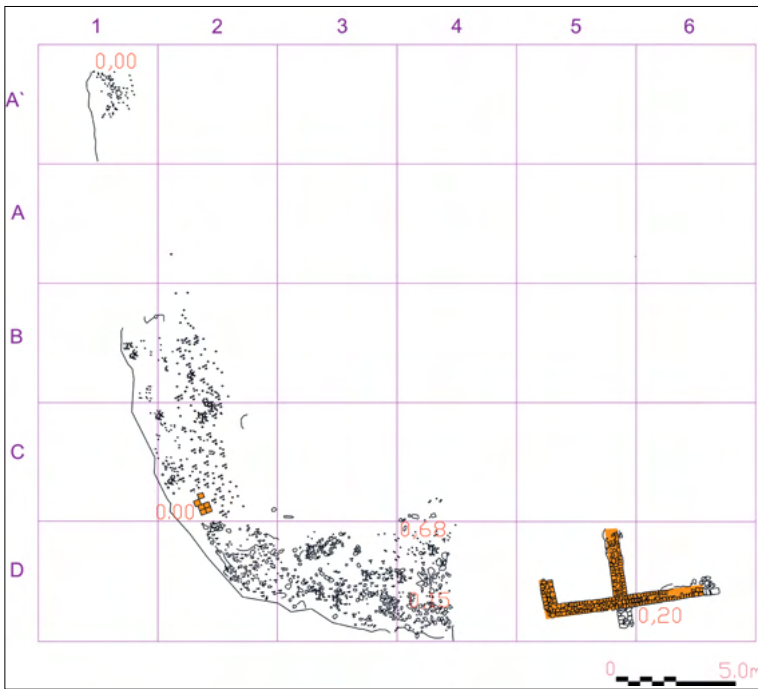


Figure 4 The newly opened sections of the brick wall



Figure 5 Excavation process of the southern brick wall



Figure 6 View of the southern brick wall from southeast



Figure 7 Details of the brick wall

Figure 8 The general outlook of brick rooms

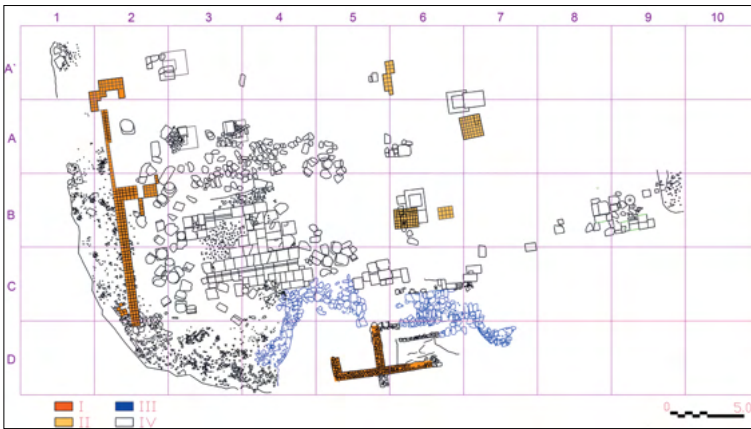


Figure 9 Comparative plan of cross-temporal structures of the Market

2.2 The Tower-Shaped Building

During the excavations of 2021-2, in the southern part, in squares C 4-7, D 4-7, stratigraphically below the brick complex, part of a stone structure with the remains of two roughly circular towers was discovered [figs 9.3, 10-13]; the distance between them is 13.5 metres. The towers were connected to each other by a wall of about two metres thick, of which a 9-metre-long section has been preserved [fig. 14]. Pieces cut from the pillar anchors of the original structure of the Market were used in some places in the wall. On the stone base of the Eastern Tower, several brick slabs have been preserved, which are identical in appearance and size to those of the brick wall. It can only be assumed that it is the first stage of the reconstruction or transformation of the Market, carried out before the twelfth century.

Unfortunately, there are no archaeological findings in this area and a more specific date will be determined during further research. We should note that the Eastern Tower was also opened during the 1959 excavations. In the measurements of the expedition of that year [fig. 15], the tower is indicated with larger dimensions, which does not correspond to the real situation. And if the connection of the brick surroundings with the original structure is more than probable, the connection of the tower-shaped structure is still not clear. Whether it included the entire initial structure or only a part of it remains to be seen.

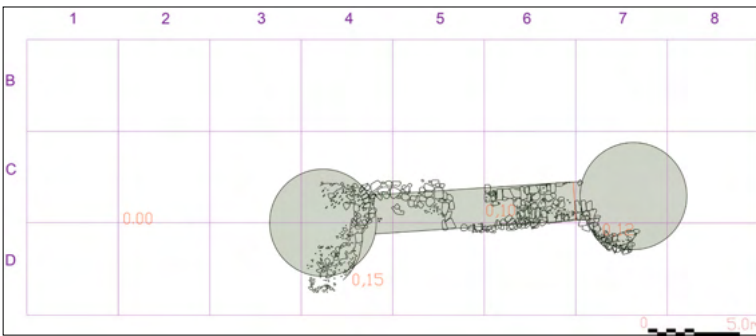


Figure 10 The southern part of the brick complex and the tower-shaped structure after the 2022 excavations

Figure 11 An approximate scheme of a tower-shaped structure

Figure 12 The Western Tower



Figure 13 The Eastern Tower

Figure 14 The wall connecting the towers

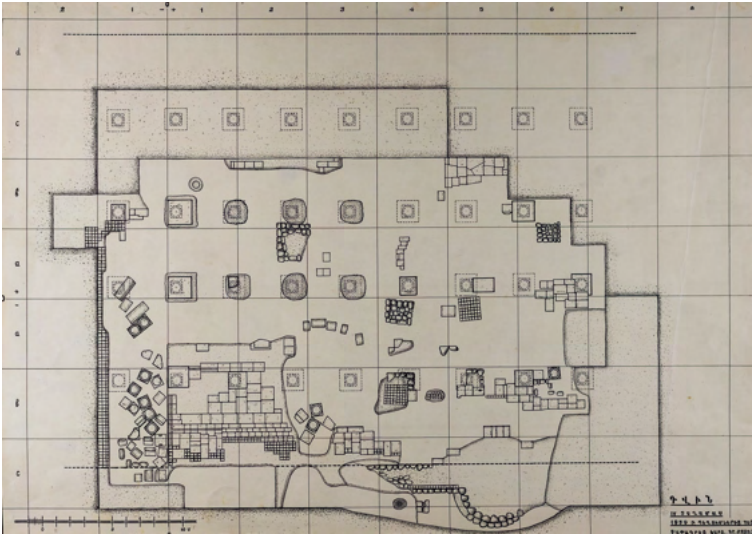


Figure 15 Market plan after the 1959 excavations

2.3 The Initial Structure of the Market

The architectural and structural details of the original structure – the pavement, the stone foundations for the anchors, the remains of the anchors, pillars and the shaft – also bear traces of reconstruction, alteration, chipping (and even sawing) [fig. 9.4]. The dimensional data of architectural details with the same function, etc., are also different. Excavations so far have not revealed any stone details of the roof structure. If the initial structure was covered with wood, then it is strange that the excavations did not find fragments of tiles.

We hope that further excavations and metrological research, as well as preliminary modelling works of the structure will bring some clarity to these issues.

2.4 Findings

If we keep in mind that with the current excavations of the Market we are mainly re-opening and exploring structures once opened by previous excavations, then the discoveries of archaeological artefacts are very limited. Since the 2022 excavations at the southern part covered a larger area than previous excavations and exposed the brick walls shown above for the first time, the main findings are from that area (squares D 5, D 6).

The main material is plain and glazed pottery of the twelfth and thirteenth centuries [figs 16-18]. There are two fragments from the ninth-tenth centuries. Three fragments of ovoid vessels, two fragments of plaster decoration, and a fragment of a conical rod intended for hanging shells in the firing furnace were also found.

Near the walls of the brick building, in squares D 5, D 6 of the excavation, a large number of small fragments of tin glazed pottery was found. Fragments of small bowls of blue and light blue-coloured tin glazed pottery can be distinguished here. The stamped ornament is clearly visible under the transparent glaze. The fragments are poorly preserved, the glaze is partially irised [fig. 19]. A small fragment of several light blue-coloured plates with black illustration under transparent glaze was also found [fig. 20]. This is probably a local product.

Fragments of imported faience were also found on the floor of the second room (squares D 5, D 6). One of them is a fragment of a small, closed vessel covered with lustre ornaments painted on the white opaque glaze. The other two are probably fragments of a small plaque, with lustre and cobalt ornaments preserved on the white opaque glaze [fig. 21]. There are also fragments of a similar local product around the brick structure, with iridescent ornaments painted under a clear glaze [fig. 22]. Two copper coins were found within the boundaries of the brick structure [fig. 23], which are in the process of being cleaned and identified.



Figure 16 Simple pottery (twelfth-thirteenth centuries) from the Market excavations



Figure 17 Glazed pottery (twelfth-thirteenth centuries) from the Market excavations

Figure 18 Fragments of jar lip, conical rod, lid and oval vessels (twelfth-thirteenth centuries) from the Market excavations



Figure 19 Fragments of local faience (twelfth-thirteenth centuries) from the Market excavations

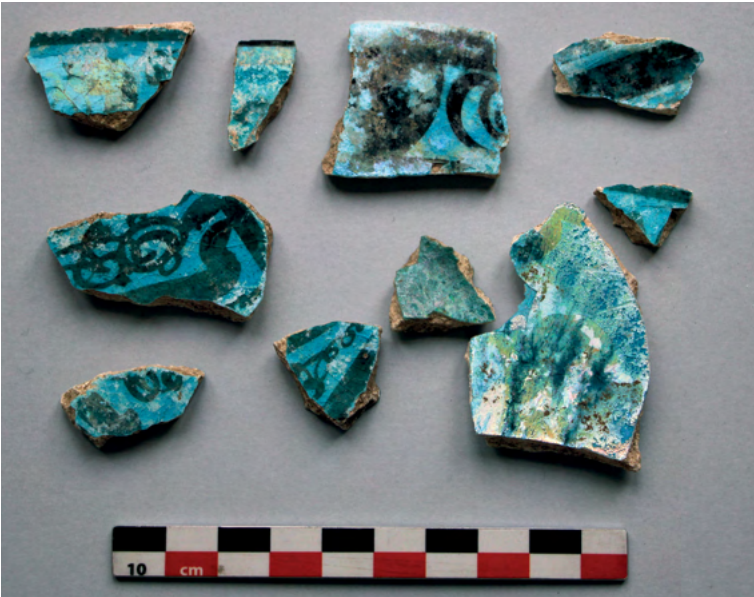


Figure 20 Fragments of local faience (twelfth-thirteenth centuries) from the Market excavations

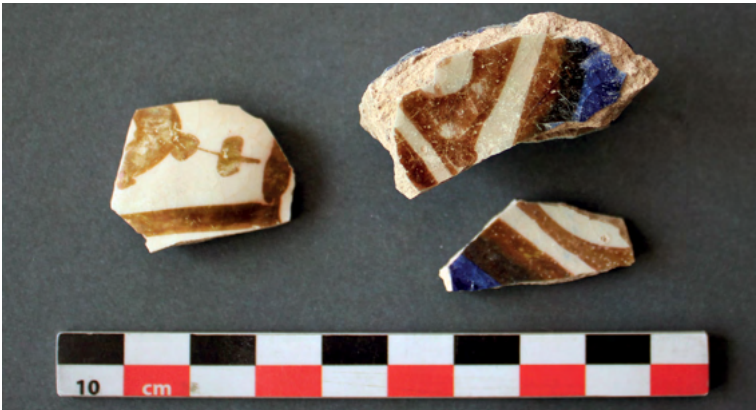


Figure 21 Imported faience fragments (twelfth-thirteenth centuries) from the Market excavations

Figure 22 Fragments of local faience (twelfth-thirteenth centuries) from the Market excavations



Figure 23
Copper coin and ring
from the Market excavations

3 Area 2000: A Micro-Stratigraphic Test Trench in the Dvin Market

Francesca Cheli

During the excavations of the 1950s and 1960s, south-west of the Central District of Dvin, a large colonnaded building dated to the fifth-seventh century was explored by the expedition lead by K. Łafadaryan (1982, 106-9).¹ It was interpreted by Łafadaryan as a ‘big market’ and later by K’alant’aryan (1996, 78) as a caravanserai.² The area [fig. 24] was once again the subject of excavations during the 2021 campaign, when the team of the Institute of Archeology and Ethnography of the National Academy of Sciences of the Republic of Armenia led by Prof. Hamlet Petrosyan re-opened the investigations. The purpose was to obtain further elements that could be useful for the typological identification of the building, its topographical definition, as well as its development (constructive and destructive phases).

During the 2022 excavation season, investigations by the University of Florence team, in the framework of the joint Armenian-Italian expedition, involved the opening of a new stratigraphic test trench of about a 3 × 3 metres area (Area 2000) located in the western part of

¹ It should be noted that, from the available documentation, it is not currently possible to precisely establish the extent of the investigations and especially the depth reached. The building was described as having 4 rows of columns and 9 columns for each row (Łafadaryan 1982, 107). However, based on a plan of the Market after the excavations of 1959 (see § 2), it seems that the fourth row of columns was hypothesised by symmetry with similar structures as there was no material evidence of it.

² Although the two interpretations identify different building typologies, they agree in recognising a function linked to trade and trade exchange. Łafadaryan hypothesises that the structure may have collapsed during the earthquake of 893, rebuilt in the tenth century with an extensive use of bricks and finally destroyed, together with the rest of the city of Dvin, in the mid-thirteenth century (1982, 107). Lacking new interpretative elements on the function of the area and in continuity with last year’s report, the area will be referred to as the ‘Market’ (Petrosyan et al. 2022, 201-17).



Figure 24 The Market area located in the archaeological site of Dvin. © Maxar Technologies 2023

the Market, to deepen the micro-stratigraphic analysis of the Dvin archaeological site. Such research was primarily intended for better understanding stratification processes in an area already excavated in the past, for maximising the documentation and making it available for interpretation to the Armenian team. On the other hand, a micro-stratigraphic approach offered the opportunity to better integrate data sets from the Market with those elaborated by the University of Florence researchers in Area 1000, nearby the Citadel.

The location of the Area 2000 then, north-west of the Market's paved structure [fig. 25],³ was chosen taking into consideration that previous excavations in this area exposed the remains of a seemingly brick floor (Łafadaryan 1982, 109, fig. 85).⁴ The floor was probably connected to the remains of the paved structure, preserved in the southern part of the 2021 excavation of the Institute of Archeology and Ethnography of the National Academy of Sciences of the Republic of Armenia.⁵ The University of Florence sondage aimed at understanding the structural and chronological relations between the paved 'big structure' and the brick floor and its constructive phases.⁶

3 The structure is still under investigation and its function is still to be clarified. For its definition, see Petrosyan et al. 2022, 205.

4 During the last excavations season (2021), it was considered as the western wall made of fired bricks (see Petrosyan et al. 2022, 201-15). About its interpretation as a brick floor, see below (§ 3.1).

5 According to the grid of the Market excavations, Area 2000 is between the squares A 1-2 and B 1-2 (see § 2).

6 Currently, the space between the remains of the brick floor and the paved structure has been used to collect the remains of columns and bases, even different from each other. At this moment it is difficult to say if the material comes only from the Market area and when it was collected.



Figure 25 Area 2000 located in the Market

Before starting the excavation, a survey with a laser total station was carried out in order to georeference the sondage within the general topographic survey of the Market; furthermore, a 3D photogrammetric survey of each stratigraphic unit was also performed (terrestrial and drone-aerial photos were used [fig. 26.1]).

3.1 The Stratigraphic Description

Francesca Cheli, Hamazasp Abrahamyan

The upper portion of the archaeological deposit was covered by natural sediment (Stratigraphic Unit [SU] 2001),⁷ with a maximum thickness of about 18 cm, filling an irregularly shaped cut (SU 2007) that had partially destroyed the brick floor (SUs 2005 and 2006).⁸ SUs 2005 and 2006 show *in situ* orange and yellowish square-shaped

⁷ SU 2001 is a sandy-clay layer with small lumps of mortar, and crushed stones (including pebbles). In SU 2001, 16 sherds of unglazed and one of glazed pottery were found.

⁸ In particular, SU 2006 is the remains of the brick floor preserved in the western part of the sondage, SU 2005 is the portion of the brick floor in the southern part, and it continues toward the south beyond the sondage. The two portions are not in physical continuity today. The investigations have highlighted that the brick floor shows a sort of arrangement/restoration (SU 2048) whose chronological horizon has yet to be clarified.

fired bricks ($23 \times 23 \times 3.7$ cm in size) belonging to a flooring.⁹ In particular, SU 2005 is the best preserved portion of the floor, south of the sondage, and it is formed by 5×4 rows although not all complete (maximum width east-west of about 120 cm width and north-south of about 85 cm [fig. 26.2]).

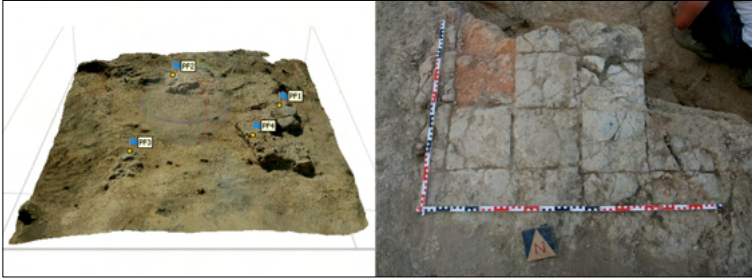


Figure 26 On the left side, the 3D model of the area at the beginning of the excavation with the markers; on the right side, a detailed photo of the brick floor (SU 2005)

In the southwestern portion of the sondage, the remains of the preparation layers for the floor were exposed. The floor is technologically made up of an overlapping of horizontal layers [fig. 27.1] with a clay-sandy texture (SUs 2004, 2008, 2009)¹⁰ on a reddish-orange layer of tuff chips and crushed stones (SU 2002).¹¹

The remains of more compact clay levels (SU 2015 to the south, SU 2016 to the north and SU 2023 to the west) were interpreted as a foundation for the brick floor [fig. 27.2].¹²

9 As has already been highlighted (Petrosyan et al. 2022, 202), although the dimensions of the fired bricks found during archaeological investigations have often been recorded and it has been observed that their use has been known since the fifth century, there is currently no study of fired bricks in Dvin that analyses in detail the variations of the dimensions throughout time. It can be noted here, without advancing dating hypotheses in the absence of other useful elements, that the dimensions of the fired bricks of the floor found in the sondage seem to be similar to those found during the excavations between 1964 and 1970 of the Central District and dated to the ninth century (K'alant'aryan 1970, 73). Bricks with similar sizes were widely used in Dvin from the tenth century onwards (Petrosyan et al. 2022, 202-3).

10 In SU 2004 and SU 2009, one plain pottery sherd was found in each of the two sections. Only bone fragments were found in SU 2008.

11 Rare pottery (4 sherds) was found in SU 2002 and one fragment is a handle. Along the west section of the sondage, SU 2002 leaned against some large stones located near the south-west corner and still *in situ* (SU 2047). It is not clear at the moment if the stones are part of the floor preparation layers, and further excavations in the sondage could provide useful elements for a new interpretation.

12 A glazed pottery fragment was found in SU 2016 and in addition to other finds, 11 plain pottery sherds (one is a handle) and two (fired) brick fragments were found in SU 2015.



Figure 27 On the left side, the preparation levels of the brick floor; on the right side, the layers SUs 2015 and 2016 that made up the levelling area for the brick floor

In the north part of the sondage, it was possible to highlight the presence of the remains of a structure with a N-S orientation (SU 2018, width c. 45-38 cm, depth c. 10 cm) made up of unworked stones and river pebbles linked by greyish friable mortar, with small charcoals [fig. 28].¹³ There is no particular visible arrangement of the stones in SU 2018, although its upper limit is cut horizontally by SU 2039 (it has been identified as the collapse/decay interface of SU 2018).



Figure 28 The western section of SU 2018 at the end of the excavation

13 SU 2018 is visible for a length of about 130 cm and it continues toward the north beyond the sondage.

In the southern and western portion of the sondage, a series of overlapping layers were exposed; they were probably due to an action of levelling or arranging decay layers (possibly occurred in several moments) to create the level for the construction of the brick floor: SUs 2021, 2023, 2025, 2026, 2027, 2030, 2033, 2034, and 2036 are layers of varying compactness with crushed stone and mortar inclusions. In particular, SU 2023 was a light-brown/whitish, compact, horizontal layer on the western limit of the sondage¹⁴ similar to SU 2036;¹⁵ SUs 2025 and 2027 were crumbly layers with more compact areas, characterised by small and medium-sized mortar clasts and stone chippings;¹⁶ SU 2030, located along the northern section, was a compact layer characterised by the presence of two large river pebbles (collapse of SU 2018?); SU 2033, in the south-west portion of the sondage (between SU 2005 and 2006) was a sandy pressed layer with lumps of mortar and crushed stones.

The thickest of those, SU 2034, is located in the south and west portion of the sondage. SU 2034 was a sandy clay layer with a light brown colour, fine-grained and characterised by the presence of fragments of mud bricks [fig. 29].¹⁷ SU 2034 showed a maximum thickness of c. 37 cm towards the north and it is not excluded that SU 2034 could be the collapse of a structure preceding the SU 2006 floor, possibly concerning the elevation of the river pebbles and mortar structure of SU 2018.¹⁸ Mud bricks, although present throughout the layer, seem to be mostly concentrated in the west portion of the sondage, between SU 2006 (floor level) and SU 2018, even if, due to their state of conservation and limited space, it is not possible to recognise the exact direction of the collapse (maybe N/E-S/W).

14 SU 2023 was cut by SU 2022 and filled by a sandy-clay, crumbly, dark brown layer (SU 2020) with occasional tuff chips and five sherds of unglazed pottery. SU 2021 was a layer similar to SU 2020, located northward SU 2006. SU 2023 seems to be covered by river stones, placed in the south-west corner of the sondage (SU 2047).

15 SU 2036 was a small layer east of SU 2006.

16 SU 2025 was located along the northern limit, SU 2027 was in the southern portion of the sondage: they probably constitute the traces of decay of SU 2018. Few unglazed pottery (2 and 5 respectively) were found during their removal. On SU 2027 there was a clayey, friable layer (SU 2026), located south of SU 2018.

17 During the removal of SU 2034, fragments of almost complete mud bricks were recovered. They measure 23 cm wide by 6 cm high (only two dimensions could be recorded).

18 A large pebble with mortar was also found between SU 2018 and the northern section.

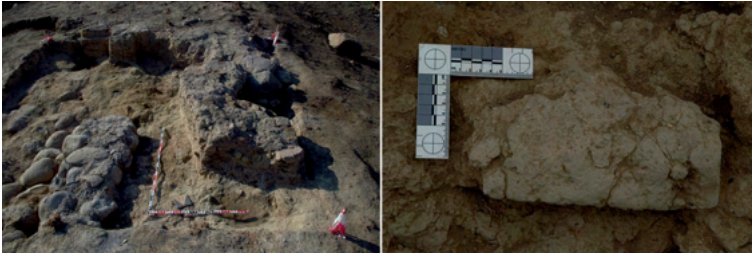


Figure 29 Overall view of SU 2034 and detail of one mud brick

The east portion of the sondage showed a particular situation with a series of stones and sandy-clay layers, on the top of which an accumulation of small and medium-sized river pebbles without mortar (SU 2017) was documented. SU 2017 covered a sandy and friable layer (SU 2028) and, along the east section, a very compact one with a more clay component (SU 2029). SUs 2028 and 2029 covered an assemblage of unworked tuff and black basalt stones arranged quite horizontally (SU 2031).¹⁹

In the south-east corner of the sondage, SU 2034 covered a sandy-clay layer characterised by a high quantity of fragments of orange tuff (even of medium size), stones, crushed stones and mortar (SU 2032) and a triangular cut (SU 2041) filled by a dark brown, crumbly layer with a sandy, small-sized grain texture (SU 2040). Lumps of white mortar, rare medium-sized stones (both tuff and basalt), fauna and rare plain pottery were found in SU 2040. After the removal of the filling it was possible to see that the cut SU 2041 had a sloping surface, deeper towards east. It cut SU 2042, a crumbly layer with crushed stones and fragments of mud bricks towards the central portion of the area that made it more compact. Inside it there were pottery and fragments of mortar.

After the removal of SU 2042, the situation that emerged below is still *in situ*: the north-east corner is occupied by a layer made up of river pebbles connected to each other (SU 2038)²⁰ which lean against the structure SU 2018 and cover a light brown compact clayey layer (SU 2043). The latter is covered with a medium-grained friable layer with gravel (SU 2044) which also covers a more compact clayey

¹⁹ SUs 2028 and 2029 also leaned against a compact clay layer with crushed stones and two large pebbles, located along the north section (SU 2030). Its removal exposed a small sandy grey layer with frequent lumps of mortar and small charcoals (SU 2035). Inside this fragment of a yellow mud brick (4.5 cm height) and possibly pumpkin seeds (sampled) were found. Another small friable layer, SU 2037, was found southeast of SU 2018 and it was characterised by the presence of small crushed stones without an arrangement.

²⁰ SU 2038 continues toward the north beyond the sondage.

layer (in the western portion), characterised by the presence of fragments of mud bricks, which shows a downward sloping towards the north (SU 2045). Near the north-west corner it is covered by a friable light brown layer with rubble (SU 2046).

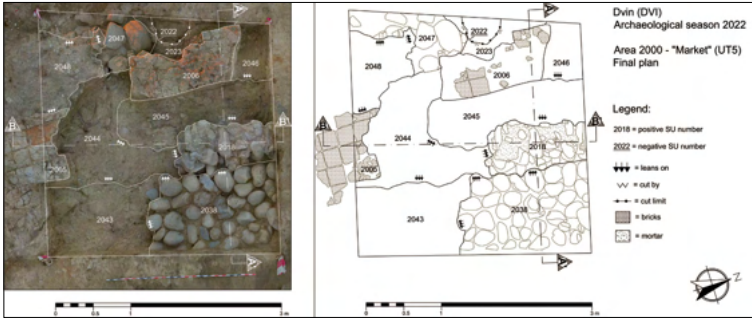


Figure 30 Final plan of Area 2000

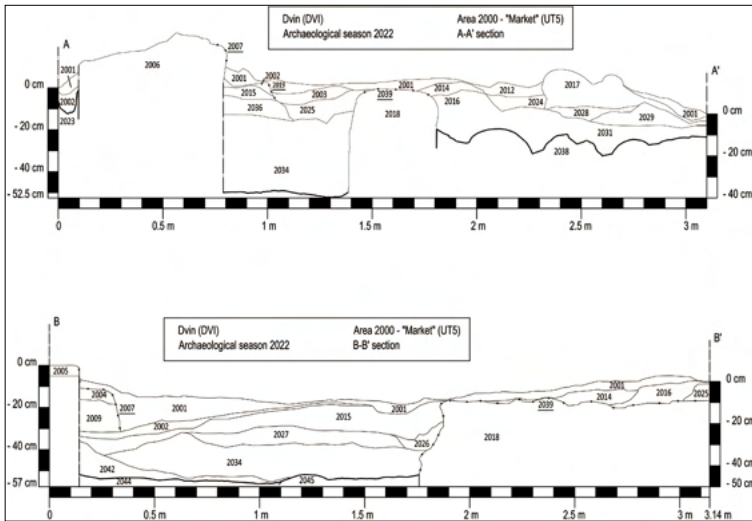


Figure 31 Sections of Area 2000: above the W-E Section, below the S-N Section

3.2 A First Interpretation

Francesca Cheli

The construction technique of the remains of the fired brick floor (SUs 2005 and 2006), exposed during the previous works of the 1950s and 1960s, made up of an overlapping of horizontal layers (SU 2004, 2008, 2009, 2002) was identified. The size of the bricks, similar to those found in the central district dated to the ninth century and to the ones used in Dvin from the tenth century onwards, seems consistent with Łafadaryan's interpretation of a reconstruction of the building in bricks after the earthquake of 893. However, at the moment there is not enough data to confirm or refute this hypothesis. Further excavations and studies of pottery assemblages (coming from the preparation level and the series of layers, probably partly rearranged for the construction of the floor) could be useful for narrowing down the chronology. At this point of the excavations, it is possible to affirm that the remains of the fired brick floor are stratigraphically the most recent structure in the sondage.

A thick clay layer with mud bricks (SU 2034) located in the western part of the sondage has been interpreted, during the excavation, as the collapse of the elevation of the river pebbles and mortar structure (SU 2018). Structures like this, with river pebble foundations, were uncovered also during the excavation in the southern part of the Citadel (Hakobyan et al. 2015, 10-12). There is not enough data to formulate a hypothesis on the function and chronology of the SU 2018 structure, but at this moment it is possible to state that it is the oldest preserved structure within the sondage.

The situation in the northeastern part of the sondage area is unique: richer in stones and pebbles, a layer made up of medium and large river stones, stuck together (SU 2038) was exposed at the end of the excavation campaign. Taking into consideration the still visible evidence of column bases, and comparing Łafadaryan's site plan with the current situation [fig. 33], it seems that one of the columns was located right next to the sondage, towards the east. The layer was only exposed and we are at the very beginning stage of its excavation. Thus, it is not possible to define its extension, chronology, or exact function. However, according to the data collected, it can be assumed that the level of the river pebbles is part of the foundation of the columns of the so-called 'big structure'/large building.²¹

21 Some river stones layers near the column bases are also visible in the plan after the 1959 excavations [fig. 33]. Another suggestive comparison, albeit distant in time and space, comes from the Afghan archaeological site of Ai Khanoum (fourth century BC), where an extensive river stones layer is used as the foundation for the portico

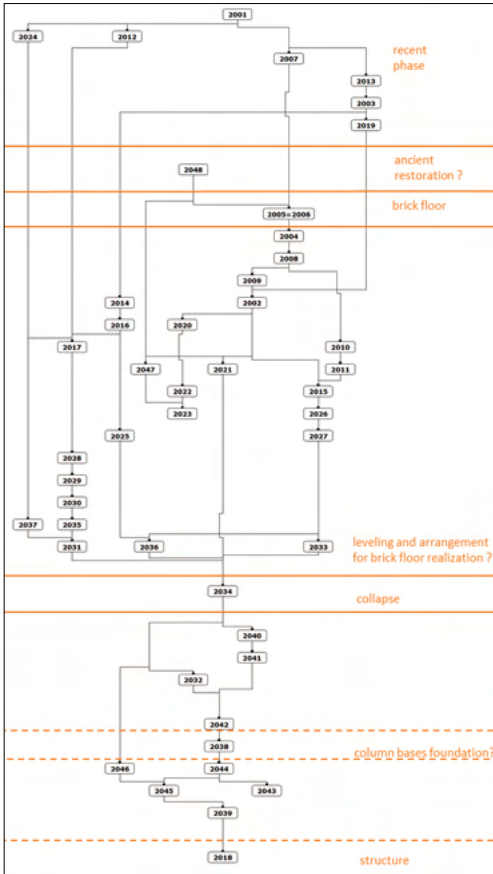


Figure 32
 Elaborated matrix of Area 2000

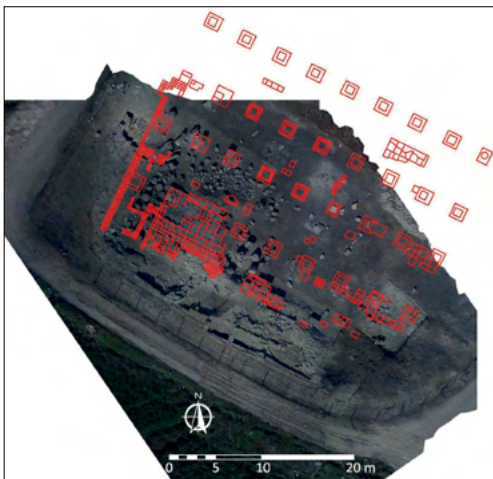


Figure 33
 Overlapping of the Kafadaryan's plan with the overall view of the Market excavation area (orthophoto elaborated from photos taken with a drone)

An extension of the sondage and a deepening of the investigations expected for 2023 will enable further interpretative clarifications.

3.3 Materials and Artefacts

Elisa Pruno

With regard to the materials uncovered in Area 2000, it is important to emphasise that these are very few. The assemblages of 13 SUs (2036, 2037, 2029, 2028, 2025, 2027, 2026, 2015, 2016, 2002, 2004, 2009, 2031) number a total of 41 pottery sherds for 31 MNI, with the addition of 11 fragments of glass. Of course, this small number depends on the size of the test trench, but also, no doubt, on the nature of the formation of the different stratigraphic units. It is evident, therefore, that with such small quantities it is not possible to attempt any statistical evaluation, with respect to the occurrence of the different ceramic types, as well as different functions that might have been performed in this excavated area. Unfortunately, little can also be said about possible absolute chronologies. However, we can propose a few observations. First of all, the absolute majority of ceramic sherds are small or very small in size, and are unglazed ceramics. In fact, there are only two fragments of glazed pottery. The unglazed sherds are mostly fragments of transport and/or storage pottery, wheel-thrown and often engobed. Noteworthy, however, is the finding of seven fragments of cobalt blue window glass in SU 2002 [figs 34-35]. In the light of this discovery, an interesting topic for future research will be to try to understand the chronological life span of these artefacts, especially with regard to the use of cobalt blue.

of the palace's great courtyard (<https://the-past.com/shorts/the-picture-desk/aī-khanoum-1968-1973>).

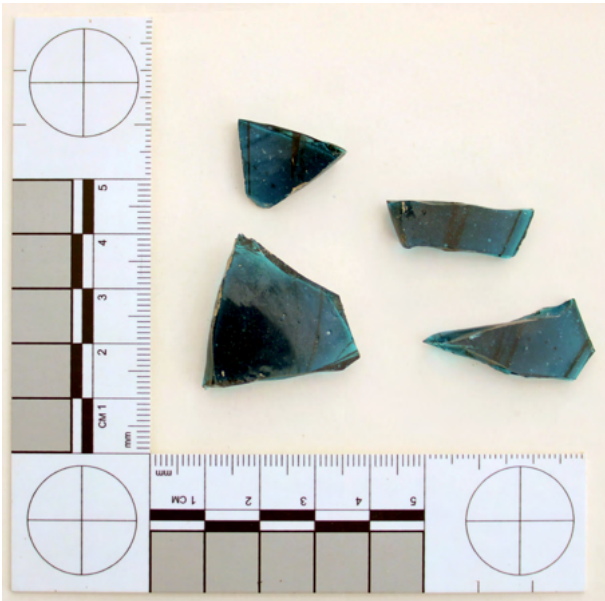


Figure 34
Fragment
of cobalt blue
window glass
from SU 2002

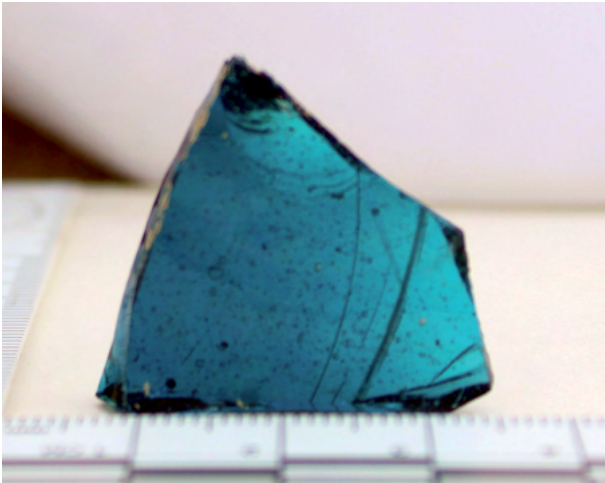


Figure 35
Detail
of production
traces
of blue window
glass fragment
from SU 2002

3.4 Area 1000: Stratigraphic Description

Leonardo Squilloni, Hasmik Hovhannisyan

During the first archaeological campaign in Area 1000, next to the so-called ‘South Tower’ (K’alant’aryan 2008),²² natural-alluvial deposit layers (Phase 1), as well as the first anthropic actions (Phase 2), i.e., a walking surface with intentional and controlled fire traces above (Petrosyan et al. 2022) were opened. Starting from this point, the second season aimed to deepen and extend the excavation. Area 1000 was enlarged with a trench on the east side for a better comprehension of the archaeological deposit and to secure the section on that side, reducing its height. A 2.50 × 6.00 m trench was opened up with a depth of -0.50/0.60 m, reaching the level of SU 1007, already identified in the previous season. Excavations confirm that on top of SU 1007 there was a natural deposit of washed-away soil rich in pottery, in particular quite large fragments of glazed and unglazed vessels. In addition to this, fragments of lustre ware, metal objects, glass (e.g., one blue raw stick)²³ and animal bones were uncovered.

In the square, the walking surface formed by SUs 1012, 1016, and 1010 has been stratigraphically removed. Unlike what was initially foreseen in 2021, the physical relations clarified that between SUs 1012, 1016 and SU 1010 there was SU 1014, a washed-away soil sediment of secondary deposition due to *colluvium* from the upper part of the Citadel.²⁴ Consequently, the walking surface seems to be the result of a longer process begun with the deposition of SU 1017 and 1010, interrupted by natural deposition activity (SU 1014), and continued with SU 1016, 1012, 1015, and 1008. Undoubtedly, SUs 1017,²⁵ 1010, 1014, 1016, 1012, 1015, and 1008 formed a walking surface on account of traces of fire, which affected all of the SUs in the eastern portion of the square (Phase 2).

Following the removal of this surface and of an incoherent and friable sandy layer (SU 1013), a new stage (Phase 3) has been uncovered, with reference to a roughly horizontal earth floor (SUs 1023, 1029 and 1030)²⁶ with postholes and larger pits with irregular

²² According to the grid of the site, Area 1000 is between the squares -t-8, -t-9, -u-8, -u-9.

²³ See below, § 4.2.

²⁴ Like the other layers of Phase 1, SU 1014 was made of clay soil with a considerable amount of pottery fragments (glazed, red polished and unglazed) and crushed stone grouped in small concentrations.

²⁵ SU 1017 was a preparatory layer of SU 1010 characterised by small lumps of mortar. Note that, as it was already recorded in last year’s report, on the surface of SU 1010 three laying brick’s imprints were found (Petrosyan et al. 2022).

²⁶ Note that in the 2021 sondage, one additional pit (SU 1021) filled by two layers of sandy soil (SU 1019 and 1024) with lumps of mortar and fragments of charcoal was

perimeter [fig. 36]. The walking surface is composed of three sandy clay compact accumulations layers, differentiated on the basis of the presence/absence and amount of mortar clasts.²⁷ It has been possible to observe an E-W formation process of these layers (SU 1029 is the latest one and SU 1030 is the earliest one), while pits and postholes have no physical relation. A total of five postholes were identified in the N-W portion of the square: two circular-shaped with a 25-27 cm diameter (SUs 1036 and 1037) and three square- (SUs 1035 with 17 cm sides and 7 cm deep) or rectangular-shaped (SU 1033 and 1034, respectively 13 × 9 × 14 cm and 20 × 9 × 9 cm). In between the postholes in the northwestern corner of the square and in the other portions of the area, five pits (SUs 1038, 1031, 1040, 1042, 1049) were dug. They show differences in shapes and sizes, but are all shallow (15-20 cm depth) and filled with friable and sandy soil (SUs 1032, 1039, 1041, 1043, 1048), marked by the presence of ash, rare fragments of mud bricks, pottery sherds and animal bones. The materials found in the fillings of the pits (unglazed cooking wares and butchered animal bones) suggest that in this phase (roughly thirteenth-fourteenth centuries) Area 1000 was used for domestic and cooking activities housed in shelters built with wooden structures.²⁸

One single layer, SU 1053 (sandy, crumble soil with concentrations of ash, charcoal fragments, and fired bricks fragments), divided the above-described situation from an earlier walking surface also with traces of domestic activities (Phase 4 [fig. 37]). This basically horizontal surface was composed of three layers, of which one (SU 1047) had a friable sandy soil and was spread on the excavation's area, while the other two (SU 1054 in the northern portion of the square and 1052 in the southeastern one) were compact and smaller, and perhaps were arrangements aiming to create a flat and smooth surface.²⁹ It is noteworthy that an intact bowl was found on the surface of SU 1047. Like in the preceding Phase 3, few sub-circular

identified. According to the stratigraphy, this pit was made and filled after the deposition of SU 1023 and before that of SU 1029.

27 In particular, while SU 1023 (located in the eastern portion of the square) has lumps of mortar, fragments of brick and charcoal, in SUs 1030 (in the western portion of the area) and 1029 (in the southeastern portion) there is no mortar, but charcoal fragments are recorded. These layers, of which SU 1030 was spread all over the square, displayed a quite scarce thickness, in which noteworthy pottery sherds (one Kashan pottery in SU 1030, lustre in SUs 1023 and 1030 and blue glazed faience; see § 4.2) were found.

28 See § 4.2 for more information regarding the pottery of these SUs. Observations on faunal remains come from a preliminary autoptic study. Apparently, most of the bones belonged to goats or sheep.

29 It has to be noted that SU 1052 covered a layer with almost the same shape and width, and was formed by a clayish and compact texture with a considerable amount of crushed stones and fragments of fired bricks laid down horizontally (SU 1065).

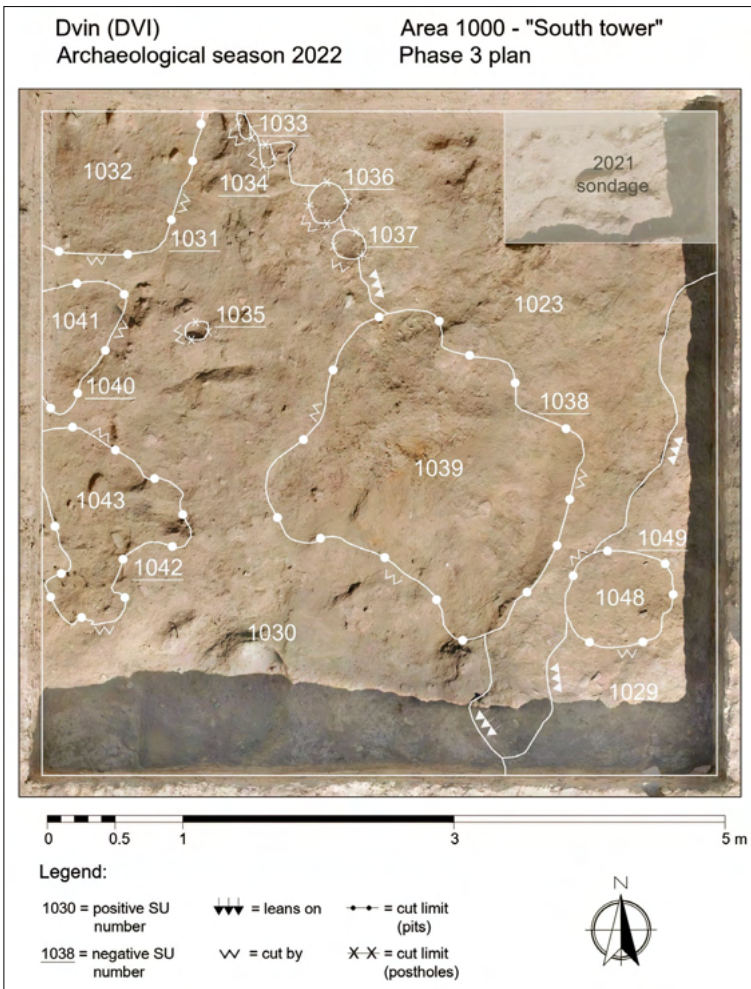


Figure 36 Area 1000: plan of phase 3

shaped postholes (SUs 1055, 1056, 1058, 1060, 1062)³⁰ were dug also on this walking surface. Once again, their small dimension and scarce depth suggest the presence of no significant permanent structure, the stratification appears to relate to a temporary/seasonal use.

³⁰ Dimensions of postholes: SU 1055: 25.5 cm (N/S), 12.5 cm (E/W), depth 9 cm; SU 1056: 20 cm (N/S), 12 cm depth; SU 1058: 32 × 14 cm (E/W), 7 cm depth; SU 1060: 11 cm (N/S), 12 cm (E/W), depth 6 cm; SU 1062: 9 cm (E/W), 3.5 cm depth.

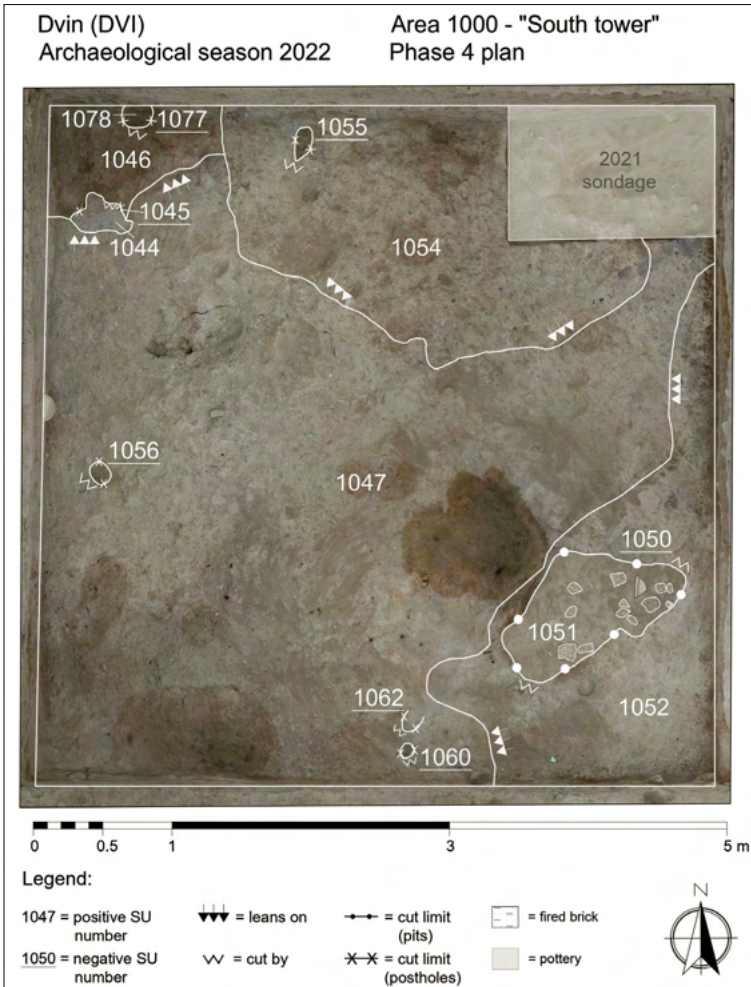


Figure 37 Area 1000: plan of phase 4

Furthermore, also on this surface, there was a single, small and shallow pit (SU 1050), located in the southeastern corner of the area. It was filled with sandy clay soil with fragments of fired bricks, small crushed green schists and a fragmented *karas* lip (SU 1051). At this moment of research on materials, the chronological range of ceramics (see below, § 4.2) falls between twelfth-thirteenth centuries. In the southeastern portion of SU 1047, a not-well preserved coin was found. Although its conservation *status* is very bad, at first sight, it could be an Eldiguzid emission (possibly late twelfth century).

Under SU 1047, in the northwestern corner of the area, a very small flat and compact floor (SU 1044, 90 × 55 cm) made up of ash, little lumps of mortar and fragments of charcoal was identified. This floor covered other layers (SUs 1046, 1080) with a circular posthole (SU 1077). The earlier of them (SU 1080) abuts on what has currently been identified as the destruction (SU 1083) of a wall (SU 1074 [fig. 38]). It consists of two rows of six mud bricks, has a N/NW-S/SE orientation and is located on the northwestern portion of the square. The bricks are made up of clay soil and very small rare river stones, lumps of mortar and small charcoal fragments. The visible length of the wall is 1.50 m, and its thickness is 46.5/47 cm. The dimensions of the bricks are c. 22 × 20 cm and the joints are between 1 and 2 cm. The core of the wall (c. 8 cm) is a mixture of sandy clay soil and small size pebbles, small lumps of mortar, and rare fragments of charcoal.

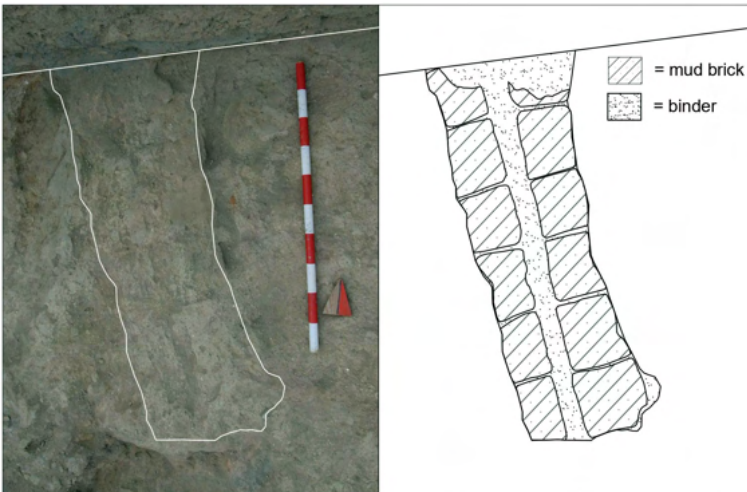


Figure 38 Detail of the mud brick wall SU 1074

Traces of two different and subsequent activities testify to the dismissal of this wall. First, it was horizontally erased (SU 1083), which means it was intentionally destroyed or flattened once it was in ruins. Then, a pit (SU 1072) was dug in its southern remains, in a chronological range set between the wall's erasure and the deposition of the walking surface SU 1047. More data about the chronology will be available in the next year's report, after the study of pottery from the filling of the hole SU 1073.

SU 1066, on the east side of the wall, is most likely another layer dumped to level the surface. Indeed, it was at the same depth (-1.00 m from the ground level of the northern section) as the erased wall

SU 1074, on which SU 1066 abutted. This latter layer was a mixture of soil and mud brick fragments and was laid on collapsed materials. At this level, it seems possible to identify one other walking surface (SUs 1066, 1069 [fig. 39]) that lay on the collapsed material of SUs 1074 and 1090 (see below). Indeed, on this surface a number of anthropic activities have been identified: a small compact floor (SU 1044) related to a big posthole (SU 1077, 34 × 30 × 47 cm); a dump pit (SU 1072 filled by SU 1073, with a remarkable presence of blue faience fragments); and fire traces in the southeastern portion of the square (SUs 1067, 1068, 1079).³¹

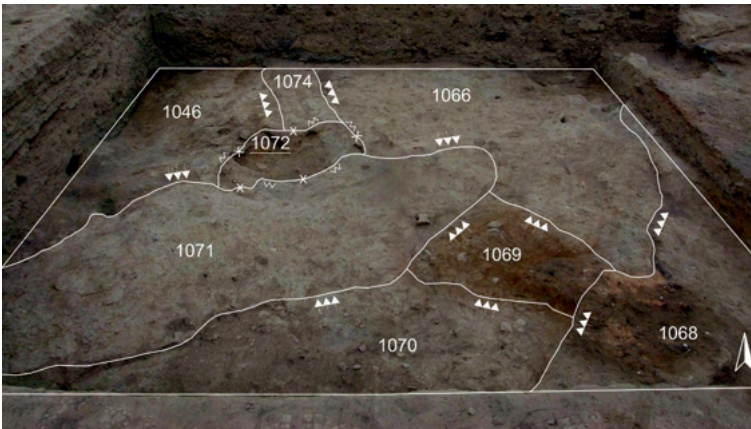


Figure 39 Sketch of phase 5 during excavation

As mentioned above, this surface is laid on collapse layers. Among these, in the northern portion of the square, SU 1088 is the latest layer, made up of incoherent soil with small and medium-sized stones and occasional fragments of bricks. This layer (oriented SW-NE) featured quite a sharp border on the northern side and a gradual one on the south. On the northern and southern portions of SU 1088, two different stratigraphic situations have been clearly exposed, testifying to the presence of some kind of structure below it. Indeed, even if only partially, a SW-NE-oriented wall (SU 1090) was unearthed. It is made up of clay soil, rare charcoal fragments and lumps of mortar. Contrary to SU 1074, SU 1090 does not contain bricks. More investigations have to be carried out, but it is possible to affirm that the wall

³¹ Concerning the layers with fire traces, it must be noted that SU 1079 is properly a transformation unit of SU 1082, whose colour and hardness was modified due to high temperature of fire.

was made according to a different technique, i.e. Adobe. These walls are perpendicular, but, at this moment, there is no direct physical relation between them because of the presence of the pit SU 1072.³²

It must be noted that on the southern border of SU 1090 there is a line of two rows of small- and medium-sized stones, vertically and horizontally arranged. This stones' alignment (SU 1093 [fig. 40]) is still covered by later layers and it is not possible to state if it is a restoration of SU 1090 or something else.



Figure 40 Detail of SU 1093

On the southern portion of the wall, there were two distinguished layers. Both of them are leaning against the wall itself. The latest one (SU 1084, located in all the southeastern portion of the area) was composed of friable soil and building materials (mortar, fragments of mud bricks). This collapse layer in turn covered SU 1091, composed of very friable sandy soil characterised by a notable amount of ash. In its cross-section, it is possible to recognise a micro-stratigraphy of smaller layers that clearly show traces of fire. It is noteworthy, although the layer was not completely removed, that its thickness considerably changes from north (5 cm) to south (30-40 cm), designing a remarkable drop that will be investigated in the next season. Burnt animal bones and, mainly, unglazed pottery fragments have been unearthed in this layer.

³² From a stratigraphic point of view, SU 1090 seems to be later than SU 1074, because the layer SU 1087 is under SU 1090 and abuts SU 1074. SU 1087 has only been identified and is partially covered by SU 1097; the stratigraphic relation between SU 1074 and SU 1090, therefore, will be verified in the next season.

Conversely, in the triangular area between the wall SUs 1090, 1074 and the northern section, under the levelled surface SU 1066, a thin layer of clay soil and collapsed mud bricks have been excavated. After its removal, a new layer (SU 1097) was uncovered. It shows features similar to the wall SU 1090. On the border of these, there are two bricks abutting the wall and a hole, suggesting that SU 1097 could be a collapse of SU 1090.

3.5 Area 1000: Materials and Artefacts

Elisa Pruno

During fieldwork in 2022, abundant quantities of pottery and animal bones were uncovered, as well as glass and metal, albeit to a lesser extent. During this mission, pottery, which is undoubtedly the most represented class of artefacts, was subjected to a qualitative analysis aimed at establishing technological classes and typologies, while quantitative analyses are still in progress.³³ First of all, a distinction was made according to technological classes: handmade, moulded, wheel-thrown, then glazed or unglazed, with a siliceous or clay body (the latter being rough, semi-coarse, coarse). In order to better understand the main phases identified in Area 1000, the anthropic assemblages derived from two different types of SUs were studied as a priority: the walking surfaces (SUs 1030, 1047 and 1052) and the fillings of the holes of various sizes cut in them (SUs 1032, 1039, 1041, 1043, 1048, 1051). In both types of SUs we remarked the presence of significant quantities of cooking, storage and tableware pottery with different fabrics. These are currently being archaeometrically analysed in order to identify the origin of the clay and, thus, to provide a plausible identification of the areas of its production. It must be emphasised that these typologies need to be studied in greater detail, as they are not specifically distinguished in the available literature (Abrahamyan is currently studying these types for his PhD Dissertation). When analysing the two walking surfaces (SUs 1030, stratigraphically more recent, and 1047 and 1052, older), the conspicuous presence of cooking and storage artefacts must be highlighted. Some storage fragments are decorated with red slip [fig. 44]. There are numerous metal tools and nails. Finally, the presence

33 We began the systematic work of inventorying and graphically and photographically documenting the materials from the 2022 excavation campaign. In the contexts analysed so far from Area 1000, there are 1272 fragments for 795 NMI.

of fragments of sphero-conical vases in SU 1030 should be noted (a master's thesis is currently being prepared at the University of Florence on the sphero-conical vases, based on those found in Dvin in the recent years). With regards to pottery of siliceous fabric, a fragment of lustre in SU 1047 [fig. 45] is noteworthy, dating to the twelfth-thirteenth century (HMA nos. 159-61, 163-5). Also important are the glass sticks in SU 1047 [fig. 46]. These are semi-finished products usually used for the production of small objects, jewellery and other glass work (Dussubieux, Gratuze 2013).³⁴ In the analysis of the hole fills (SUs 1032, 1039, 1041, 1043, 1048, 1051), the presence of unglazed pottery is once again predominant, although quantitative analyses are still in progress (a special case is SU 1048, where there is only one glazed fragment). There are transport and storage vessels, and cooking pots, which show a certain morphological variability (which can be used to try to establish typologies that can also be used chronologically for the site). There are also fragments of *karas* (SU 1032), red engobed storage jars (SUs 1039, thirteenth-fourteenth centuries; Babajanyan 2015, 194, pl. 19, n. 5), cooking pottery (SU 1043 [fig. 47]) and also *a stuoia* pottery [fig. 48]. As far as glazed pottery is concerned, the sporadic presence of siliceous fabrics has been documented, as well as two shards of lustre with possible Arabic lettering (SU 1039). Chronologically it goes between the eleventh-thirteenth centuries, and can be considered a residual sherd. A more conspicuous number of glazed, engobed and engraved ceramic fragments, currently chronologically placed in a wide horizon (eleventh-thirteenth centuries), has also come to light. In general, at this point in the analysis of the contexts excavated during the last mission, the function of Area 1000 can be attributed to domestic contexts, with traces of daily activity, which point to a chronological horizon compatible with the thirteenth-fourteenth centuries. The lack of specific studies on unglazed pottery makes it difficult, at present, to specify the chronology of the surfaces and the filling of the postholes, but the presence of red engobed artefacts, dated by Babajanyan to the thirteenth-fourteenth centuries, allows us to date the *post quem* formation of these floors to this period. As far as other possible activities are concerned, the presence of slag and semi-finished materials for the production of glass is noteworthy, as is the presence of the kiln cylinder with traces of glaze. Both are clear indications of pottery and glass kilns probably located in the vicinity of the excavation area.

34 Other glass sticks from Dvin are published in K'alant'aryan 2008 and it has been interpreted as a make-up stick. More recent research, like Dussubieux, Gratuze 2013, interpreted these as semi-finished products.

3.6 A First Interpretation and Final Remarks for Area 1000 Based on the 2022 Mission

Michele Nucciotti

To sum up, after the 2022 season, two different and consecutive walking surfaces (Phase 3 and 4) have been identified in Area 1000. In both cases, the presence of small wooden structures is suggested by postholes, and pits, used as dumps filled with soil and, mainly, unglazed cooking and conservation wares and butchered animal bones, denote the performance of domestic activities. According to this data, between the thirteenth and fourteenth centuries, domestic activities (butchery and cooking) were performed in open areas or in a space organised with temporary facilities. The abatement of urbanisation in this portion of the city, after the Mongol conquest (1236), has been already noted in the previous excavations. K'alant'aryan (1996, 85) records the presence of fragmentary *pauvres masures* (poor hovels) and Žamkoč'yan (2015) reports that Mongol-period layers with huts and dwellings of poor materials were uncharted in the South Tower area. Furthermore, she notices that some part of the defensive wall of the Citadel, once it had lost its function, were re-used and turned into suitable facilities for living.

At this point of the excavations, it is not yet possible to affirm if the spatial and functional configuration identified in Phases 3 and 4 in Area 1000 was common to the entire southern portion of the 'Lower Fortress' or not, though such an assumption seems plausible. An earlier stage (Phase 5) has to be identified in the flattening actions over the ruined materials. On this surface, there were traces of fire, one pit and the remains of a small compact floor related to a post-hole. Typology and chronology of these actions will be clarified after the analysis of the materials uncovered during the excavations.

All these surfaces are set on the ruins of an earlier building of which two walls (SUs 1074 and 1090) have been identified and that may relate to the urbanisation phase of the twelfth century. This hypothesis will be explored in the 2023 season.

More in general, the 2022 season provides a very interesting set of data with reference to the main objective of the stratigraphic revaluation of the Dvin excavations carried out by the Italian team. The data will contribute in particular to the detailed study of the stratigraphy in order to build a reliable stratigraphic sequence and to the definition of a global chronology of Dvin ceramics and in particular of the production of faience.

The 2022 season provides a very interesting set of data to be considered. Area 1000 excavation exposed occupation layers that, albeit mentioned in previous excavations, had not been thoroughly recorded in order to address the de-urbanisation/re-purposing period

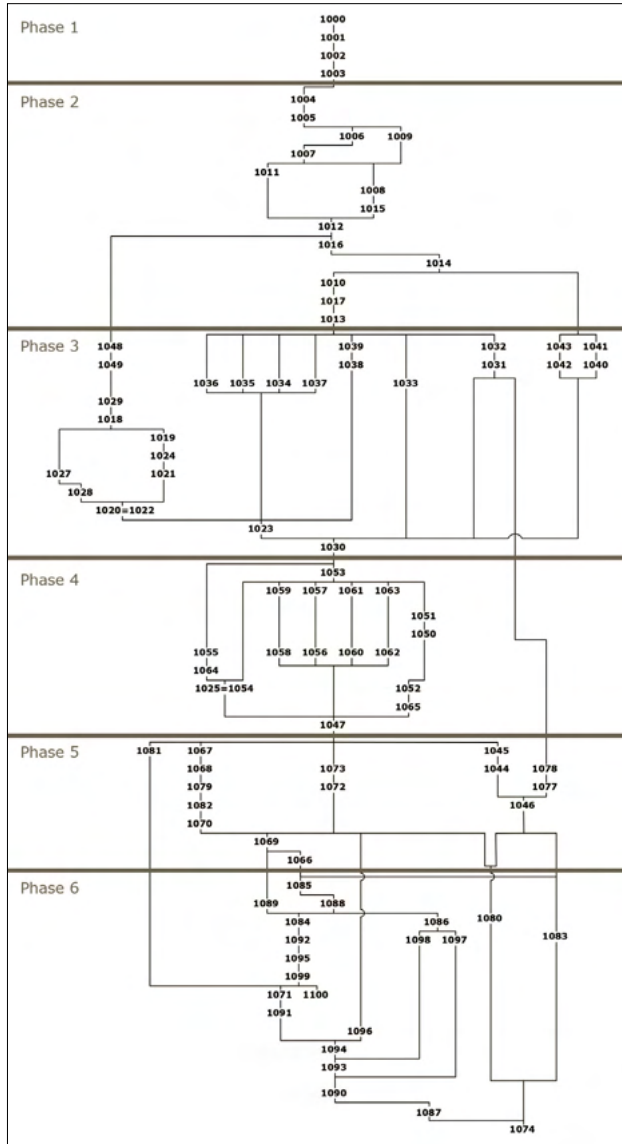


Figure 41 Area 1000 matrix after 2022 archaeological activities

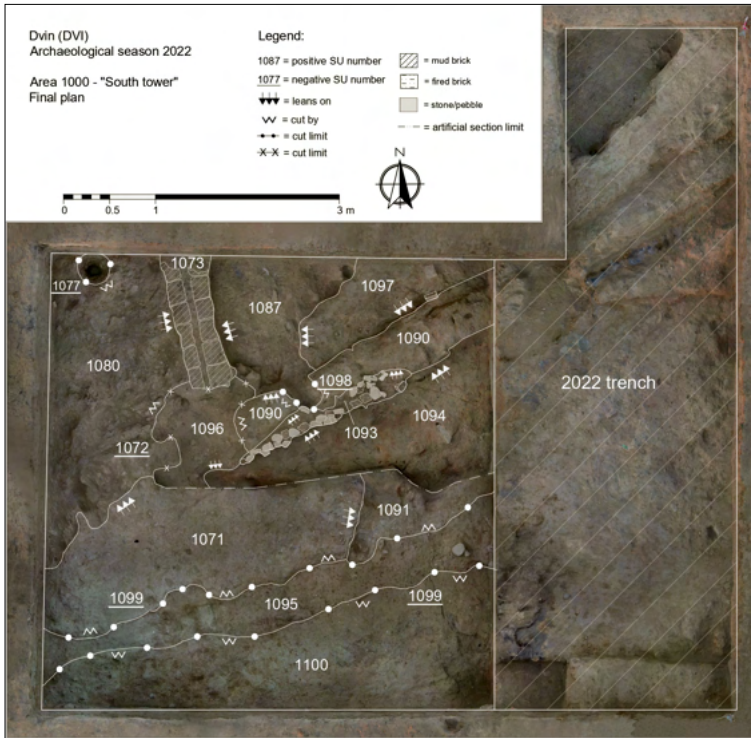
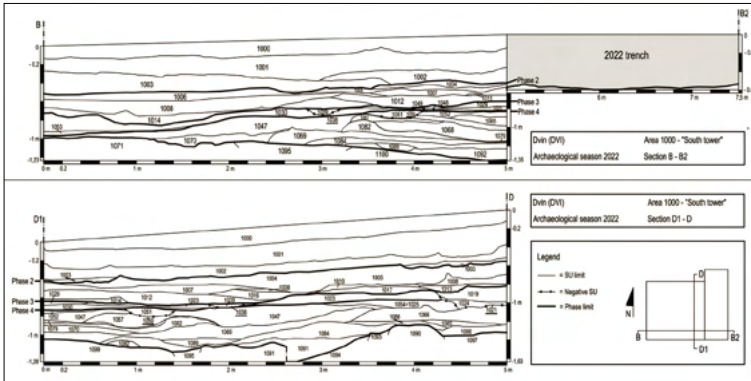


Figure 42 Area 1000 sections after 2022 archaeological activities

Figure 43 Area 1000, 2022 final plan

immediately preceding and/or overlapping the Mongol takeover of the settlement around 1236 CE.

From a methodological point of view, comparing the cross-sections of Area 1000 with the final section of the nearby South Tower excavation in 1980s (K'alant'aryan 2008), one cannot but note how micro-stratigraphic method is enhancing the comprehension of settlement phases not strictly anchored to permanent architectural structures.

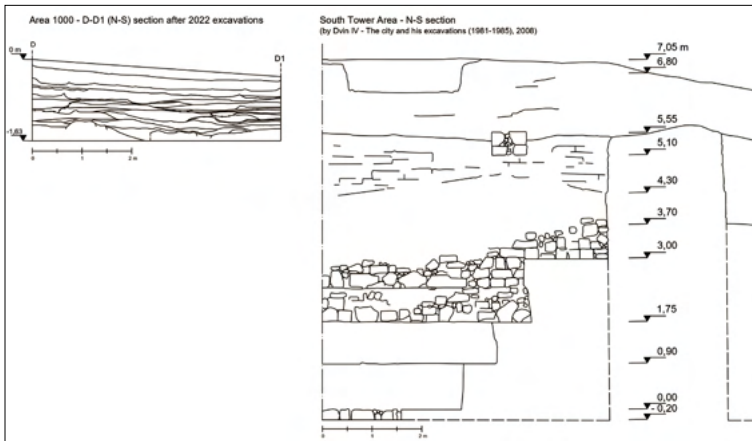


Figure 49 Comparison between Area 1000 micro-stratigraphical section and N-S section of South Tower excavations 1981-85

In short, the great wealth of semi-permanent and temporary installations witnessed by the presence of postholes, shallow cuts and similar features, have gone under-recorded (and only roughly interpreted) in previous archaeological research in Dvin, as more or less did walking surfaces of compacted earth.

Taking into consideration these elements, a new picture encompassing the late twelfth-thirteenth centuries is slowly coming into focus. Its main features include the abandonment and re-purposing of a once built urban environment that was initially established in the Seljuk period, whose main testimony are the ruined walls SU 1074 and 1090 in Phase 6. In a later time (Phase 5), we observe semi-permanent installations with assemblages of finds, including glazed pottery and fragments of making tools that point to production facilities in the area. Even later, in Phase 3, potentially into the Mongol period, the area's use changed again, showing signs of cooking facilities related to temporary (seasonal?) installations (SUs 1031, 1038, 1040, 1042, 1049) that may possibly be linked to the presence of nomadic-pastoral groups at work. In fact, such features show close similarities with post-Crusader phases recorded in Jordan during the decommissioning period of the south-moat at al-Wu'ayra Castle (Vannini,

Tonghini 1997, 377-8, fn. 35), due to the seasonal use of the site by Bedouins and pastoral nomadic communities. On such a basis, with reference to the historical context of the thirteenth and fourteenth centuries, it is not ungrounded to hypothesise the presence of nomadic or semi-nomadic groups, possibly connected to military elites. Indeed, as it has been observed in other Asian cities, semi-nomadic populations, such as the Mongols in the thirteenth century, used to reserve a belt around the Citadel or the central palace and the walls for light constructions or tent dwellings.³⁵ Further excavations in the area will confirm or update this interpretation.

4 Exploratory Excavations of the Area of the Future Building of the Dvin Museum

Hamlet Petrosyan, Hamazasp Abrahamyan

In 2022, ahead of the construction of the future building of the museum and archaeological site on the territory of the Dvin archaeological site, exploratory excavations were carried out south of the city Citadel, on the right side of the Hnaberd-Upper Artashat intercommunal road [fig. 50.3]. The expedition proposed this area considering that in the Middle Ages, the waters of the two main moats protecting the city mixed here, and the presence of cultural layers is less likely. After locating the area of the future building, a 10-metre-long and 2-metre-wide exploration trench was placed in its central part [fig. 24], whose excavation led to the following results.

The first or upper layer is dark gray earth up to 0.3-0.9 m deep, where fragments of early Iron Age pottery, medieval pottery (including ninth-thirteenth century glaze) and glass [fig. 51] were confirmed along with fragments of modern artefacts.

Next, the second layer (depth about 0.3-0.9/1.3 m) is also dark gray. A small amount of simple and glazed pottery (mainly from the twelfth-thirteenth century) and glass also came out of this layer [fig. 52]. There are also more than a dozen small rough stones, brick fragments, bones, etc.

The third layer starts from the southeastern side of the trench at a depth of 0.9 m and continues to the north-west for 7 metres, ending at a depth of 1.3 m [fig. 53]. The soil is black in colour, with a high content of sand and gravel, which resembles water sediment. The planar level of the upper horizontal border of the layer also resembles

35 Peacock says that “Seljuks sultans and their retinues could live in tents even when they were in Baghdad”, around the palace complex in eastern Baghdad, an area with abundant gardens (2015, 169). On this topic, see also Durand-Guédy 2011.

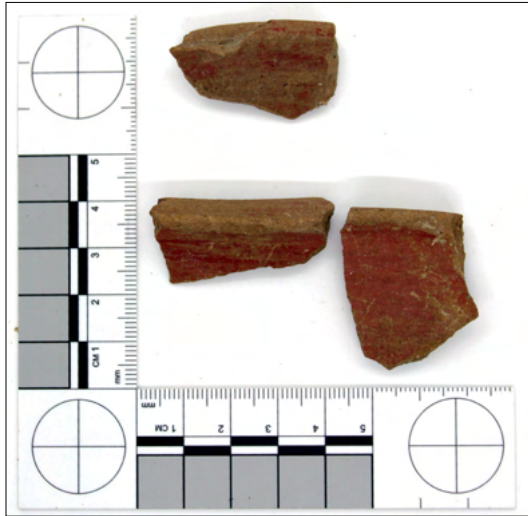


Figure 44
Red painted
pottery fragment
(Nr. Inv. 47, SU 1047)



Figure 45
Fragment of lustre (Nr. Inv.
109, SU 1047)



Figure 46
A fragment of glass stick
(Nr. Inv. 156, SU 1047)



Figure 47
Cooking pot sherds (Nr. Inv. 512,
SU 1043)



Figure 48
Fragment of pottery with
a *stuoia* decoration
(Nr. Inv. 179, SU 1052)

a water deposit. There is a large amount of medieval simple and glazed pottery in the layer, including fragments of tripod, and early medieval pottery [fig. 54]. There are also glass and metal fragments, bones, etc. Most likely, they got here with the flow of water. Most of the finds are burned.

The lower, fourth layer of the trench starts at a depth of 1.40 m in the southeastern part, and 0.9 m in the northwestern part. It is pure clay, brown, quite solid compared to the previous layers. The layer is dominated by simple early medieval pottery; there are also fragments of ninth century glazed pottery, glass, bricks, metal, slag, mortar [fig. 55]. In contrast to the previous layers, here we have fixed situations: brick wall, floor, parts of raw brick, poured mortar, trampled floor with ash parts, complete objects [figs 56-57]. In the southeastern part of the trench, at a depth of 1.9 m, a brick wall transversely running across it was opened. And in the northwestern part, at a depth of 2.0-2.1 metres, the brick floor with four bricks was confirmed. The floor probably continues north-west and east of the excavation site. A 0.2 m deep trodden floor was opened from the brick floor. A thin layer of ash was preserved in some parts of the floor, and two bricks were used in one part.

On the last day of the archaeological work, the intact objects were removed and the excavation site was covered, with the expectation of continuing the work next year.

Considering the presence of such a rich construction and artefacts at the junction of the moats, it is likely that the combined waters of the moats flowed further north from here, or that the moats were built after the ninth century.



Figure 50 General view of the third site after excavation

Figure 51 The findings of the first layer of the third site



Figure 52 The findings of the second layer of the third site

Figure 53 Fourth, the beginning of the clay layer



Figure 54 The findings of the third layer of the third site

Figure 55 Stratigraphic section in the trench of the third site



Figure 56 Remains of structures and objects of the seventh-ninth centuries in the fourth age of the third site

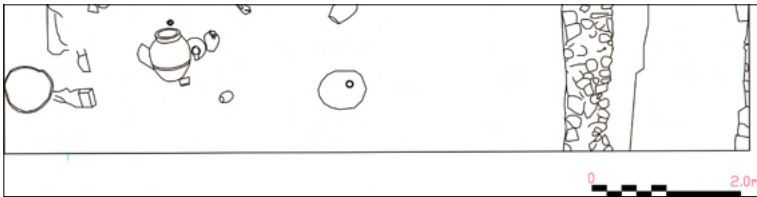


Figure 57 Plan of the fourth layer of the third site

4.1 The Findings

In addition to the fragments of inter-temporal artefacts found in the upper three layers of the trench, nine complete or nearly complete objects were found in the fourth layer of the lower trench. The first is an almost complete urn with handle at a depth of 190 cm. In the center section, the urn has a six-grooved rim. The other complementary object is the reddish jar. It has a thin braided border on its body and another border on the lip. It is located at a depth of 210 cm, lying horizontally. The third is a single handle jug, which is located directly next to the reddish jar, in a standing position, 220 cm deep. The jug has a two-groove rim. Right next to the previous jug, at the same depth, lies another jug of smaller dimensions. The handle and the lip of the jug are missing.

The fifth complete object is a single handle lamp, located 220 cm deep under the lip of a reddish urn on the ground. The next

fragmentary object is a single jar, which was also found on the trampled floor. The seventh is a single pitcher, again at a depth of 220 cm. Only the lip part of the jug is missing, which has a single rim. The other is also a single-handled pitcher, with a combed rim, again from a depth of 220 cm. In order to bring out the last single-handled pitcher, we opened a depth of up to 240 cm in that area. The finds have many parallels with materials from previous excavations in Dvin, and are generally dated to the seventh-ninth centuries.

5 The Archaeometrical Results of the First Campaign Analysis of Dvin

Jan Petřík, Karel Slavíček

We analysed 42 ceramic samples [fig. 58], which were chosen according to the following main discriminants: glazed/unglazed pottery; samples from excavations conducted in the past; samples from the 2021 Armenian-Italian mission.

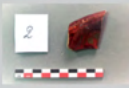


FIRST GROUP							
N°	Item description	Year	Source	Material	Site	Dating Proposal	Bibliography
1. (P-287)	 Glazed-ware fragment - spoilage	1984		Clay / glaze	Al-S	11-12 th c. or	IMA #42 or
2. (P-292)	 Glazed-ware fragment	1984		Faience	9-9-23	11-12 th c. or	CE MOJRA 2014
3.	 Mercury vessel fragment 12-13 c.			Clay	Ostadei	12-13 th c.	
4.	 Firing tool 12-13 c.	2021		Clay	Market		
5. (25/9)	 Fragment of lid	2009		Clay	Ostadei		
6.	 Fragment of jar	2009		Clay	Ostadei		

Figure 58
Archaeometry

In general, our main objectives will be to identify the areas of origin of the raw materials of both ceramic bodies and ceramic coatings (both glassy and coloured), as well as to outline the technological characteristics of the different productions. To achieve these objectives we will need further analysis campaigns; at the moment, we can only begin to define some guidelines for future research.

We have used two different methodologies: Scanning Electron Microscopy (SEM) with Energy-Dispersive X-Ray Spectroscopy (EDXS) for glaze analysis; Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) for ceramic paste analysis. So far, the glazes were classified into three main categories based on their composition: Pb rich glaze; Pb poor glaze; alkaline.

With regard to the use of colorants, we observed the use of Cu and Fe as colorants in Pb rich glazes, while low Pb and alkaline glazes were more variable in colorants. Low Pb glazes were coloured not only by Cu and Fe combination, but also Cu, Fe and possibly Ag. Only one sample is a cobalt blue. Alkaline glazes were coloured by a combination of Cu, Fe, and other elements such as Mn, S, and Ag [fig. 59]. Several samples belonging to all categories were tin opacified. One unique sample (36) was found to be painted with cobalt blue, white, and goldish yellow, where the metallic appearance was achieved by the use of Ag and Cu. Samples 27 and 28 were classified as lead-barium glazes, while a low lead tin opacified glaze with silver content was observed in one sample.

The majority of alkaline glazes corresponded to natron/soda, with only one evidence of plant ash. The ceramic paste analysis revealed two possible clusters of production, which could be associated with different time periods. The provenance of the pottery raw material may have changed around the turn of the tenth to eleventh century, as indicated by this study [fig. 60]. The occurrence of individual imports was also noted, based on the overlapping of the chemical composition of reference samples from other production centres distributed across the Middle East.³⁶

36 For Mesopotamia, especially Southern Iran: Hill 2006; Hill et al. 2007; for Mesopotamia, especially Iraq: Petřík et al. 2020.

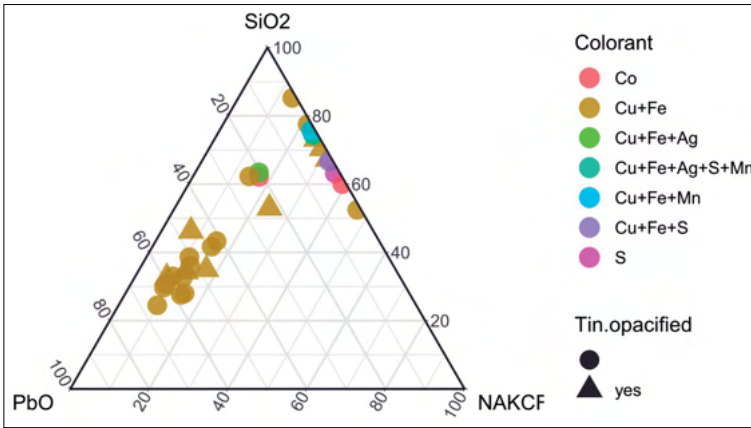


Figure 59 Archaeometry

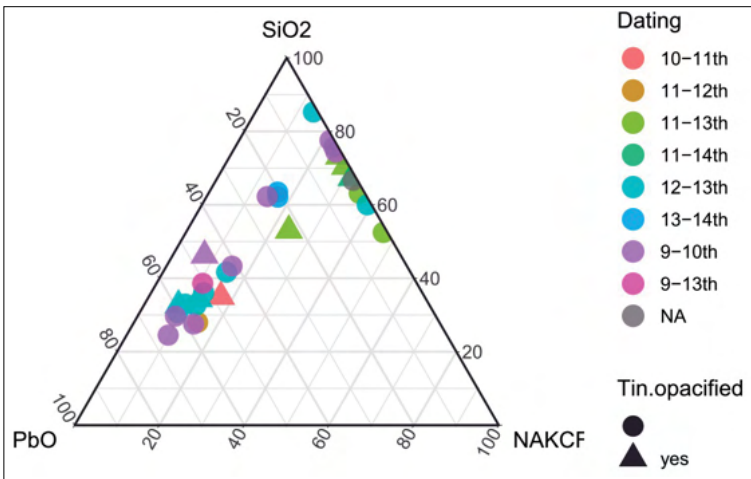


Figure 60 Archaeometry

This first part of archaeological research on Dvin pottery shows us that the analysed assemblage of glazed pottery consists of both lead and alkaline types. More specifically, most samples belong to high lead glazes, some of them are tin-opacified, mostly coloured with copper. There is also one low lead tin-opacified sample and one tin-opacified lustre painted ware with silver content. Alkaline glazes correspond mostly to natron/soda with only one evidence of plant ash. Heterogeneity and technological variability of glazes correspond with the chemical variability of ceramic pastes determined by laser

ablation. Provenance determination, as well as a comparison of ceramic pastes with already discovered pottery production centres will be part of future research. Obtained results will be associated with archaeological contexts and assessed also from a diachronic point of view.

6 Conclusions

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As a result of the 2022 excavations of the Dvin Market, its construction process can be seen much more clearly. It is possible to single out the first phase of the creation and operation of the initial structure, the fifth-seventh centuries, which in turn had sub-phases of repair or transformation, which are not chronologically distinguished yet. In the second phase, probably during the tenth-eleventh centuries, the tower-shaped building was built, which, according to the available data, only partially included the original structure. In the third stage, the whole structure or its dominant part was included in the brick wall.

At the site of the future Dvin Museum, taking into account the presence of the cultural layer of the seventh-ninth centuries, the presence of structures and a large number of complete objects in it, the continuation of the brick floor and the wall beyond the boundaries of the exploration trench, the expedition proposed to introduce a new component into the project, which implies the complete excavation of the building area and its (or partial spectacular parts) inclusion in the future museum as an underground glass-enclosed exhibition. The environment and material are rich, and so are the expectations. We believe that the implementation of such a project will be unique in the practice of restoration of archaeological monuments in Armenia, and will significantly contribute to increasing the tourist attraction of Dvin.

More in general, the collaboration of the Armenian and Italian teams in the re-starting of archaeological investigation in this key historical site is contributing, with a multi-vocal approach, to deepening our knowledge and enhancing the interpretative narratives regarding medieval Dvin. The cross-application of methodologies related to stratigraphy/micro-stratigraphy, ceramic/production-consumption studies, interpretative models and re-viewing of historical sources (this last aspect with a specific contribution from the ERC Project ArmEn, led by Zaroui Pogossian), are bringing about novel questions to be addressed through the incredible documentary potential of the site. In conclusion, the project directors, on behalf of the Institute of Archeology and Ethnography of the National Academy

of Sciences of the Republic of Armenia and of the University of Florence SAGAS Department, wish to thank Dvin's research supporting institutions for the possibility to carry out such challenging Armenian-Italian undertaking, with a particular emphasis for the Italian Ministry of Foreign Affairs and Italian Embassy in Armenia, ERC Consolidator Grant "ArmEn - Armenia Entangled: Connectivity and Cultural Encounters in Medieval Eurasia Ninth-Fourteenth Centuries" and Fondation Max van Berchem.

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